

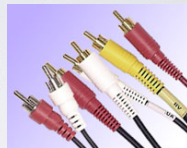
CABLES AND CONNECTORS

SOURCE/LOAD

- When you connect two devices, one is the **Source** and one is the **Load**.
- **Source** - The device that puts out a signal.
- **Load** - The receiving device.

Cables and Connectors

- A basic job skill in the audio and video production industry is being able to identify the common cable and connector types.



4 Basic Cable Types:

Straight Pair



Twisted Pair



Coax



Fiber Optic



THE ANALOG CONNECTION

1/4 inch **Analog Plugs**

- **Mono/TS** - Tip Sleeve. Sends signal through only one channel. Instrument cords (Unbalanced) and speaker cords. Can carry more current (power). Keep under 12 feet and away from power conductors.
- **Stereo/TRS**- Tip Ring Sleeve. Signal has two portions, right and left channel. Right channel usually wired to the ring. Left channel usually connected to the tip. The shield is usually wired to the sleeve.
- These are **Twisted Pairs**

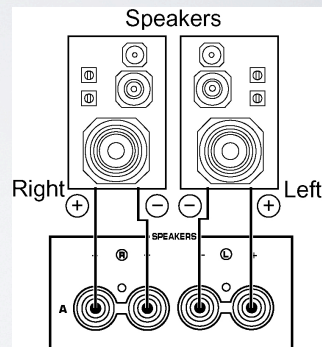
BALANCED CABLES

- **Balanced Cables** - A balanced cord will not create noise. Two signals are sent, one is out of phase with the other (180 degrees opposite). The **waveforms** are flipped and added to the other, when this happens, any noise built up is cancelled out.

Straight Pair Cable:



Speaker Cable

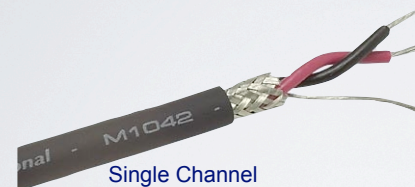


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Twisted Pair Cable:



Microphone Cable



Single Channel



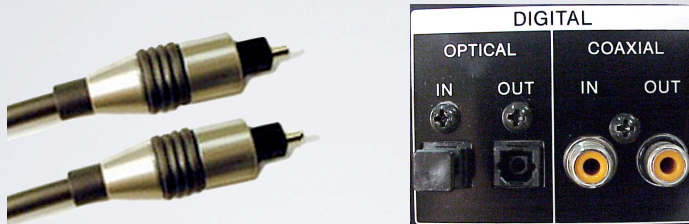
Multiple Channel Cable

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Fiber Optic Cables:



Optical Digital Audio Cable



Analog In	Analog in
Optical In	Optical digital in
Coaxial In	Coaxial digital in

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Connector Types:

Video



Audio



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Connector Gender Notes:

A MALE connector is also referred to as a PLUG.

“MALE” = “PLUGS”

A FEMALE connector is also referred to as a JACK.

“FEMALE” = “JACKS”

These words are interchangeable.

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Video Connectors: RCA

RCA Male



RCA Female



The **RCA** connector is used for amateur and **“Prosumer”** video signals. The RCA is also used in audio. Used for **Unbalanced** signals. Keep runs short.

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Video Adapters:

An **adapter** is a small two sided connector that converts one type of connector to another. They are also referred to as “Inter-series adapters”.

RCA Female to BNC Male Adapter



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Video Adapters:

RCA Male to S-Video Female Adapter



Some adapters actually convert one signal type into something else. This adapter converts a “Y/C” signal into a “composite” video signal.

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Video Adapters:

RCA Female **Barrel** (or Gender Changer)



There are numerous **Adapters** and Gender Changers.

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Audio Connectors: RCA

RCA Male



The **RCA** connector is used for line level audio signals. The RCA is also used for consumer video. Also called **Phono** plugs.

RCA Female



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Audio Connectors: 1/4" Mono

1/4" Male
Mono



1/4" Female
Mono



The 1/4" connector is used for headphones, microphones, and other signals. The mono version is also called "TS" for "Tip/Sleeve".

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Audio Connectors: 1/4" Stereo

1/4" Male
Stereo



1/4" Female
Stereo



The 1/4" (Quarter Inch) connector is used for headphones, microphones, and other signals. The stereo version is also called "TRS" for "Tip/Ring/Sleeve".

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Audio Connectors: XLR

XLR Male



XLR Female



The XLR connector is primarily used for professional microphones and balanced microphone level signals. The locking mechanism helps make good electrical connections.

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XLR

XLR Male



XLR Female



- XLR audio cables are also **balanced**, thus reducing noise. They can be used as a line level cable from balanced in/outs. They can also run long distances without losing signal. **One end is male, one female.** Most microphones use XLR inputs.

Audio Connectors: 1/8" Mini's

Mini Male Stereo



Mini Female Stereo



Mini Male Mono



Mini Female Mono



The 1/8" (one eighth Inch) connector, or **Mini**, is used for headphones, consumer microphones, and other signals.

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Audio Adapters:

Again, an adapter is a small two sided connector that converts one type of connector to another.

XLR Female to TRS (1/4" stereo) Male Adapter



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Audio Adapters:

RCA Female to TS (1/4" mono) Male Adapter

There are numerous Adapters and Gender Changers.



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Audio Adapters:

1/4" Male to XLR Female Impedance Matching Transformer



Some adapters actually convert one signal type into something else. This adapter converts a **Balanced Low Impedance** audio signal to an **Unbalanced High Impedance** audio signal. This lets you use a professional microphone with consumer microphone inputs.

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COMBO JACK



- Combo Jack will accommodate both XLR and 1/4"