

Worship Workshop 2016: Glossary of Audio Terms

General Terms

PA system - abbreviation for "public address system". A PA system is a sound system that is used to amplify the volume of voices and/or instruments so they can better be heard by a group of people (e.g., a church congregation).

Mixing - the act of creating a balance of the voices and instruments that come through the PA system so that the sound in the room is pleasing to the listening audience.

Audio Engineer - the person who controls the PA system.

Mixer - the device that is used to control the PA system. Other terms synonymous with "mixer" are "mixing board", "board", "mixing console", and "mixing desk".

Digital Mixer - a type of mixer that uses digital (i.e. computer-based) signal processing to control the sound system. From the audio engineer's perspective, the primary difference between a digital and analog mixer is this: on an analog mixer, each channel has separate knobs for all of the controls. On a digital mixer, with a few exceptions (channel fader, mute button, etc.) the channels share a common set of controls, and you simply use the Select button to choose the channel, and then make the adjustments to the controls for that selected channel. The Behringer X32 is a digital mixer.

Analog Mixer - a non-digital mixer. See "digital mixer" above. Before purchasing the X32, we were using an analog mixer (the Allen & Heath Zed 24).

Mains - the speakers that face the audience or congregation.

Monitors - the speakers that face the performers on the stage and allow them to hear themselves (voices and instruments).

IEM - abbreviation for In Ear Monitors. An IEM system uses isolation earbuds instead of a floor monitor speaker and generally allows a musician to control their own custom monitor mix in their ears. IEM systems help to reduce stage volume (because there are fewer speakers on the stage) and protect the musicians hearing.

Controls on the Mixer

Channel Strip - a group of controls (knobs, faders, switches, etc.) that operates a single channel of the mixer.

Gain/Trim - sets the initial input level of the signal being fed to the channel strip.

Pad - this switch reduces the level of a signal to keep it from overloading the input on the mixer to which it is connected. This switch should generally only be engaged on really loud sources such as drums, where the signal from the mic is exceptionally strong.

Low Cut - this special EQ switch cuts any audio below a particular frequency, which helps to reduce any low-end rumble from coming through the PA system. On an analog board, this frequency will typically be fixed at maybe 100 Hz. On a digital board, the frequency is

Worship Workshop 2016: Glossary of Audio Terms

usually adjustable, so you can set a higher/lower cutoff point depending on the specific instrument or voice.

EQ - abbreviation for "equalizer". The EQ controls are used to help shape the tone of the channel in the mix. On an analog board, these knobs are not unlike the EQ controls on a home or car stereo. The "Hi" knob boosts or cuts the high (treble) frequencies, the "Mid" knob boosts/cuts the middle frequencies, and the "Low" knob boosts or cuts the low (bass) frequencies.

Parametric EQ - on some digital consoles (such as the X32), a parametric EQ is available on each channel. A parametric EQ gives you greater control than the standard "3-knob EQ" found on most analog mixers, in that it allows to choose the specific frequency, the amount of boost/cut, and the Q-factor (width of the boost/cut) that is being applied.

Pan - "panorama" control. This determines the ratio of the channel that is sent to the Left and Right Main Buses/Outputs of the mixer. Panning things from left to right can help a mix to seem less crowded or dense, because the elements are spread out from left to right instead of being at full volume in both the left and right channels.

Fader - a sliding control on a mixer that is typically used to adjust a channel's volume level in the sound system.

Effects - some kind of processing that is applied to an audio signal to manipulate the sound (e.g. reverb, echo, delay, chorus, etc.).

Effect Processor - a device that controls the type of effect and various parameters associated with an effect. An effects processor can be a real physical device (e.g., a rack-mounted reverb unit in an analog system) or a virtual effect processor (a virtual "plug-in" effect that is built into a digital mixer).

Bank - a grouping of channels on a digital mixer. For example, the Behringer X32 is a 32-channel mixer that is arranged in two banks of 16 faders each ($16+16=32$). Other 32-channel mixers might only have 8 faders with 4 banks ($8+8+8+8=32$).

Bus - a bus is a pathway for signals to flow through the mixer. On the X32, there are 16 buses which can be freely assigned as aux sends (for internal or external effects), monitor sends, or subgroups.

Aux Send - a pathway through which signals are routed to apply an effect to them. The effected audio is then mixed back in with the original signals in the Main LR mix and/or Monitor mixes.

Subgroup - a subgroup is a post-fader pathway for signals to flow that is typically routed to the main LR mix. A subgroup allows multiple channels to be routed through it, and can serve as a sort of "group master" for multiple individual channels. For example, you could create a Drums Subgroup to which all of the drum mics (kick, snare, toms, overheads, etc.) would be assigned. That Drums Subgroup would basically serve as a "master fader" for the

Worship Workshop 2016: Glossary of Audio Terms

drums, because boosting or cutting that fader would control the level of all of the drum mics that have been assigned to it.

Talkback - a microphone that allows the audio engineer to communicate with the performers on stage. The X32 has a built-in talkback mic, or you can plug in an external handheld mic to use as the talkback mic.