Types of Monitors – Active, Passive, In-Ears

Stage monitors come in all different types and sizes, and there are lots to choose from. The two categories of stage monitors are "Active and Passive." Both have their advantages and disadvantages and, of course, differ in price. The monitors pictured below are wedge-shaped (referred to as "stage wedges"). Wedges are designed to angle up toward the vocalist or musician and are usually "low profile" to avoid interfering with the audience's view. Monitor placement is also "crucial" with controlling feedback.

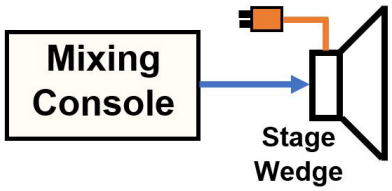
Stage Monitor Speakers (Active - Powered)

Courtesy of Electro-Voice

Electro-Voice PXM-12MP

Built-In Amplifier - 700 Watts

Active stage monitors (wedges) have built-in Power Amplifiers, and some also have a DSP. This type of all-in-one unit makes it an excellent option to set up your system quickly and with less equipment. Active monitors need a line-level signal source from the mixing board, and AC Power run to them (refer to the diagram below). The sound quality and dynamic range of active monitors is typically better than Passive types, and they can achieve a very high sound output (Amplifier rating is 700 Watts).



Typical Active Set Up

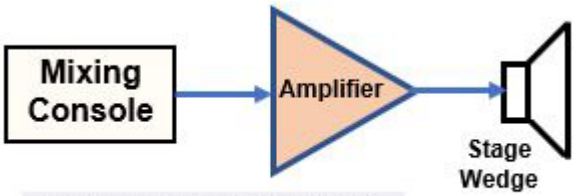
Stage Monitor Speakers (Passive / Non-Powered)

Electro-Voice TX1122FM

Courtesy of Electro-Voice

The EV TX1122FM "Passive" stage monitor delivers a full-range sound from a 12" woofer and 1-1/4" titanium high-frequency compression driver with a constant-directivity 90°H x 50°V horn. Includes Neutrik speakON paralleled pass-through connectors, and 500W continuous and 2000W peak power handling capability.

Passive stage monitors (wedges) need a power amplifier in order to function. Passive-type stage monitors are less expensive than Active types, but once you add the cost of the amplifier, they could cost more. Passive stage monitors are a common choice for larger theaters and venues that have installed sound systems. They are also easier to troubleshoot and repair than Active types. Stage monitor placement is critical for controlling feedback.



Typical Passive Set Up

<u>Troubleshooting Stage Speakers / Monitors</u>: Active speakers and monitors are easier to set up than Passive types, but Passive speakers and monitors are easier to troubleshoot than Active types. Here's why. Let's say your Passive speaker stops working – You can quickly troubleshoot it (the issue could be the signal, the amp, a cable, or the speaker has failed). You can quickly replace or fix any of those issues by accessing the different parts and pieces. But, if your Active speaker stops working (the problem could be the signal, cable, or speaker). If it's the Active speaker - you can't fix it quickly since it's a combo unit (the amplifier, crossover, and processors are all built-in and hard to access). If you troubleshoot an Active speaker cabinet and find that the internal amplifier or the speaker is the issue, how will you fix it? You will have to send the unit out for repair or order a part and fix it yourself (which could be time consuming and expensive).

Monitor Speakers (In-Ear Monitors)

Although wedge-type monitors are still the standard "go-to" stage monitor, another very good option exists. In-Ear monitoring is becoming the more popular choice for performers. This is mainly due to the fact that In-Ear systems don't "Feedback." Wedge monitors are notorious for that annoying screeching sound that can damage human hearing and equipment. With In-Ear monitoring – it's "impossible" for feedback to occur since the earphones are "isolated" in the performer's ears. Only the performer can hear what's being played in the earphones – without any noise or background sounds to distract them. Another great feature is that there is usually a volume control on the bodypack that the performer can adjust easily whenever needed. The only setback is that the cost of a good In-Ear system can be pretty high.

Shure Model SE215

The Shure SE215 Professional Sound Isolating™ Earphones

Courtesy of Shure

The Shure SE215 Earphones provide clear sound and deep bass through a single, high-definition driver. Discrete, secure design includes a detachable cable with wire form to keep earphones in place and cables out of the way. Sound Isolating technology blocks up to 37 dB of outside noise. Includes a "Fit Kit" with a selection of sleeves for custom fit.

The Shure PSM®300 Stereo Personal Monitor System (shown below) is a reliable wireless monitor system that ensures the clearest sound, ultra-low noise and no artifacts. It's very dependable wireless range of coverage extends to over 300 feet (90 meters), and eliminates dropouts. This system is extremely easy to setup and operate. These PSM300 systems offer one-touch frequency scans and sync to find and assign clean wireless channels with ease.

Shure Model PSM®300

Courtesy of Shure

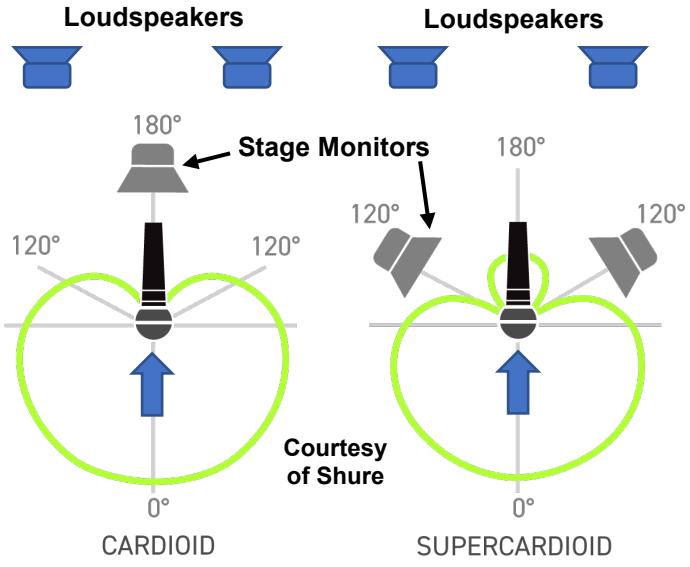
Stage Monitor Speaker Placement

Monitor placement is one of those things that always seems to be neglected when setting up for live performances. Sometimes you can throw monitors on stage in front of the microphones, and all is well, but sometimes this strategy causes feedback. Monitor placement should be "Standard Practice."

1. **Keep the microphone as close to the singer or musician as possible.**
2. **You must be aware of the stage monitor placement in relation to the technical specifications of the microphone you are using in order to get the best sound "rejection" possible (see diagram below).**
3. **Avoid Feedback – Keep the microphone pointed away from the stage monitors and well behind the Main PA Loudspeakers.**

Place the microphone so that unwanted sound sources, such as stage monitors and loudspeakers, are directly behind the rear of the mic (connector side). Always test microphone placement before performances to minimize feedback and ensure optimum rejection of unwanted sound.

Feedback will occur when amplified sound from any stage monitor or loudspeaker re-enters the sound system through an open microphone and is amplified again.



Courtesy of Shure

Important Monitor Placement Note:

A Supercardioid microphone has the greatest sound rejection at points 120° toward the rear of the microphone. Place the stage monitors at these angles (see diagram) and not directly behind the microphone (as you would for a Cardioid microphone). To minimize feedback and ensure optimum rejection of unwanted sound, check the manufacturer's specifications to locate the microphone's sound rejection point(s).