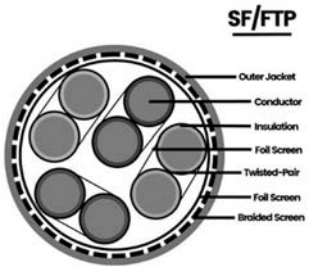
SF/FTP - Foil and Braid Shielded Cable / Foil Shielded Twisted Pair



This Ethernet cable is designed to provide the maximum protection from internal crosstalk, alien (external) crosstalk, EMI, ESD, and RFI. It has all the benefits of SF/UTP cable, with the added protection of individually shielded twisted pairs. The drain wire can be clearly seen in the photograph. As might be expected, the three layers of shielding will tend to make this cable thicker and less flexible than other cables of the same category. This can make installation more challenging and labor-intensive.

INTUSONIC

INTULINK

Cabling Guidance

RevA

INTUSONIC is a brand of
Universal Technical Industries Co. Ltd.

www.intusonic.com

Welcome

Thank you for choosing INTUSONIC for your sound system. To make sure that this product meets your expectations and provides long-term, reliable performance, please read and follow this instruction manual carefully.

Manual language

UK This user manual is written in English. For other languages, please use an auto-translation service of your choice.

FR Ce guide est écrit en anglais. Pour les autres langues, veuillez utiliser un service de traduction automatique de votre choix.

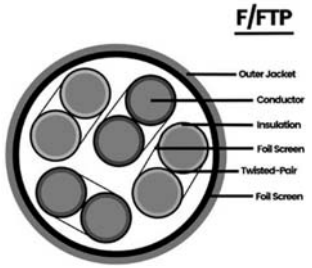
DE Diese Anleitung ist in Englisch verfasst. Für andere Sprachen verwenden Sie bitte einen automatischen Übersetzungsdienst Ihrer Wahl.

ES Este manual está escrito en Inglés. Para otros idiomas, utilice un servicio de traducción automática de su elección.

PT Este manual está escrito em Inglês. Para outros idiomas, use um serviço de tradução automática de sua escolha.

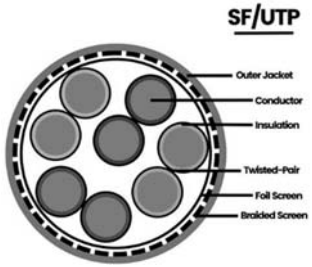
IT Questo manuale è scritto in inglese. Per altre lingue, utilizza un servizio di traduzione automatica a tua scelta.

F/FTP - Foil Shielded Cable / Foil Shielded Twisted Pair



Like the F/UTP Ethernet cable, this cable has an aluminum foil shield (screen) around the entire cable, beneath the jacket. In addition, each individual twisted pair is also wrapped in a foil shield. This construction is designed to minimize crosstalk between pairs in the same cable. Also, the shielded pairs, along with the overall shield provide more protection against external electromagnetic interference than the jacket shield alone.

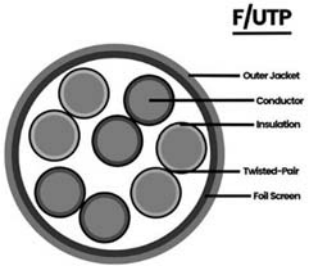
SF/UTP - Foil and Braid Shielded Cable / Unshielded Twisted Pair



This Ethernet cable is similar to F/UTP cable and S/UTP cable except that it has both a foil shield and a braided shield. The individual twisted pairs are unshielded. The braided shield offers better protection from RFI, better grounding, and greater mechanical strength than the foil shield alone. With both shields present, a greater range of interference frequencies can be blocked or absorbed.

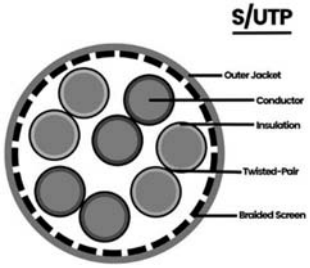
does not require a ground connection. A plastic spline is often found in the center of both shielded and unshielded Ethernet cable, to offer protection against crosstalk from both internal pairs and external cables.

F/UTP - Foil Shielded Cable / Unshielded Twisted Pair



This Ethernet cable has an aluminum foil shield (screen) around the entire cable, beneath the jacket. It can help protect data from nearby sources of electromagnetic interference (EMI), and can help dissipate any buildup of electrostatic potential. A small drain wire, shown in the photograph but not in the diagram, redirects unwanted noise to ground. This drain wire must be properly grounded, otherwise any benefit from shielding will be lost and the ungrounded screen will actually attract unwanted noise.

