3000-meter-long optical cable



Overview

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Key Takeaways

A 3,000-meter optical cable is typically rolled into a large spool, with a diameter ranging from 3 mm for bare fiber to several centimeters for armored multi-core cables, designed for long-distance data transmission.

Physical Dimensions

The diameter of optical cables varies depending on construction: Bare fiber cables can be as thin as 3 mm in diameter, suitable for indoor or short-distance applications. Armored outdoor cables, such as a 12-core single-mode fiber, may have diameters of 1–3 cm due to protective layers, steel or FRP strength members, and flame-retardant jackets. Direct-buried cables often include double polyethylene sheaths, water-blocking materials, and steel tape armor, making them thicker and heavier for durability in harsh environments.

Weight and Deployment

A 3,000-meter cable is rolled onto a large drum or spool for transport and installation. The weight depends on the type: Bare fiber is relatively light, often a few hundred kilograms per spool. Armored or multi-core outdoor cables can weigh over a ton, requiring specialized handling equipment for installation.

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Applications

Such long optical cables are used for: Telecom networks and broadband infrastructureData centers and metropolitan area networks (MAN)Underground ducting, aerial cabling, or direct burial in outdoor environments Construction FeaturesCore fibers are coated with protective layers to prevent damage and signal loss. Armored cables include steel or FRP strength members for crush resistance and rodent protection. Flame-retardant jackets and water-blocking materials enhance safety and durability in outdoor installations.

In summary, a 3,000-meter optical cable is physically long but compact when coiled, with diameters ranging from a few millimeters to several centimeters depending on protection and core count, and is designed for reliable, long-distance data transmission in various environments.

Article Content

Haile Armoured 24-Core Single-Mode Outdoor Fiber Optic Cable

With superior protection and durability, this 3000-meter stranded fiber optic cable supports large-scale network installations, making it ideal for telecommunications, broadband, and data infrastructure

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Fiber Optic Cable by the Foot

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Fiber Optic Cables | Cable Assemblies | DigiKey

Fiber Optic Cable Types Fiber optic cable is designed to transmit data using light signals instead of electricity, making it faster, more secure, and immune to

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Durable direct burial fiber optic cable built for harsh underground environments. Shop gel-free, custom-cut options from trusted brands for reliable, long-distance connectivity.

What Is the Maximum Distance for A Fiber Optic Cable?

The maximum distance for a fiber optic cable depends on several factors, including the type of fiber used, the data transmission speed, the quality of the equipment, and whether or not amplification or

Cost of Fiber Optic Cable: Pricing Guide (2026)

Discover the cost of fiber optic cable in this pricing guide. Learn material prices, installation factors, and what impacts total project costs overall.

dura-line 20002973 SMF Plenum Fiber Optic Cable, 6 Fibers, 3000 ft L

dura-line Fiber Optic Cable, SMF Plenum, 6 Fibers, 3000 ft Length, 0.4 dB/km Attenuation, 1300/1550 nm Wavelength, -40 to 70 deg C

Haile Armoured 24-Core Single-Mode Outdoor Fiber Optic Cable

Product Overview Haile Armoured 24-core Single-Mode Outdoor Flame Retardant Fiber Optic Cable GYTZS-24b1.3 HT210Z-24SC is designed for high-capacity, long-distance outdoor data

Network Cable Maximum Lengths: Ethernet, Coaxial, and Fiber Optic ...

This guide dives deep into the maximum length constraints of the three most common network cables—Ethernet, coaxial, and fiber optic—explaining why these limits exist, how they vary

What is the maximum distance for singlemode optical fiber cable A 3000m ...

Singlemode optical fiber is designed for long-distance communication, and its maximum distance can vary based on the specific technology and application 2 Generally, singlemode fiber can transmit

Fiber Optic Cable Buying Guide

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

How Long Can An Optical Cable Be□

The length of an optical cable can vary significantly depending on the type of fiber used, the application, and the equipment supporting the network.

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Fiber Optic Cable Distance: A Comprehensive Guide

However, fiber optic cable performance over distance varies depending on factors such as cable type, installation quality, and signal amplification techniques. In this guide, we''ll explore how

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