

Loop Wire Selection Guide

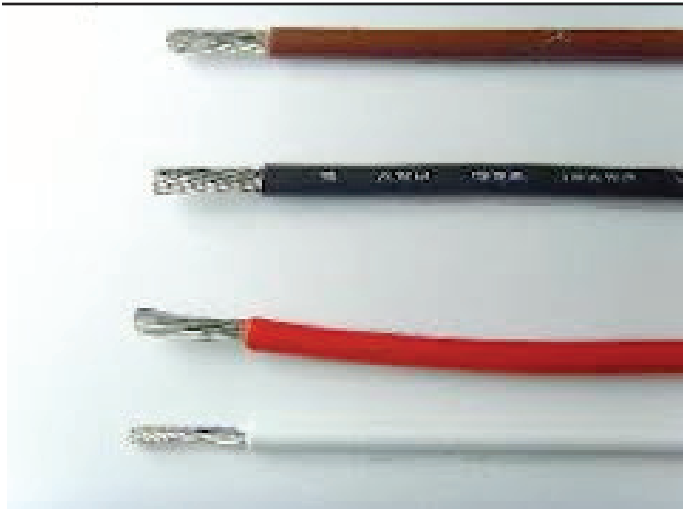
BEST PRACTICES FOR LOOP WIRE SELECTION

There are many suppliers and many types of wire suitable for Induction Loop Systems (ILS). Experienced ILS installers will have their preferred supplier and keep spools of various types at hand.

Amplifiers will have a load recommendation which in the ILS world means DC resistance or Impedance (AC) of the wire. If an amplifier has a load recommendation of 0.5 to 1.5 Ω , the wire should not be less than 0.5 Ω or exceed 1.5 Ω . If the install requires longer wire, then go to a larger gauge wire (smaller number) that meets the resistance spec. NOTE: 1000ft of 12 gauge multi strand single conductor wire is approximately 1.5 Ω . See our cable spec sheet for more cable specs.

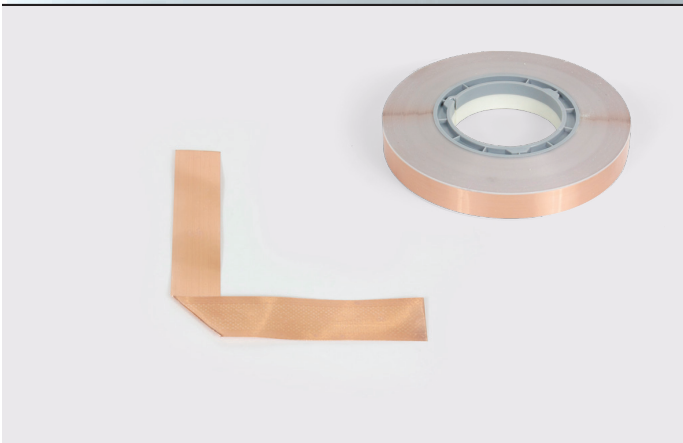
A single loop or turn of wire is recommended for loop installations. Sometimes, for more power in the looped area, an installer may lay a multi-turn loop cable (2 or more turn coils). Each additional loop will provide twice the power, but it will also decrease the high frequency performance in the system.

The following types of wire are typically used:



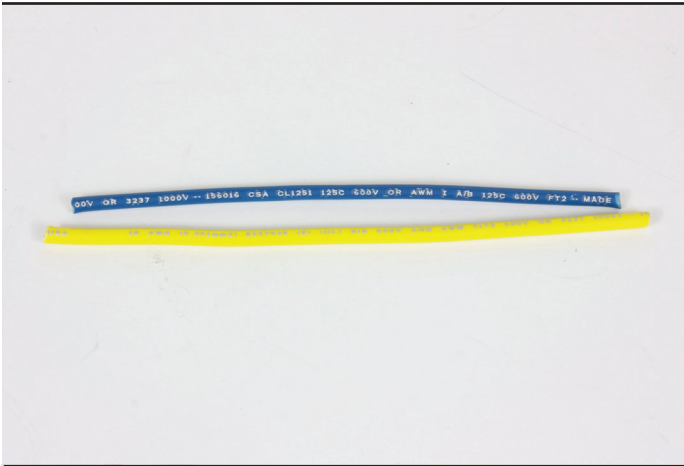
MULTI-STRAND SINGLE CONDUCTOR

Multi-Strand Single Conductor wire can be easily sourced from many wire distributors. This can be found in various gauges and colors dependent upon the system needs.



FLAT WIRE CABLE

Flat Wire Cable (or ribbon cable) from Williams Sound is offered in 3/4" width and is equivalent to 14 gauge wire. Because flat wire has less Inductance, 10 – 20% increase in length may be utilized and still be within the load requirement. Flat wire can be installed under carpet or glued to the wall. See our installation videos for examples of flat wire installation. When laying on a concrete floor, be sure the concrete is sealed before laying the flat wire as the Alkaline in the concrete will eat into the wire. Flat wire can be secured using double sided tape, glue or flat wire tape.



DIRECT BURIAL CABLE

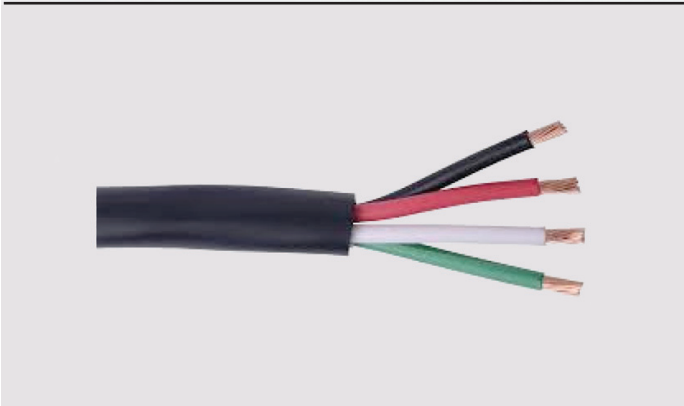
Direct Burial Cable (DBC) is required when burying cable in concrete, bitumen or soil. This type of wire will resist the heat effect of curing as well as the caustic effect of over time. DBC should be used even when scoring and laying into dry concrete because of the alkaline effect from the concrete over time.



LEAD WIRE

Lead wire is the wire connecting the amplifier to the loop wire. Sometimes this lead wire is just an extension of the loop wire and this lead should be twisted from the amplifier to the loop to prevent the lead wire from creating additional EMI areas and cancellation.

The resistance of the lead wire is also part of the wire load applied to the amplifier, so keep the lead length as short as possible.



OTHER WIRE TYPES

Two conductor speaker wire can be utilized for a standard single loop install. For a Phased Array loop configuration, four conductor star wire can be used. This Star Wire has four color coded wires tightly twisted together and sheathed. This can be soldered to flat wire or single strand at the loop.



WILLIAMS SOUND FLAT WIRE TAPE

Use to secure and protect flat copper wire when installing a loop under carpet, wood floors or tile. The flat wire tape is applied over flat copper wire.



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