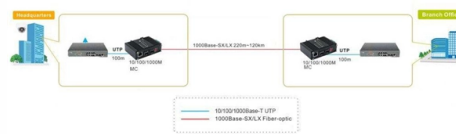


What are the different models and specifications of telecommunications optical cables



AI Overview

Telecommunication optical cables are classified by fiber type, core/cladding size, wavelength, and compliance with ITU-T and IEC standards, with models including G.652, G.657, OM1-OM4, and G.654-G.656 for various applications.

Fiber Types and Models

- Single-mode fibers (SMF)** are primarily used for long-distance and high-speed transmission. Common ITU-T models include:
 - G.652 (Standard SMF)**: Optimized for 1310 nm, low water peak, suitable for metropolitan and access networks.
 - G.652C/D**: Low water peak fibers for CWDM systems, supporting 1310–1625 nm.
 - G.657 (Bending-resistant SMF)**: Designed for FTTH and optical distribution networks, minimizing macro-bending losses.
 - G.654, G.655, G.656**: Specialized fibers for long-haul, high-capacity, or dispersion-managed networks.
- Multimode fibers (MMF)** are used for shorter distances, such as LANs and data centers:
 - OM1 (62.5/125 μ m)**: Legacy applications, LED sources, 850/1300 nm.
 - OM2 (50/125 μ m)**: Supports higher bandwidth, LED or VCSEL sources.
 - OM3/OM4/OM5 (50/125 μ m, laser-optimized)**: High-speed data, 10–400 Gbps, suitable for VCSEL and laser sources.

Core and Cladding Dimensions

- Single-mode fibers**: Core $\sim$ 8–10 μ m, cladding 125 μ m.
- Multimode fibers**: Core 50–62.5 μ m, cladding 125 μ m.

Outer coatings vary by cable type and environmental requirements.

Wavelength and Transmission

- Single-mode**: 1310 nm (low dispersion), 1550 nm (long-haul, low attenuation), 1625 nm (CWDM).
- Multimode**: 850 nm and 1300 nm for LED/VCSEL sources.

Cable Specifications

- Mechanical and environmental performance**: Tensile strength, crush resistance, temperature range, water-blocking, and UV resistance.
- Attenuation**: Typically measured at 1310 nm and...

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