# How To Guide

# Audio cables

- **What sort of cable do I need?**
- **Can I make the cable as long as I like?**
- **What else do I need?**
- **How do I join up the ends?**

If you are joining two pieces of audio or musical equipment together, or two audio PCB's, or wiring controls to an audio circuit, you need a special screened audio cable to keep the signal in and any unwanted interference out.

The most common interference is caused by the electrical field radiated by the 230 Volt AC mains supply. Every mains cable, inside your walls or leading from the socket on the wall to anything you plug in will transmit a 50Hz hum that will be picked up by any lead connected to sensitive audio circuits in amplifiers.

Audio cables are simply a wire or wires that are protected by an outer layer or shield of woven or twisted wire or foil that picks up the unwanted hum before it reaches your audio signal, and earths it harmlessly away.

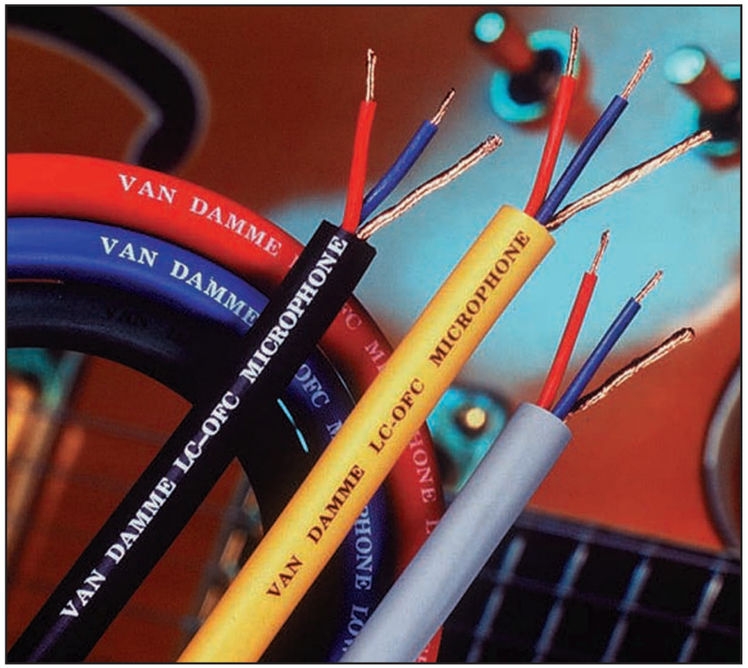
As you will see if you browse your Maplin catalogue, there are many different types of audio screened cable and although all of them provide protection against hum, some are more suited to particular jobs than others.

