

How to install outdoor overhead optical cables



Overview

Fiber optic cable may be installed indoors or outdoors using several different installation processes.

Key Takeaways

Outdoor overhead fiber optic cables are installed by selecting the right cable type, surveying the route, mounting support hardware on poles, carefully pulling the cable with controlled tension, and ensuring proper sag and splicing.

1. Select the Appropriate Cable Type

Outdoor overhead fiber optic cables are designed to withstand environmental stresses such as wind, ice, UV radiation, and temperature fluctuations. Two main types are used: self-supporting cables, which carry their own weight, and messenger-supported cables, which rely on a separate steel support strand for tension support. Armored cables may be used in areas prone to mechanical damage or rodent activity, while ADSS (All-Dielectric Self-Supporting) cables are suitable for long spans without metallic support .

2. Route Survey and Planning



Before installation, conduct a detailed survey of the route to identify obstacles, pole locations, and environmental hazards. Measure the total cable length, accounting for natural bends, reserved lengths for splicing, and sag allowances. Draw construction and routing diagrams to guide the installation process .

3. Pole and Support Hardware Preparation

- Pole spacing: Urban areas: 25–40 meters; suburban: 40–50 meters; extreme environments: up to 67 meters .
- Support hardware: Install galvanized steel suspension wires (typically 7/2.2mm for standard cables) and appropriate clamps or hoop steel bands. Ensure poles are structurally capable of handling the cable load and environmental forces .

4. Cable Pulling and Sag Management

Two main installation methods exist:

- Moving reel method: The cable reel moves along the pole line, allowing one-pass installation without intermediate pulls, suitable for unobstructed routes .
- Stationary reel method: The cable is pulled from a fixed reel using temporary supports, then transferred to permanent hardware, ideal for partially accessible routes .

During pulling:

- Use a tension controller to avoid exceeding the cable's rated tensile strength.
- Maintain a pulling speed ≤ 15 m/min.
- Use swivel connectors and guiding pulleys at corners to prevent torque and bending stress .
- Reserve a sag of approximately 0.5% of the span to accommodate wind and ice loads .

5. Splicing and Termination

Splicing should be performed in a splice closure under controlled conditions (humidity

Article Content

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This article will provide an in-depth analysis of outdoor cable types, key selection criteria, core installation

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How to Install Aerial Fiber Optic Cables? | by Orenda | Medium

Aerial fiber optic cables can be classified into the catenary wire style and the self-supporting style according to

101 Guidelines for Fiber Optic Cable Installation

Maintain proper clearance between the fiber optic cable and power cable at all times. Always make allowances for power cable sag

Aerial Fiber Optic Cable: What it is and How it Works

Explore the world of aerial fiber optic cable and discover their importance, benefits, hardware, installation techniques, and future

Overhead Fiber Optic Cable: Installation Method and Requirement

Overhead fiber optic cable is suitable for long-distance lines and dedicated network optical cable lines or some local

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