

Connector Conundrums

Here at Tracer we often get questions dealing with connectors. In many cases, it's something simple like, how do I connect my new Audiophile 192, which uses 1/4" jacks, to my set of speakers, which uses a 1/8" plug.

This is, of course, a simple matter of getting the right adapter connectors. Other times, we get questions about using balanced connectors. So we thought this might be a good time to have a bit of discussion on connectors and adapters in general.

First, a connector is designed to do one thing - it allows you to connect some wires together. Take your speakers, for example. You could cut off the connector on the end of your speaker and solder the wires directly to the outputs of your amplifier. This would work fine, but you'd have to get out your soldering iron whenever you wanted to "unplug" your speakers.

In the case of speakers, connectors are frequently Two Conductor - meaning they have two wires they are connecting; a ground and a signal wire. Some connectors connect three wires together such as the 1/8" stereo connector on your ipod-style headphones. In this case, we have two signal wires (left and right) and ground. Three wire connectors are great for stereo audio signals.

As you might guess, even though a 1/8" stereo male plug is commonly used with ipod headphones, you could really use ANY type of connector that had the ability to connect three wires. You could use a 1/4" plug or an XLR plug or any kind of connector that has three (or more) connections. We use 1/8" plugs in this case for no electrical reason - it's simply that they are small (like the headphones themselves), light, and cheap. Thus, a 1/8" plug has become the defacto "standard" for headphones, sound cards, MP3 players, etc. simply because of convention - nothing else.

Sometimes people ask if we have "balanced connectors" on our preamps. The answer goes back to the fact that a connector simply makes it convenient to hook some number of wires together and so there is no such thing as a "balanced" connector. A connector may connect balanced signals, but that's just the signals that are on the wires. The connector doesn't know or care what kinds of signals it carries.

So here's a list of common connectors that you may run into in audio projects. We give you our editorial comment on each one. But remember, any connector could be used and adapting from one format to another is a normal and expected thing to do.

1/8" stereo phone plug - this is the type on your MP3 player or entry level soundcard. They can connect two (mono) or three (stereo) wires. You can tell if they are stereo in that they will have two black bands near the tip. Most audiophiles don't like this type of plug. Electrically, it's OK, but the wires are usually thin and it's easy for this type of plug or jack to become intermittent with use.

1/4" stereo phone plug - exactly like the 1/8" above, but twice as large. A much older standard and a good one. A very rugged connector designed to withstand tough musician beer drinking and stepping on cables. Used on high end soundcard and pro audio equipment. May be two or three conductor and can carry balanced signals such as with our Audiophile 192 soundcard. Easy to plug and unplug even with one hand.

RCA Plug - The most common type of connector for home stereo equipment. Two conductors only - one ground and one signal. This is why you need two of them for stereo. Very long lasting but requires two hands to plug and unplug.

XLR plug - commonly used for balanced connections and for microphones. The most expensive plug in this list and can be built like a tank. Offers mechanical locking so it can't be unplugged accidentally. Always a three conductor plug with a fourth ground connection possible. Commonly used for pro audio balanced connections - one per channel of audio. In the case of microphones, one conductor carries power supply voltage to the microphone - called phantom power.

Adapters - So there are four common types of audio connectors we may run into. Remember that each has a male and a female variant so we really have 8 types. We may need to adapt from any of these to any other. Adapters are commonly available and Tracer carries them with the ability to convert from anything to anything on this list.

Gold plugs - A thin coating on a connector of pure gold. Is it worth it? Considering that a Gold connectors only cost 3 or 4 dollars more than a non-Gold one, you know there can't be much gold on them. Some people think that gold is a better conductor and that more electrons will manage to pour thru a connector if it has a gold coating. This is really not true in any hearable manner, but gold does have one fairly big advantage - it does not corrode over time the way other metals do. Therefore you'll have a connector that will likely last a LONG time - as long as constant plugging and unplugging doesn't wear off the gold!