

Universal Computer Sound Card Attenuator Cable

This cable assembly addresses three issues frequently encountered in connecting radio receive audio to computer sound cards when operating “sound card” software.

- 1) Audio must go into the mic jack of a sound card because the sound system lacks a “line-level” input. Audio levels at the radio headphone jack, speaker jack, or mini-DIN data connector are far higher than the mic input sensitivity of the sound card, causing the mic input to overload.
- 2) Radio speaker jacks are usually 2-conductor jacks while headphone jacks are often 3-conductor “stereo” jacks. If the tip and ring of a 3-cond plug are simply wired in parallel, the ring will often be grounded if inserted into a 2-conductor jack. The result is that all audio is shorted to ground. This cable wiring will accommodate either two- or three-conductor jacks on the radio.
- 3) Although computer sound system mic inputs use 3-conductor “stereo” jacks, the input is actually single channel (monophonic). The other contact is used to power active amplified mics, and carries 3-5 volts DC. Most of the time (but not always) the tip carries DC while the ring carries the audio signal. This cable will work regardless of which contact is audio.

The 10K resistors on the tip and ring input form a 10:1 voltage divider with the 1K resistor to ground/common. The 2.2K resistors form a second approx 5:1 voltage divider with the typical 500 ohm input impedance of the computer mic input. The two attenuators in series result in a total attenuation of about 50:1.

The mic jack contact with DC on it sees a resistance of about 3.2K (the combination of one of the 2.2K resistors and the 1K resistor) to ground which limits any DC current flow to a harmless 1.6 mA max

The actual cable assembly was made by cutting a 3.5mm-to-3.5mm stereo patch cord apart in the middle, inserting the resistor network, and then covering the assembly with heat-shrinkable tubing.

