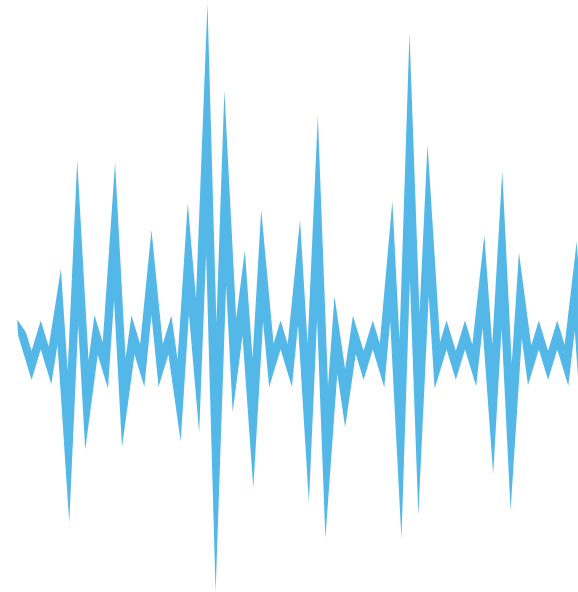


Maintaining EMI/RFI Shielding in Electrical Connectors

It's All About the Environment

When choosing cable and connector combinations for interconnect solutions in industrial applications, it's especially important to consider the environment. Industrial equipment and processes that contain drives, solenoids, motors, generators, transformers, electrolytic processes and power lines located within steel mills, telecommunication facilities, automotive, public safety environments and other manufacturing plants or environments are conducive to electromagnetic interference through radiation or conductivity.



Managing EMI/RFI

In order to manage the effects of electromagnetic interference and radio frequency interference (EMI/RFI), cables and connectors are often shielded. EMI/RFI shielding is an enclosure for insulated conductors that may consist of braided strands of copper or a metallic foil tape, or both. The shielding can act as an energy reflector or a grounding point to the electrical source by surrounding the power-carrying conductors. For cables, typical shielding types are foil and braid.

Foil shielding provides coverage to the entire conductor it surrounds and is relatively inexpensive. Due to the thin nature of foil, it is more difficult to terminate. The majority of foil shielded cable applications utilize a drain wire in order to ground the shield.

Braided shielding is typically tinned copper that has been woven into a mesh that surrounds the conductors. Unlike foil shielding, braided shielding does not offer 100 percent coverage of conductors. Despite the lack of coverage to the entire conductor surface, the higher level of conductivity present in copper as compared to aluminum (aluminum is only about 60 percent as conductive as copper) makes braided wire a more effective option for shielding.

History of Shielding

Shielding for network applications was first introduced by IBM in the 1980s and offered in twisted-pair configurations where the wires were shielded using foil. The combinations of the twisted pair and the shielding resulted in performance levels that surpassed any previously developed cables. Today, maintaining EMI/RFI shielding in electrical connectors and cables has advanced and can be found in various configurations with a wide range of product offerings. Configurations include single-ended, double-ended or multiple legs of "T" assemblies ranging from 0.5 A through 23 A, 28 AWG through 12 AWG and with 2-16 contacts.

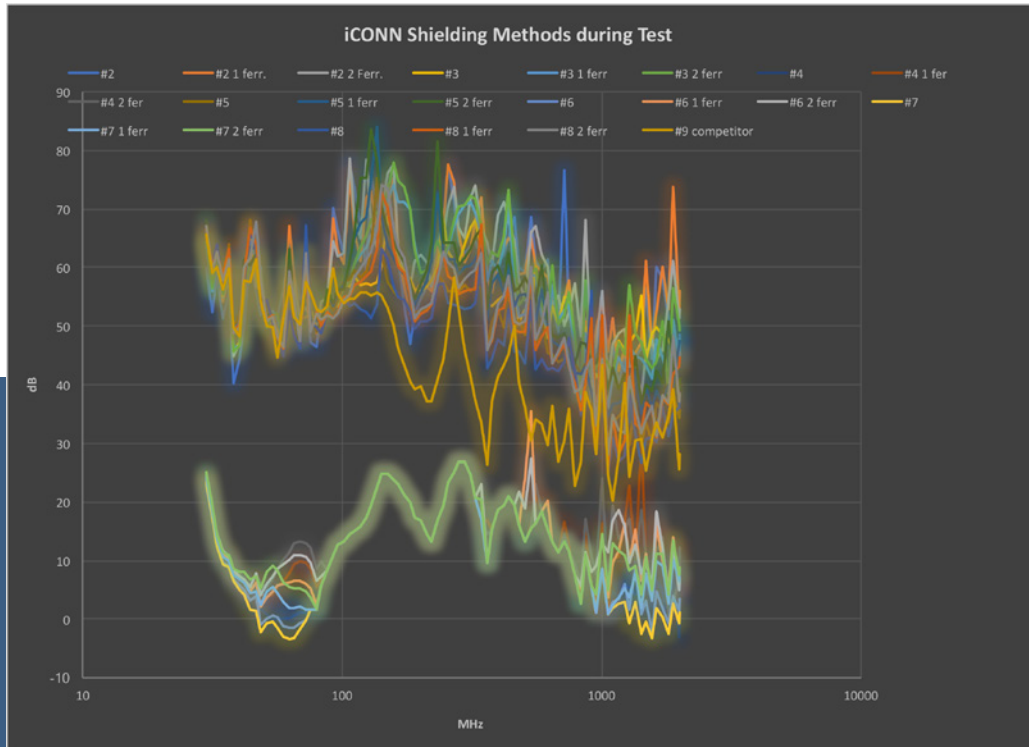


WAYS iCONN SHIELDS YOUR PRODUCTS

All aspects of a molded cable connector assembly must be evaluated for high-temperature applications. These typically include:

- Shielded cable only
- Drain wire being connected to a contact within the connector
- Shielding sleeve with drain wire soldered to it
- Conductive shrink tube applied to sleeve
- Shielding sleeve crimped onto cable (360 degrees)

These are a few methods we've used to achieve success. Each of these constructions provide a different level of EMI/RFI shielding. iCONN Systems offers an array of shielded cables and connectors based on its iSENSOR product line. We've tested many configurations as shown below, to analyze their performance. Solutions to a variety of shielding issues can be solved using other connector designs.



To discuss your application and what might be the correct construction for your needs, contact us today.

For more information, contact us today.