

Technical Advisory

Shielded Twisted Pair: Grounding Shielded Network Cable

In today's modern communication systems, unshielded twisted pair cable is a very popular product due to its performance, low cost, and ease of installation.

Shielded Network Cable, like the IBM Cabling System, has utilized shielding to eliminate interference from external noise sources. In addition to this, FCC regulations must be met by the communication system when the network operates above 30 MHz. At today's ATM operating baud rates, eliminating interference from external noise sources can be of significance, especially when the data network is upgraded to meet the growing demand for bandwidth associated with the Information Super Highway.

Using shielded twisted pair cable (STP) alone does not guarantee network performance without understanding the grounding issues that arise when employing STP cable. Planning the network and accommodating grounding is extremely important in achieving the benefits anticipated. Shielded twisted pair cable must be grounded in at least one common location, preferably at the wiring closet where, if more than one closet is utilized, each closet is serviced with a common earthen ground. Grounding can also be done at the station end of the cable run but it must be at the same ground potential to avoid ground loops.

Ground loops cause circulating currents in the shield that can negatively affect the integrity of the data transmission and cause bit errors and lost data. Leaving the shield ungrounded or floating will again create interference problems which will result in lost data and a slow response in the data network. In both cases, the shield would be improperly terminated and need to be corrected before the network system will realize the benefits of shielded cable.

In conclusion shielded cable is a benefit to most system integrators when properly terminated, and today's high speed networks need the security which shielded twisted pair cable can provide.

If questions arise concerning a particular application, call the Technical Support Group of Mohawk/CDT at (800) 422-9961.