

MIXER APPLICATIONS SECTION

At Mackie, we've designed our mixers to fit a wide range of applications. In this section, we'll show you some potential applications for each of our models, together with typical hookup diagrams. The following "how to do it knob-by-knob" descriptions will be helpful if you're a beginner. Some applications highlight unique features of specific Mackie mixers. You'll find them worth reading.

Generalities and Substitutions

Many of the hookups and applications in this section are applicable to any mixer, as long as you have enough inputs and outputs, so if you don't see a particular application described for your mixer, see if there's a similar one for another model. It'll get you started.

While you may not have (or need) every component on the hookup diagram that most closely matches your application, you can apply these general principles. There are also a lot of neat tricks spread throughout this section that can be applied to mixers other than the ones we describe. We suggest that you keep this section in your "general reading" file and, as you have a little spare time, work your way through all the applications.

We occasionally refer to models generically to avoid awkwardly long shopping lists – 1202 by itself applies to the 1202-VLZ PRO, 1202-VLZ, and in most cases the original MS1202. Onyx series refers to any of the Onyx mixers.

Recorders

Our diagrams show a variety of recording devices - stereo and multitrack, analog and digital, tape and disk. Used to be in the old analog days that a recorder had an input and an output for every track. Today we have computer audio interfaces (that's the two-dollar word for "sound card") that have, for example, two inputs and eight outputs, or vice versa.

When you only need to record one or two tracks at a time, but want to use your mixer to mix your tracks, a 2-in 8-out audio interface is a money and space saver. If you want to capture all the mics in your live show on individual tracks, then use the signal processing and mixing capabilities of your computer workstation for mixdown. An 8- or 16-in, 2-out audio

interface is a good choice – in fact we offer one as an option for our Onyx series mixers.

When it comes to the two-track mixdown recorder, we scatter DAT and cassette decks around our diagrams with reckless abandon, but there's no reason you can't mix to a computer with a sound card, a stand-alone CD recorder, or analog reel-to-reel.

Similarly, wherever you see a cassette or CD player as a playback source, you can substitute any stereo source like an MP3 player.

Operating Levels and Impedance

With the exception of instrument pickups, loudspeakers, and the occasional vintage signal processor salvaged from a broadcast studio, there's little reason to worry about impedance matching when making connections between units. What deserves some attention, however, is matching of operating levels and recognizing the impact of differences.

For many years there have been two de facto standards for output voltage and input sensitivity that fall under the broad classification of "pro" and "semi-pro." They usually use different types of connectors, but that's just a physical thing. What's important to understand is that a "pro" input may require more signal voltage than a "semi-pro" output is capable of delivering. Mackie mixers are designed to cover the full range of operating levels, but sometimes you have to turn the knobs off their unity gain positions in order to match up with other equipment. There's nothing wrong with that; it's why we put them there.

One thing that you should recognize in this era of digital audio workstations (DAW) is that their (as well as Mackie's own HDR24/96 hard disk recorder) graphic waveform displays put a whole lot of dynamic range into a relatively narrow band of screen real estate. Many people have the impression that they are recording at much too low a level when the peaks only reach half the width of the track.

When the display looks like this, the peak level is only 6 dB below maximum level. It's perfectly OK. You needn't worry that the mixer output is "too weak" for your recorder or sound card.



Loudspeakers

Traditionally, speakers are passive devices, requiring an external power amplifier. The PPM series mixers have power amplifiers built in, but you'll need power to drive speakers from any of our other mixers.

Active (powered) loudspeakers with built-in amplifiers are becoming mighty popular. Mackie makes some of the best, both for studio monitoring and sound reinforcement. It's a great idea – designing and building an amplifier and speaker as an integral unit assures ideal matching between those two components. The length of wire connecting the two, where most power loss in a sound system occurs, is absolutely minimized. Powered speakers also save space and make hookup easier. When you see a hookup diagram showing a speaker with an amplifier between it and the mixer, you can always substitute a powered speaker.

We're often asked if you can use your home stereo system for monitoring and playback in your studio. Sure you can – just connect the mixer output (as shown on the diagram) to a Line Input on your stereo.



Beware, though, that the music you listen to at home usually has very well controlled dynamic range and frequency response, whereas your own recordings, at least during the tracking process, may not be so well constrained. It's easy to blow a home stereo speaker when playing back a mix at fairly high volume. Don't say we didn't warn you.

Direct Outputs, here and there, then and now

Many of the following recording applications involve using DIRECT OUTPUTS or INSERT Sends to feed a recorder. As we pointed out in the Mixer Anatomy overview, there are different degrees of “direct,” —the most direct being straight out of the microphone preamp, and the least direct coming after the equalizer and fader. Why is this thus? Can't this company standardize on one configuration?

The answer lies in how the recording process has evolved over the years. Understand that Mackie has been making mixers for over fifteen years, and that spans three or four generations of recording technology.

Back when 4- and 8-track recording was about as multi as most of us could afford, we couldn't postpone as many decisions until mixdown time as we can

today. You had to keep in mind what the final mix was going to sound like as you were tracking, and that often meant applying equalization to the track as it was going to the recorder, and sometimes even riding the fader while the track was going down. This made a post-EQ, post-fader direct output desirable – you could get equalization and gain riding on the track without going through the main guts of the mixer.

Fast forward a few generations, and it's customary today to record tracks with no equalization because we tend to work with so many tracks that we don't know how they'll fit together until we decide it's final mix time. So you'll find that our newer mixers like the Onyx have more direct recording outputs, while our older ones models like the 1604-VLZ PRO stick with the design philosophy that was current for their generation.

Hooking It All Up

The following sections contain a motley assortment of applications with enough hints and hookups to get you started. These are by no means the only way to accomplish a goal, but using these suggestions as a starting point, you'll be able to hear some sound and explore other possibilities and variations.

Unless you connect your mixer to the wrong power line voltage or do something like connecting a microphone to a power amplifier output, you won't blow anything up. The worst that will happen is that you won't hear what you expected.

Don't be afraid to experiment, and until you get very comfortable with all the gozintas and gozoutas, take notes and draw your own diagrams of the connections that work for you, so that you can always get back to normal after you've changed something. Engineering is all about adapting and interconnecting your equipment to get a certain task accomplished. You have a good start with the mixer you've purchased. Use it intelligently and it won't let you down.

Now get out those cables and start plugging things in.