S/UTP - Screen Shielded Cable / Unshielded Twisted Pair



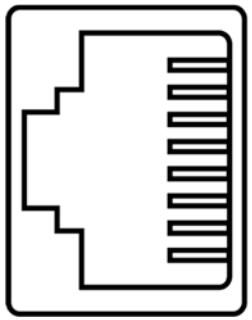
Instead of a foil shield, this Ethernet cable uses an aluminum braided shield (screen) around the entire cable, beneath the jacket. Like a foil shield, it can help protect data from nearby sources of electromagnetic interference (EMI), including crosstalk from nearby cables and can help dissipate any buildup of electrostatic potential. The braided construction of the shield offers better protection from radio frequency interference (RFI). Also, the braided shield provides greater mechanical strength and better grounding than a foil shield.

About this document

IntuLink™ is Intusonic's inter-communication bus between a variety of devices. This document specifies the cabling requirements used for this communication, to enable proper choice and deployment of cabling.

The Intulink™ bus system

Intusonic's Intulink™ control bus system uses standard CAT5/CAT6 shielded cables and combines RS485 control lines with power supply lines and a mono balanced audio connection according to the following pinout:



1. TXD/RXD-
2. TXD/RXD+
3. Not Connected
4. GND
5. Power +12V
6. Power -12V
7. Audio Mono Balanced +
8. Audio Mono Balanced -

WARNING! Do not connect any other devices but Intusonic products with Intulink™ bus connection to the RJ45 ports of this unit. PC network connections or other manufacturer's RJ45-based interconnection systems are or may be incompatible, and the attempt of making such connection may result in damage of this unit or other equipment. The manufacturer accepts no claims towards damages evolving from incorrect connections.

ATTENTION! Obey the instruction tendered in a products# user manual for cabling, grounding and EMC compliance.

Number of connected units

Provided the choice of correct cabling, INTUSONIC™ remote control panels can be placed up to 80m away from their main unit. However, it will also depend on how many remote control panels are operated on one bus line:

- 1 Control panel – up to 80m distance (total bus length) provided correct cable choice (see below)
- 2 control panels – up to 60m distance (total bus length) provided correct cable choice (see below)
- More than 2 panels can NOT be operated on one branch of the INTULINK™ bus. If more than 2 panels are needed, an in-line power supply (SPA22 or similar) must be added.
- Certain products (e.g. VLA42) may have a limitation to only one control panel due to their internal PSU capacity and may need to be complimented with an in-line power supply (SPA22 or similar) for any number of control panels exceeding one.

Cable type

The Intulink™ bus connections can be made with any CAT5/6/7 type standard network cables. Key considerations are conductor material, cross-section and shielding. We recommend to use only cables following a recognized standard such as TIA 568, ISO 11801 and EN 50173.

Cable conductor material

Due to the power supply requirements of INTUSONIC™ receivers, do NOT use any aluminum conductor cable, only use copper conductor cable. Aluminum has a higher resistance and will generate a larger loss (voltage drop) along the cable.

Cable cross-section

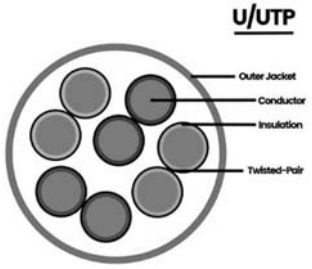
The cross-section of the copper conductors used inside the cable are demarked by their AWG value. Common types in CAT5/6/7 cables are:

- 24 AWG – this is the cable with the largest copper cross-section and lowest resistance/loss (8.8 Ohm/100m for copper), and we solely recommend this cable for making connections.
- 26AWG – this is popular when high flexibility is required as the copper cross-section is reduced and the resistance/loss is increased (13.3 Ohm/100m for copper). We consider this cable only acceptable for connections <20m.
- 28 AWG – this is popular as it is the cheapest. We do not recommend this cable for use with INTUSONIC™ products, as the voltage drop even at relatively short distances is significant due to the high resistance/loss (21.6 Ohm/100m for copper)

Shielding

We recommend shielded cables with at least an outer shield (F/UTP or better S/UTP) and relative shielded RJ45 connectors. Some Examples of Shielding Types:

U/UTP - Unshielded Cable / Unshielded Twisted Pair



This Ethernet cable is completely unshielded. It can be used in situations that lack nearby electromagnetic interference (EMI), and that are not affected by electrostatic discharge (ESD). The lack of shielding allows for the construction of cable that is thinner and more flexible than shielded cable, and so it's usually easier to install. Unlike shielded Ethernet cable, it