

Single-core dual-mode optical cable



AI Overview

A single-mode dual-core optical cable contains two single-mode fiber cores, allowing simultaneous bidirectional or parallel long-distance data transmission with minimal signal loss.

Overview A single-mode dual-core optical cable consists of two separate single-mode fiber cores within a single cable jacket. Each core has a small diameter, typically around 8–10 micrometers, allowing only one mode of light to propagate. This design minimizes modal dispersion, enabling high-speed data transmission over long distances, often exceeding 10 km at 1310 nm and up to 40 km at 1550 nm .

Dual-core cables are sometimes referred to as 2-core or duplex cables, and they are ideal for applications requiring simultaneous bidirectional communication or redundancy.

Key Features

- Single-Mode Fiber (SMF):** Supports a single light path, reducing signal degradation and allowing long-haul transmission .
- Dual-Core Configuration:** Two cores allow either full-duplex communication (one core for sending, one for receiving) or parallel data channels, effectively doubling the data capacity compared to a single-core cable .
- Standards Compliance:** Often built to OS2 or G.652.D standards, ensuring compatibility with telecom networks, GPON, and DWDM systems .
- Low Attenuation:** Typical attenuation is 0.3–0.4 dB/km, supporting high-quality signal transmission over long distances .

Applications Single-mode dual-core cables are widely used in:

- Telecommunications backbones for long-distance data transport.
- Data center interconnects where high-speed, low-latency links are required.
- FTTH (Fiber to the Home) deployments for reliable broadband delivery.
- High-speed Ethernet networks (1G, 10G, 40G, 100G, and beyond) using duplex connections .

Advantages

- Long-distance capability:** Single-mode cores allow minimal signal loss over tens of kilometers.
- High bandwidth:** Supports high-speed data transmission with low dispersion.
- Flexibility:** Dual-core design enables full-duplex communication without additional cabling.
- Future-proof:** Compatible with advanced...

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Fiber Optic Cables

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NEXA Drop Cable 2 Core | Mall99 Kenya

The NEXA Drop Cable 2 Core is a robust, self-supporting fiber optic cable engineered for reliable last-mile FTTH and FTTB broadband deployments. This flat figure-8 cable features two single-mode

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Comparing Single-Core and Dual-Core Optical Fibers

The choice between single-core and dual-core optical fibers depends largely on the specific requirements of the communication system. While single

LPIQSPLK Carrier Grade Dual Core Single-mode Optical Fiber

Carrier Grade Dual Core Single-mode Optical Fiber Jumper Double LC To LC SC FC ST Square To Round Pigtail Network Jumper Cable

Single Mode vs. Multimode Fiber Optic Cables

Single mode and multimode fiber optic cables are two different types of fiber optic cable aimed at different use cases. Single mode cables are typically

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Fiber Optic Cable Types: Single-Mode, Multimode, and

Discover fiber optic cable types, including single-mode (OS1, OS2) and multimode (OM1, OM2, OM3, OM4, OM5), indoor/outdoor variants, and how

Fiber Optic Cable Types: A Complete Guide

Typically, single mode fiber optic cables are made from a single glass fiber strand, resulting in a very narrow core diameter of around 9µm. This is

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Single vs. Dual Fiber: How to Choose the Right Cable for Your

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OS1, OS2 vs OM1-OM5 Fiber Cables: Differences, Speeds, and

Explore the differences between OS1, OS2 (single-mode) and OM1, OM2, OM3, OM4, OM5 (multimode) fibers. Learn their speeds, distances, and ideal uses for data centers and telecom

Single Mode vs. Multimode Fiber Optic Cables

There are two main types of fiber optic cables: single mode and multimode. Although they can do the same job in some instances, the different

The Key Differences Between 1-core, 2-core, Single

Single Mode fibers have a smaller core, allowing light to travel in a single, straight path, ideal for long distances with less signal loss. Multi-mode

Single Mode vs. Multimode Fiber: Core Differences and

How do you choose between single mode and multimode fiber? Compare their differences in core size, light source, bandwidth, transmission

Fiber Optic Cable Types Explained

Learn all about the differences between single mode and multimode cables, as well as the various fiber wavelengths and standard core sizes used in fiber optics.

75M/246FT Outdoor Armored LC to LC Fiber Optic Cable, 4 Core OS2 Single ...

1 Industrial-Grade Durability: Engineered with a rugged 5.0mm industrial TPU jacket and dual-layer armor (steel tube + stainless mesh), this LC to LC fiber optic cable resists water, UV, rodents,

Single vs Dual Fiber Media Converters (2025): A/B

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The Key Differences Between 1-core, 2-core, Single

Ever wonder how data zooms across cities and continents at lightning speed? The secret lies in fiber optic technology, and understanding the

The Difference Between Single/Dual Fiber and

Whether you're designing a short-range data center network or a long-distance metro backbone, understanding the distinctions between single vs. dual

NEXA GYXTW 8 Cores G652D Fiber Cable

The NEXA GYXTW 8 Cores G652D Fiber Cable is a high-performance, armored outdoor single-mode fiber optic cable designed for resilient data trunk lines and enterprise-grade backbones. Featuring 8

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For more information, pricing, or custom solutions, please contact us:

Website: <https://sabineamsee.co.za>

Email: info@sabineamsee.co.za

Phone: +27 82 415 6793

Address: Unit 7, Innovation Park, 34 Electron Road, Kempton Park, 1620,
South Africa

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