Draka

Connecting IP Devices in an Elevator Cabin

A GUIDE TO CABLING FOR HIGH-SPEED ETHERNET TRAFFIC

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Connectivity options for low-, mid- and high-rise elevator applications

Three ways to make IP work for your installation

Building owners are placing more data-hungry devices in their elevators. The use of high-resolution video surveillance, security access, telephony, control signals, audio and advertising video boards demands a pathway for high-speed communications.

When it comes to connecting all these IP devices to a traveling cable, you now have options. With the use of converters or interface modules, you can get Ethernet connectivity to the elevator cabin through:

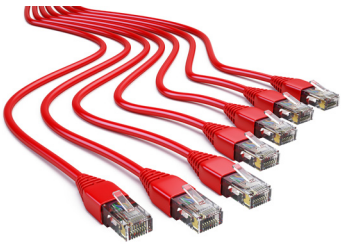
- **Cat5e-equivalent twisted pairs in a traveling cable**
- **2 wire conductors in an existing traveling cable**
- **Fiber optic cable in a traveling cable**

These options all adhere to the National Electric Code's (NEC) minimum wire gauge size limitations. The NEC states the minimum wire gauge size for a conductor in a traveling cable is 20 AWG. This prevents simply adding a standard Ethernet cable to a traveling cable due to its smaller 24 AWG conductor sizes.

Turn to Draka Elevator to help match your specific LAN/Ethernet requirements with the right traveling cable solution.

Cat5e-equivalent twisted pairs in a UL listed traveling cable

Draka created specially-insulated 20 AWG stranded and shielded tinned copper conductors that provide Cat5e performance. These conductors are built into the cable and are terminated at each end with a Phoenix module that interfaces with a standard RJ-45 jack. IP devices can simply be plugged in. TIA/EIA 568 performance is delivered along with PoE (Power over Ethernet).



Buildings best suited for the Cat5e twisted pairs include low- and mid-rise buildings for new installation, replacement or retrofitted applications.

Phoenix Cat5e module

Media comparison

	Market Segment	Building Height	Transmission Speed	Transmission Distance	Network Powering
Cat5e-equivalent	New installation Replacement Aftermarket	Low rise Mid rise	up to 1000BASE-T (1 Gb/s)	328 ft • 100 m tested and verified 1000BASE-T	Power over Ethernet (PoE) capable
2Wire by 2N	Aftermarket	Low rise Mid rise	100 Mb/s max. due to signal modulation	722 ft • 220 m standard	PoE capable - power is required for one of the 2Wire devices
Fiber optics	New installation	Mid rise High rise	1000BASE-T (1 Gb/s) and higher (+3 Gb/s)	3280 ft • 1 km multimode miles/kms singlemode	Power over Fiber (PoF) capable

2Wire – Ethernet to two wire adapter

2Wire by 2N, uses an existing traveling cable to connect any IP device using just two free conductors. Installing the 2Wire in an elevator is simple, with no need for complicated configuration. All you need is one 2Wire unit at each end of the traveling cable and at least one of them connected to a power source. The 2Wire unit then provides Power over Ethernet (PoE) which passes electric power along with data over the cabling to the second converter and all connected IP end devices.

2Wire converters

2Wire is best used in low- and mid-rise building applications when installation of a new traveling cable with Ethernet capabilities is too time-consuming or expensive.

Optical fiber in a traveling cable

Optical fiber's immunity to electrical and electromagnetic interference make it an excellent means for transmission of high-quality signals to and from the elevator car. Optical fiber can transmit this data over long distances and even beyond elevator requirements. It has proven to be very reliable in the flexing environment of a traveling cable.

Fiber optic cables require termination connectors at each end along with a media converter to convert electrical signals to light signals and vice-versa. Draka offers optical fiber as an option on any custom-built cable and as a standard component in other cable constructions.

Optical fiber is best suited where bandwidth heavy and high-quality data is required in mid- and high-rise building applications.

Typical media converter

Signal Strength	Operating Temperature	Ease/Expense of Installation	Warranty
Strong, using shielded pair construction	+14° to +140°F -10 to +60°C	Non-standard cable arrangement requires special termination, increased time for connection/harnessing (connectors can be factory-installed for easier installation)	One year
Variable due to changing voltages in traveling cable conductors leading to bandwidth degradation	+14° to +122°F -10 to +50°C	Low effort with standard tools and skills	One year
Very strong, as signals are not affected by electrical current	+14° to +140°F -10 to +60°C	High field effort due to converters, splicing equipment special connectors (connectors can be factory-connectorized for easier installation)	Lifetime warranty when placed in ETT-type traveling cable

Elevating people

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IP DEVICE CONNECTION 0219