# Optical fiber cables are



## Overview

An optical fiber, or optical fibre, is a flexible glass or plastic fiber that can transmit light from one end to the other. Such fibers are widely used in fiber-optic communication, where they permit transmission over longer distances and at higher bandwidths (data transfer rates) than electrical cables. Fibers are used instead of metal wires because signals travel along them with less loss and are immune to electromagnetic interference.

## Key Takeaways

Optical fiber cables use light to transmit data, offering high-speed, long-distance, and interference-free communication.

### Structure and Function

Optical fiber cables, also known as fiber-optic cables, consist of a core and a cladding layer. The core carries the light signal, while the cladding has a lower refractive index, enabling total internal reflection to keep the light within the core. The fibers are coated with protective layers of plastic or polymer to prevent damage, and multiple fibers are bundled with additional sheathing for durability and environmental protection.

Types of Fiber Optic CablesSingle-Mode Fiber (SMF): Features a narrow core (~9 microns) that allows only one light mode to propagate. It is ideal for long-distance, high-speed data transmission.



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### Multi-

Mode Fiber (MMF): Has a wider core that supports multiple light modes, suitable for shorter distances and local area networks.

### Advantages

High bandwidth and speed: Transmits data faster than copper cables. Long-distance transmission: Minimal signal loss over kilometers. Immunity to electromagnetic interference: Light signals are not affected by electrical noise.

Security: Difficult to tap without detection, making it ideal for sensitive data.

### Applications

Fiber optic cables are widely used in: Telecommunications: Internet, telephone, and cable TV networks. Networking: High-speed LANs and data centers. Medical and industrial: Imaging, sensors, and laser delivery systems.

### Local Availability in Kenya

Fiber optic cables are available from multiple suppliers in Kenya, including Jumia, Hubtech, and TDK Tech Store, offering both internal/external single-mode and multi-mode cables, patch cables, and media converters. Products are sourced from international manufacturers and can be shipped across Kenya and East Africa. Choosing the right fiber optic cable depends on distance, bandwidth requirements, and installation environment, with connector types and protective sheathing tailored to specific applications.

## Article Content

Optical fiber

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An optical fiber, or optical fibre, is a flexible glass or plastic fiber that can transmit light from one end to the other. Such fibers are widely used in fiber-optic communication, where they permit transmission over longer distances and at higher bandwidths (data transfer rates) than electrical cables. Fibers are used instead of metal wires because signals travel along them with less loss and are immune to electromagnetic interference.

Fiber Optic Cable Types: A Complete Guide

Fiber optic cables are, like their name suggests, a cable that uses light, rather than electricity to transmit information. They''re made from silica glass

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Fiber optics refers to the technology and method of transmitting data as light pulses along a glass or plastic strand or fiber. Fiber optic cables are used for long-distance and high-performance

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A fiber optic cable is a long-distance network telecommunications cable made from strands of glass fibers that uses pulses of light to transfer data.

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