

Communication Cable and Optical Cable Models and Specifications



Article Overview

Optical cables for communication vary by fiber type, structure, reinforcement, protective layers, and application, with single-mode and multimode fibers being the most common.

Common Optical Cable Models

1. Single-Mode Optical Fiber (SMF) Single-mode cables have a small core diameter ($\sim 8.3 \mu\text{m}$) and support long-distance transmission, often exceeding 50 km. They are ideal for data centers, enterprise networks, and fiber-to-the-home (FTTH) applications due to low signal loss and high bandwidth performance . 2. Multimode Optical Fiber (MMF) Multimode cables have larger cores ($50 \mu\text{m}$ or $62.5 \mu\text{m}$) and shorter transmission distances, typically 550 meters to 2 km. They are widely used in local area networks (LANs), short-distance communications, and data centers . Variants include OM2, OM3, OM4, and OM5, optimized for different laser-based equipment and high-speed Ethernet applications . 3. Indoor Optical Fiber Designed for indoor environments, these cables are lightweight, flexible, and bend-resistant. They include indoor single-mode, indoor multimode, and unshielded types, suitable for homes, offices, and hotels . 4. Outdoor Optical Fiber Outdoor cables are engineered for harsh environments, offering weather resistance, anti-aging, and mechanical protection. Types include non-metallic, metallic, and armored cables, suitable for urban roads, bridges, tunnels, and long-distance networks . 5. Special Optical Fiber Specialty cables include optical fiber sensor cables, gyroscope cables, and hydrophone cables, used in aerospace, marine exploration, and geological applications

Article Content

Oct 27, 2025

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, cable jackets/fire ratings, connectors, cost and

Jan 13, 2026

Fiber Optic Cable Types | Omnitron Systems Guide

Fiber optic technology has transformed the way we transmit data, enabling faster, more reliable connections than traditional copper cables. Understanding fiber

May 02, 2026

CORNING OPTICAL COMMUNICATIONS GENERIC SPECIFICATION

2.0 Fiber Specifications 2.1 Detailed information on the fiber types available for this cable design can be found in the following documents: Dispersion Unshifted and Non-Zero Dispersion-Shifted Single

Apr 21, 2026

The Ultimate Guide to Fiber Optic Cables – Types, Standards, and ...

Discover how to choose the right fiber optic cables for your network. Learn about fiber types, cable constructions, connectors, and industry standards — plus expert recommendations from

Dec 05, 2025

How optical communication cables work and how they differ from

In several articles, I mentioned optical fibre in the context of substation automation, protection signaling, communication between electrical devices, LAN communications, etc. Now I will

May 15, 2026

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

Jun 16, 2026

A Guide To Communication Cable

Explore our communication cable categories to find the right option for your particular application and specs. Reach out to us with any questions or to request a quote. As cable and wiring experts, we're

Mar 22, 2026

Fiber Optic Cables

CommScope designs and manufactures a comprehensive line of fiber optic cables—from outside plant to indoor/outdoor and fire-rated indoor fiber cables.

Jul 13, 2026

Fiber Optic Cable Types – Multimode and Single Mode

Fiber Optic Cable Types – Multimode and Single Mode Application Fiber Optic connectors and cables are present in nearly every communications

Aug 30, 2025

Single-mode optical fiber

In fiber-optic communication, a single-mode optical fiber, also known as fundamental- or mono-mode, is an optical fiber designed to carry only a single mode of light - the transverse mode.

Nov 10, 2025

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 communication systems. The real research phase of fibre-optic

Nov 14, 2025

Fiber Optic Cable Types and Applications: The Engineer's Guide to ...

Fiber optic cable types—choose wrong and pay double in transceivers. From OS2/OM5 specs to OFNP jackets, match every cable to its real-world application in 2026.

Dec 09, 2025

Fiber optic cable types and selection guide

In this article, we will explain the key points for choosing a fiber optic cable in an easy-to-understand manner, even for

Aug 22, 2025

Understanding Fiber Optic Cables and Connectors

Read Whitepaper: Discover the fiber optic cable and connector types, specifications, benefits, typical applications and use in data center settings

Sep 30, 2025

Fiber Optic Cable Types: A Complete Guide

The plethora of fiber optic cable types can seem overwhelming, but choosing the right cable for the job is important. Read on to learn what fiber optic

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Optical fiber

A bundle of optical fibers A TOSLINK fiber optic audio cable with red light shining in one end and out the other An optical fiber, or optical fibre, is a flexible glass or plastic fiber that can transmit light from

Aug 17, 2025

Guide | JTOPTICS

product guide to understand type of products and different types of connectors, cable, modules, and other relevant technologies.

Jul 15, 2026

Optical cable model meaning and optical cable specifications

For communication engineers, they often come into contact with fiber optic cables. At this time, we should pay attention to the markings on the fiber optic cables. Let's take a look at the

Jan 09, 2026

Understanding and Selecting Optical Fibre and Cable

In this document, the relationship between the cable features, followed standards, test parameters, and acceptance criteria are explained with examples for a better understanding of an optical fibre cable

Nov 01, 2025

Guide | JTOPTICS

Duplex Fiber Optic Cables A duplex fiber optic cable comprises two strands of glass or plastic fibers and can be viewed as two separate simplex cables. Structured in a zip-cord arrangement, this duplex

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Optical Fiber Product Information Sheets

An all inclusive list of the various optical fiber specification sheets.

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Network Cable Types and Specifications

This tutorial explains the types of network cables used in computer networks in detail. Learn the specifications, standards, and features of the coaxial cable, twisted-pair cable, and the

Jun 22, 2026

Different Types of Fiber Optic Cables: A Complete Overview ...

Below is a structured overview of the main cable types, their technical details, applicable standards, and real-world use cases—all aligned with current industry practices.

Jan 15, 2026

Recommendation ITU-T G.652 (08/2024)

This document outlines the specifications for a single-mode optical fiber and cable designed for use around the 1310 nm zero-dispersion wavelength, suitable for both the 1310 nm and 1550 nm regions,

Nov 08, 2025

Optical Cables & Fiber Optic Cables: Types, Structures & Selection

Compare indoor, outdoor, ADSS, OPGW and FTTH fiber optic cables. Learn which structure fits your distance, environment and core count before you buy.

Jul 08, 2026

Fiber optic cable types and selection guide

Its main use is communication over relatively short distances of about several hundred meters, and it is suitable for introducing optical fiber

Jan 17, 2026

Fiber Optic Cable Types Explained: Choosing the Right Fiber Cable

Fiber Optic Patch Cable Types and How to Choose the Right One? Fiber optic cables come in various types based on different specifications and application requirements. In this guide,

Aug 21, 2025

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 of single-mode optical fibers for both short-reach and long-haul

Oct 27, 2025

Fiber Optic Cable Types Explained

Our comprehensive guide to types of fiber optic cables. Learn all about the differences between single mode and multimode cables, as well as the various fiber wavelengths and standard core sizes used

Jul 21, 2026

Fiber Optic Cables: Speed, Standards, and More

This article explores the differences in fiber optic cables and examines their use in fiber optic cable assemblies, wire harnesses, and hybrid cables.

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