

## Connecting your codec to a computer sound card

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We have been getting calls from users who, for one reason or another, need to connect the audio inputs and outputs of our codecs to computer sound cards. So we thought we'd outline some of the technical details here.

All sound cards are not equal, but most are similar. They typically receive and send audio over three conductor 1/8" mini plugs and jacks. These are stereo connectors as shown in Figure 1. Since sound cards will usually work from a power supply of 5 volts, audio levels are almost always lower than those used for professional applications.

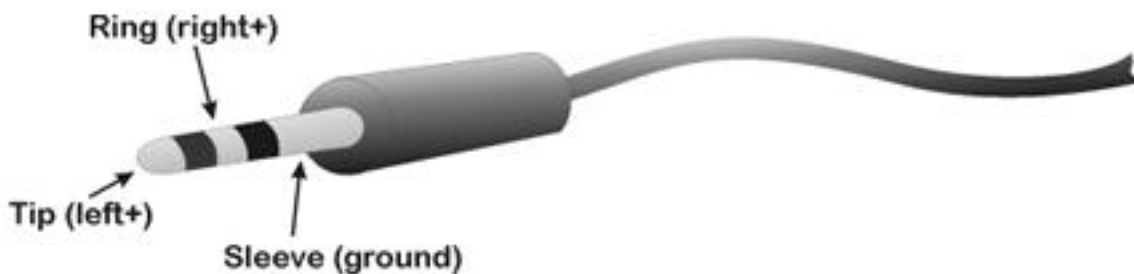


Figure 1 - Stereo 1/8" Mini Plug

Most sound cards have two different input jacks: one for line level inputs and one for connections to a microphone. Under most circumstances, noise levels will be lower if you use the "line" level inputs. Many sound cards also have a pair of stereo outputs: one for powered speakers and another for unpowered speakers or headphones. Both of these outputs are usually OK, but there may be slightly less distortion on the "powered speaker" output.

Keep in mind that while most of our codecs are mono, computers by nature handle stereo audio. So either connect only to one input and output (making sure the same side is chosen in each case) or convert the codec mono signal to stereo using a special cable. It's often more straightforward to run recording and playing software when both computer audio channels are used.

For sound card inputs, simply parallel the mono codec output into both the left and right side of the input jack. For sound card outputs, you'll need to add some resistors to your cable to avoid damaging the sound card. This is shown in Figure 2.



Figure 2 - Converting Sound Card Stereo Output to Mono

Another source of potential incompatibility is that our codecs (and most professional audio products) have balanced audio ins and outs, while sound cards are unbalanced. Converting codec inputs to unbalanced is straightforward and shown in Figure 3.

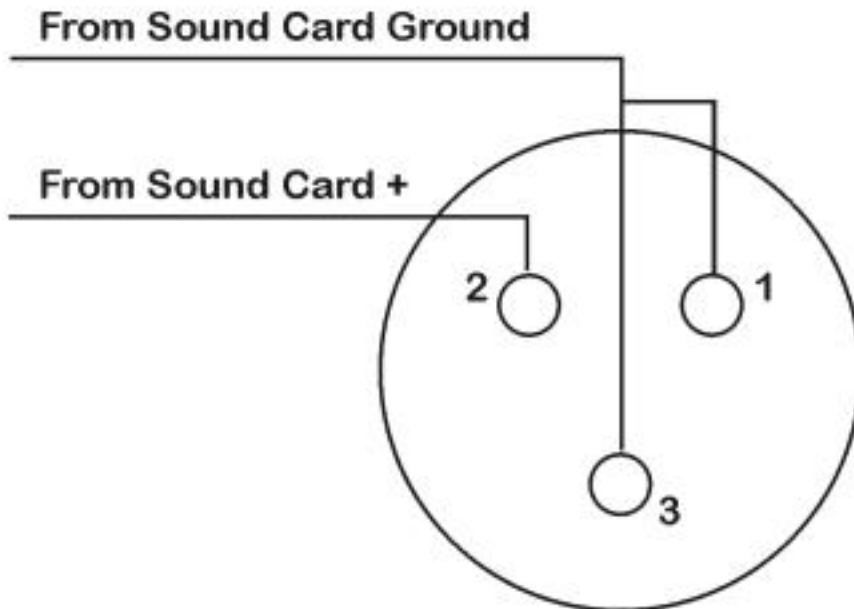


Figure 3 - Sound Sound Card Out to Comrex Audio In

Luckily, Comrex gear uses special balanced driver circuitry on audio outputs, so a similar scheme (Figure 4) works for converting codec outputs from balanced to unbalanced.

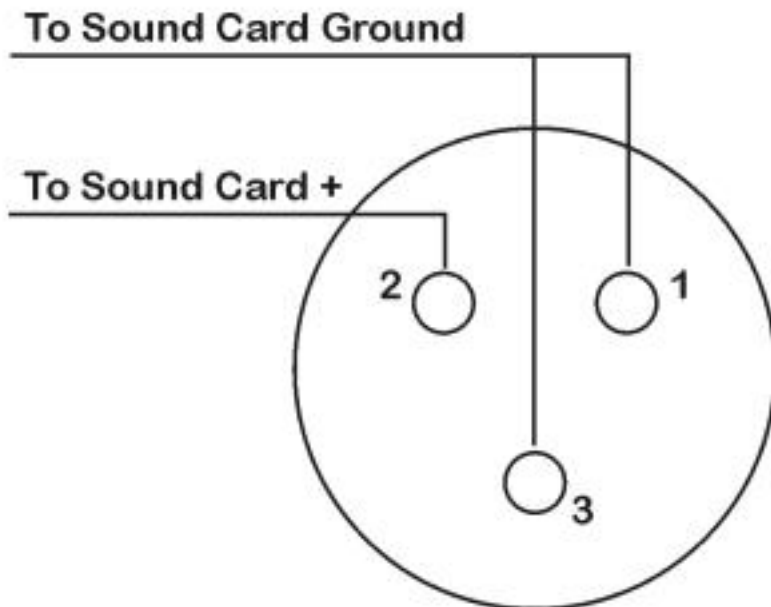


Figure 4 - Comrex Audio Out to Sound Card In

If “hums” or “buzzes” develop in audio paths due to these hookups, you may need to examine how your equipment is connected to earth ground and to each other. In extreme cases, isolation transformers may be necessary on these audio connections.

Finally, you’ll need to do a little work adjusting levels between codecs and computers. Computer outputs should be set all the way up (usually via the “volume control” utility) and then adjusted via the codec input control for a reasonable level. Always connect to “line” level inputs on the codec. Keep in mind, several software packages may be adjusting the computer audio input and output level at the same time, so check the setting of all programs that are running. Codec outputs should be set rather low to start, then increased to a maximum setting without distortion. Gear with fixed output levels should be set to the “-10 dBu” setting. Set the record level in software to a “mid-level” setting when making these adjustments.