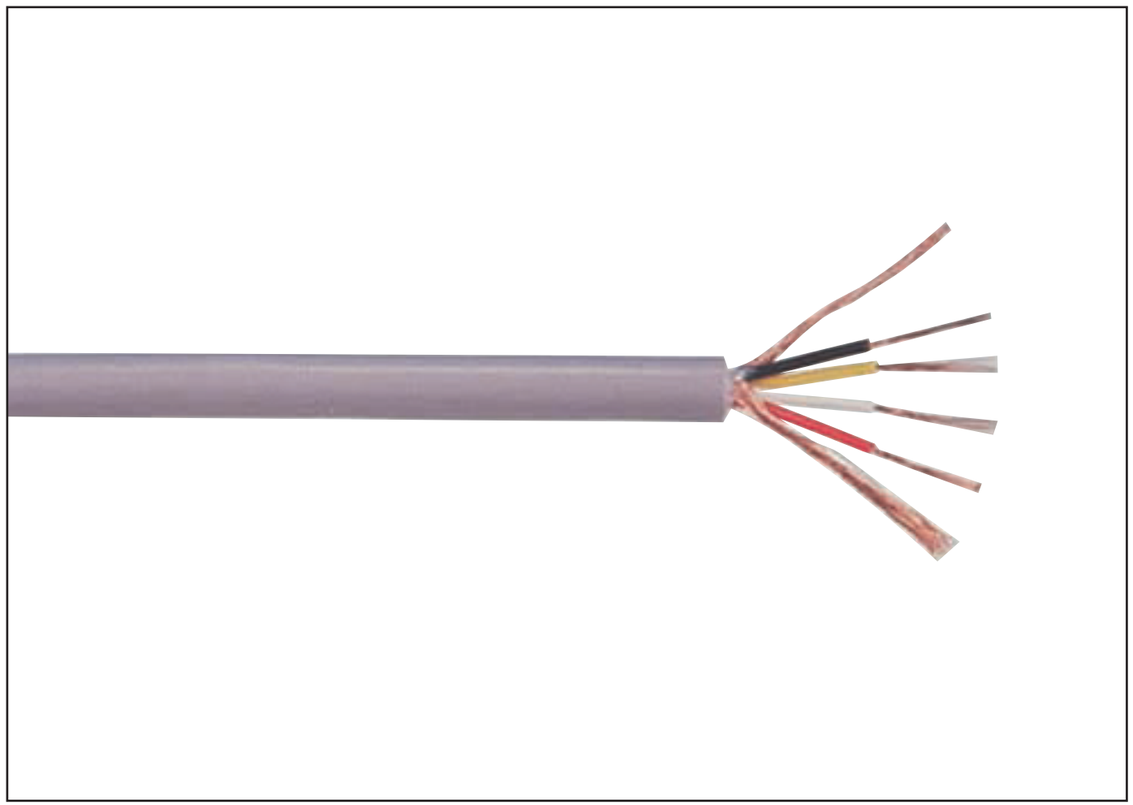
If you are wiring up simple audio amplifiers to small loudspeakers, for an intercom or something similar, hi-fi quality is probably not important. There are a number of inexpensive, thin audio cables that are perfect for these applications, particularly if the cable run is inside metal cased equipment or is only over very short external runs.

Single core lapped screen cables like XR15R or XR12N provide a good degree of protection in budget conscious and speech quality equipment, and will carry a single channel or mono signal across short runs very effectively.

Mono connections in high quality audio circuits require a better cable, with thicker central conductors for lower resistance, and much more substantial woven screen layers surrounding them. These high grade cables (XS24B, XS38R and FN74R) have much lower capacitance between inner conductor and outer screen, which means that the high frequency crispness of a signal is much better preserved, as well as providing a very high degree of screening of unwanted external signals. They are also much more rugged than the thinner lapped core cables and much harder wearing in use.

If only the best is good enough, you may choose to use XS56L, a cable with a pure silver central conductor for the minimum of resistance and a silver plated screen layer for excellent protection from hum and other interference. The cable to core capacitance of this cable is also exceptionally low, meaning that your signal will be connected between equipment with total clarity. Note that you must use special silver solder (DP52G) to connect this cable at each end.



The choice for stereo connections, especially where quality and preservation of the original signal is important, is a little more confusing at first glance. In addition to the signal carrying capabilities of the cable, it may be necessary to consider crosstalk, where signal from one channel bleeds over to the adjacent core, reducing channel separation.

The use of two cables would obviously reduce this to a minimum, but this is usually a rather inelegant solution and leads to twisted or bunched cable runs. As with the mono cables, there is an entry level lap screened twin figure of eight cable (XR21X) that is ideal for cost conscious projects and non critical circuits.

There are also some twin overall lapped screen cables (XR20W and XS23A) for applications where crosstalk is not important, with a compact oval profile.

For high fidelity stereo use, XS93B is a good choice, although discerning listeners may prefer to use the double screened Oxygen free copper braided pair XS39N. Again, there is a silver alternative (EL13P) for those for whom clarity and perfect signal transfer is the ultimate priority.

In the latest Maplin catalogue, you will also find specialised screened audio cables for microphones (XR90X, XR08J, XR98G, ETC), where flexibility, colour coding and provision for the special conditions for professional balanced microphones are catered for, as well as some four way screened cables for multi-channel applications (XR92A and XS95D).