

High-frequency cables and optical fiber communication cables



Article Overview

High-frequency cables transmit electrical signals at radio or microwave frequencies, while optical fiber cables transmit data as light, offering higher bandwidth and longer distances with immunity to electromagnetic interference.

High-Frequency Cables

High-frequency cables, often coaxial or specialized RF cables, are designed to carry electrical signals at radio, microwave, or millimeter-wave frequencies. They are widely used in telecommunications, broadcasting, radar, and high-speed data applications. These cables are engineered to minimize signal loss, reflections, and interference, often featuring precise impedance control, shielding, and high-quality connectors. Custom high-frequency cables can be tailored for specific voltage, frequency, and environmental requirements, including high-voltage applications up to 20 kV, and are tested for both electrical and optical performance. Flat ribbon and twisted-pair variants are also used in electronic assemblies and computer systems for multi-conductor signal transmission.

Optical Fiber Communication Cables

Optical fiber cables transmit data using pulses of light through a core made of silica glass or plastic, surrounded by cladding that ensures total internal reflection. They are capable of extremely high data rates, often exceeding 40 Gbps, and can cover long distances without significant signal degradation. Fiber-optic cables are immun...

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Fiber Optics: Understanding the Basics

Environmental changes along the length of the fiber affect the fiber properties in ways that can be detected. • Power Delivery —

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Understanding Fiber Optic Cables and Connectors

Read Whitepaper: Discover the fiber optic cable and connector types, specifications, benefits, typical

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Fiber Optic Cable Buying Guide

Fiber Optic Cable Buying Guide Understand how to choose fiber optic cable by comparing single-mode vs. multimode, network

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Fiber-Optic Communication

Fiber-optic communication is suitable for long distances, high bandwidth, and high-security requirements. However, it requires a high

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Optical Fiber Cables | HFCL's Global Connectivity | HFCL

Discover HFCL's extensive optical fiber cable portfolio, featuring microcables, loose tube cables, microduct cables, micromodule

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Custom High-Frequency, High-Voltage & Fiber Optic

Discover high-frequency cables, high-voltage cables, flat ribbon cables, and fiber optic solutions tailored to

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Fiber Optic Cable Types Explained: Choosing the Right Fiber Cable

In high-speed network environments—such as data centers, enterprise LANs, and telecom backbones—fiber optic

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Fiber-Optic Cable Bandwidth: Complete Guide

Fiber-optic cables significantly enhance bandwidth, making them essential for achieving high fiber-optic speeds in

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Optical Fiber and Cables | Springer Nature Link

This chapter gives an overview and introduces application scenarios for optical fibers and cables in optical communications. The use

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Copper vs. Fiber Optic Cables: A Comprehensive Comparison

Explore the differences between copper and fiber optic cables for data communication, including their advantages, disadvantages,

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How does fiber optics work?

Fiber-optic cables are inexpensive, thin, lightweight, high-capacity, robust against attack, and extremely secure, so

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Handbook Optical fibres, cables and systems

ITU-T has been active in the standardization of optical communications technology and the techniques for its optimal application

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Fiber-Optic Communication

The WDM (Wavelength Division Multiple Access) is used in fiber optic communication to send multiple data streams on the same

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Fiber-optic communication

For use in optical communications, semiconductor optical transmitters must be designed to be compact,

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Fiber optics | Definition, Inventors, & Facts | Britannica

Fiber optics, the science of transmitting data, voice, and images by the passage of light through thin, transparent fibers.

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Fiber Optic Communication System : Basic Elements

The fiber optic cables replace the electrical cables whenever long distance, high bandwidth, and resistance

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Multi-mode optical fiber

Multi-mode optical fiber is a type of optical fiber mostly used for communication over short distances, such as within a building or on a

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Handbook Optical fibres, cables and systems

The simultaneous availability of compact sources and of low-loss optical fibres led to a worldwide effort for developing optical fibre

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Four Key Benefits of Fiber Optic Transmission

Four Key Benefits of Fiber Optic Transmission Fiber optic cables are designed for long-distance, high-performance AV transmission,

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Maximize connectivity with RF-over-fiber solutions

RFoF technology transmits high-frequency signals over optical fibers. These fibers are made from quartz sand and

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Basics of Fiber Optics

Electromagnetic/Radio Frequency Interference Immunity: Optical fibers are immune to electromagnetic interference and emit no

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Fiber-optic cables | Phoenix Contact

Safe and reliable high-speed data transmission via fiber optics: with this technology, data is transmitted in

Contact Us

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