

# AUDIO CONNECTORS

Another familiar connector group are those used for audio-visual applications—RCA and phono. While these can't truly be considered to be of the same family, as the various USB connectors are, we'll consider both of them to be in the same vein.

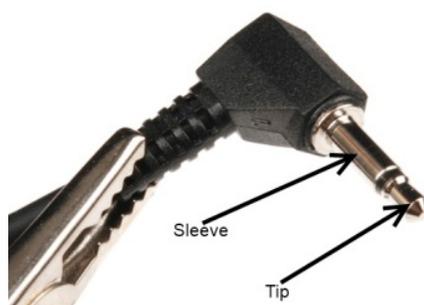
## “Phone” Type Connectors

You'll probably immediately recognize the 1/8" version of this connector as a the plug on the end of a pair of headphones. These connectors actually come in three common sizes: 1/4" (6.35mm), 1/8" (3.5mm), and 2.5mm. 1/4" size connectors find a lot of use in the professional audio and music community- most electric guitars and amplifiers have 1/4" tip-sleeve (TS) jacks on them. 1/8" tip-ring-sleeve (TRS) is very common as the connector for headphones or audio output signals on MP3 players or computers. Some cell phones will provide a 2.5mm tip-ring-ring-sleeve (TRRS) jack for connecting to headphones that also include a microphone for hands-free communications.

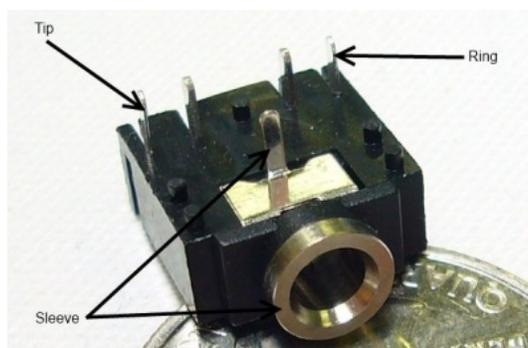
The common availability of these connectors and cables makes them a good candidate for general purpose connectivity applications—for instance, long before USB, [Texas Instruments graphing calculators](#) used a 2.5mm TRS connector for a serial programming connector. It should be remembered that tip-sleeve connector types are not designed for carrying power; during insertion, the tip and the sleeve can be momentarily shorted together, which may damage the power supply. The lack of shielding makes them poor candidates for high-speed data, but low speed serial data can be passed through these connectors.



*Headphone-type TRS phone plug, 1/8". Typically, tip and ring will carry the stereo audio signals while sleeve will be connected to ground.*



*1/8" phone plug. Note the lack of a ring contact on this connector.*

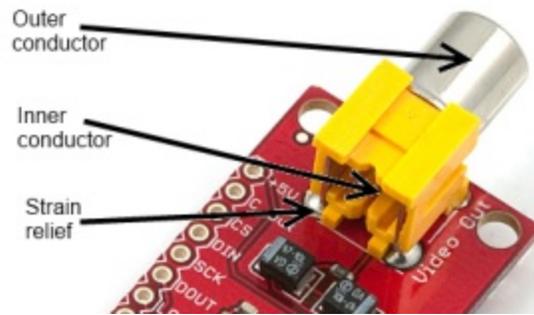


*1/8" board mount headphone jack with pins corresponding pin connections labeled. When no jack is inserted, an internal switch connects the tip and ring pins to the adjacent unmarked pins, allowing insertion detection.*

## RCA Connectors

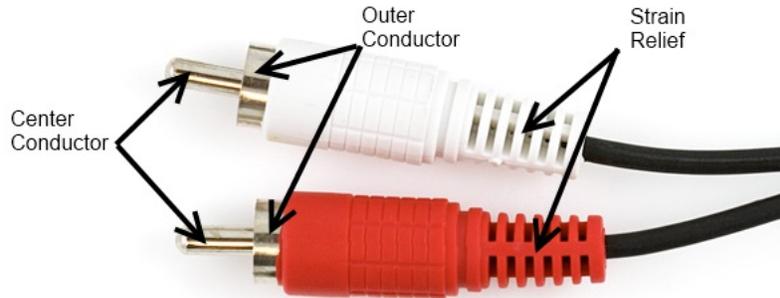
Familiar as the home-stereo connector of choice for many decades, the RCA connector was introduced in the 1940s by RCA for home phonographs. It is slowly being supplanted by connections like HDMI in the audio-visual realm, but the ubiquity of the connectors and cables makes it a good candidate for home-built systems. It will be a long time before it is obsolete.

Female RCA connectors are usually found on devices, although it is possible to find extension or conversion cables with female jacks on them. Most RCA connectors are connected to one of four types of signals: component video (PAL or NTSC, depending on where the equipment was sold), composite video, stereo audio, or S/PDIF audio.



*Female RCA connector*, for video signals. Typically, NTSC or PAL video signal connectors will be yellow.

Male RCA connectors are usually found on cables.



*Male RCA plugs*. Red and white are usually for audio applications, with red denoting the “right” audio channel.

Source : <https://learn.sparkfun.com/tutorials/connector-basics#audio-connectors>