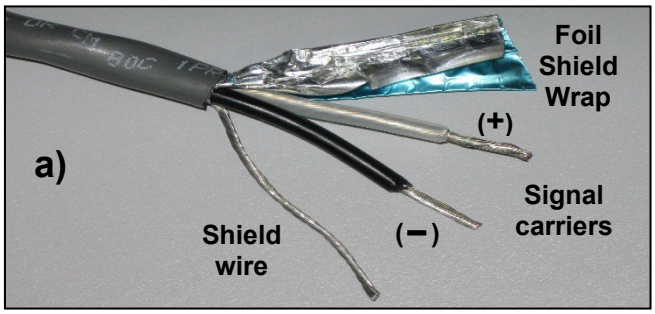
Audio Cable Types – Shielded / Unshielded – What's the Difference?

a) Shielded Cables (3-wire) are mainly used for "Balanced" connections. Shielded cables carry low-power signals and are very susceptible to noise and interference. The foil shield wrap and shield wires protect these low-power signals from unwanted noise and interference. Main Connectors – 1/4" TRS, XLR, 1/8" TRS

b) Shielded (2-wire) are mainly used for "Unbalanced" connections. Main Connectors – RCA, 1/8" TS

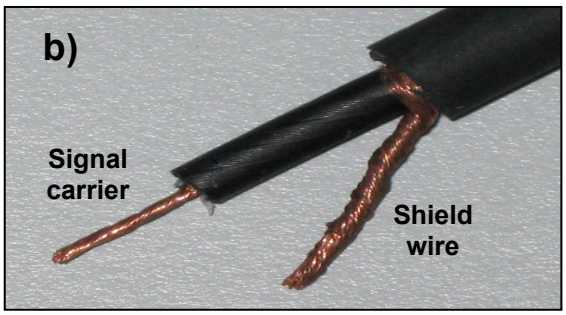
c) Unshielded Twisted Pair Cables (2-wire) are mainly used for high-power outputs (amplifiers, speakers). Unshielded Twisted Pair Cable is commonly used for speaker cables. The wires inside the jacket are "twisted" (wound around each other) for the purpose of canceling out EMI (electromagnetic interference) caused by external sources. Any leftover noise and interference still present on the line will be at a very low level and gets "buried" under the higher output levels of the amplifier (basically, any low-power noise that jumps on a high-power speaker line will not be heard). Main Connectors – speakON, Banana, Spade Terminals / Lugs.

Shielded Cable (3-Wire)



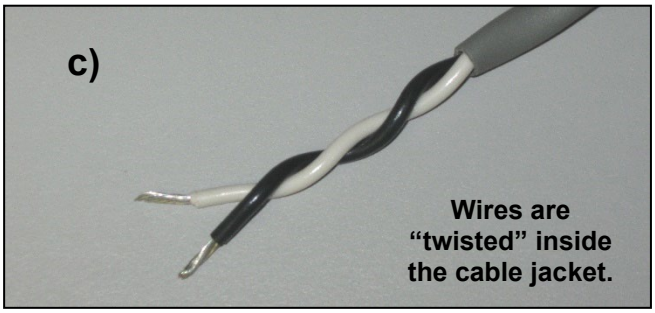
3-Wire Shielded Cables – There are 2 wires that carry the signal, and 1 wire is used for the shield. There is also a foil shield around the wires to help protect from EMI (electromagnetic interference), static, noise spikes. *Used for Balanced connections (mainly microphone cables, patch cables, etc.)

Shielded Cable (2-Wire)



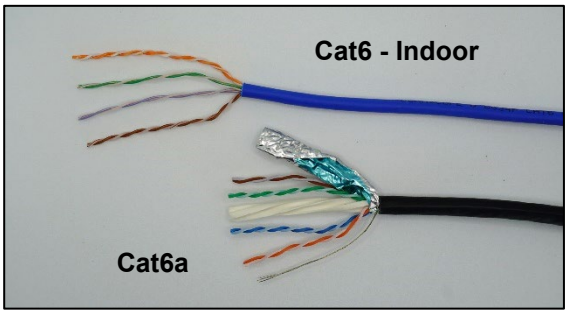
2-Wire Shielded Cables – There is 1 wire that carries the signal, and 1 wire is used for the shield. Usually the shield wire is "Braided" and wrapped around the signal carrier (center wire). Used for Unbalanced connections such as Guitar / Bass Guitar cables, RCA, 1/8" TS type cables.

Unshielded Twisted Pair Cable (2-Wire)



2-Wire Unshielded Cables – Both wires are signal carriers (one negative, one positive). The cable shown above is a "twisted pair" speaker cable. The twisted wires inside the cable jacket also help to eliminate "Cross Talk" in certain situations – such as multiple cables that have been run in a single conduit. Commonly used for speaker cables. * Note: Balanced and Unbalanced does not apply to the high-powered signals that speaker wires carry.

Ethernet Twisted Pair – Cat6 / Cat6a



Ethernet Cables are widely used in Ethernet based audio networks (called Audio over Ethernet – AoE for short), and allows high fidelity audio signals to travel over longer distances, while exhibiting low latency (delay). Ethernet cables consist of 4 individual twisted pairs. One Ethernet cable can replace a multi-cable Analog Snake cable when used with Digital Snakes).

There are many manufacturers and brands of cable on the market today. Make sure to check the gauge and specifications when purchasing cable in bulk (large reels). When buying a guitar or speaker cable from a music store, make sure to choose a high-quality cable built to last. Buying cheaper cables will only cost you more in the long run. Always select the correct cable for the application that it is intended to be used for.