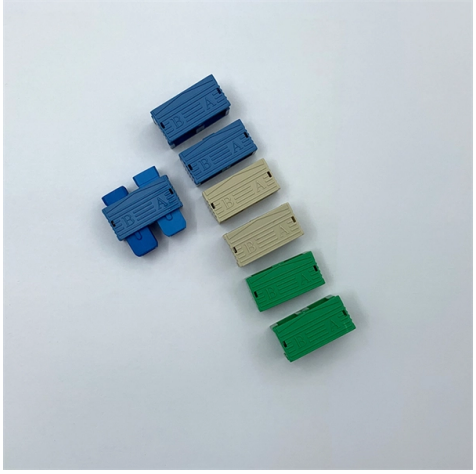
Methods for bundling communication optical cables and power poles



Overview

WO2024091488A1 A method includes breaking out a plurality of optical fiber legs from a cable jacket of a fiber optic cable such that the optical fiber legs.

Key Takeaways

Communication optical cables can be bundled on power poles using ADSS, figure-8, or lashed aerial designs, with careful planning for clearances, safety, and pole-sharing. Aerial Cable Installation TechniquesAll-Dielectric Self-Supporting (ADSS) cables are commonly used for bundling optical fibers near power lines because they are non-metallic and can safely coexist with high-voltage lines without grounding issues.

ADS

S cables are self-supporting and do not require additional messenger wires, making them ideal for pole-sharing scenarios. Figure-8 cables include an independent catenary wire that supports the cable weight, allowing it to be lashed to existing overhead infrastructure. This design is suitable for retrofitting optical cables onto poles already carrying power or older communication lines.

Cable lashing involves securing lightweight fiber cables to a messenger strand or existing cable using specialized lashing machines. This method is cost-effective for adding new fibers to existing pole lines but requires proper permissions and careful tensioning to avoid sagging or damage.

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Micro-

Duct and Bundling MethodsMicro-ducts allow multiple optical fibers to be installed in a single protective conduit, which can then be bundled along poles. Micro-duct cables can be jetted into place, reducing the need for heavy aerial cable handling and enabling future expansion without additional pole work. Active optical cable bundling involves breaking out multiple fiber legs from a main cable and terminating them with connectors or converter components.

This method allows simultaneous testing and selective splicing, which is useful for high-density installations and minimizing cable jacket waste.

Pole-

Sharing and Clearance ConsiderationsWhen bundling optical cables with power poles, it is essential to: Obtain permits from pole owners and local authorities before installation. Maintain vertical and horizontal clearances between power lines and communication cables to comply with safety standards and prevent electrical hazards. Plan splice points and slack storage to ensure accessibility for maintenance and minimize interference with traffic or other utilities.

Use UV-resistant polyethylene jackets for aerial cables to protect against sunlight degradation.

Safety and Planning

Aerial installations require personnel trained in working at heights and near energized lines. Proper personal protective equipment (PPE), including steel-toed boots, insulated gloves, and fall protection, is mandatory. Pre-installation planning should include route surveys, ground condition assessments, and coordination with local agencies to ensure safe and efficient deployment.

Summary

Bundling communication optical cables on power poles can be achieved using ADSS, figure-8, lashed cables, or micro-duct systems, with careful attention to clearances, pole-sharing permissions, and safety protocols. Advanced methods like active optical cable bundling allow efficient testing and splicing, reducing installation time and material waste. Proper planning, adherence to standards, and trained personnel are critical for successful aerial cable deployment.

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Article Content

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A method includes breaking out a plurality of optical fiber legs from a cable jacket of a fiber optic cable such that the optical fiber legs extend from an end of the cable jacket,...

Handbook Optical fibres, cables and systems

ITU-T has been active in the standardization of optical communications technology and the techniques for its optimal application within networks from the infancy of this industry. However, it is not always

Optical Fiber/Optical Cables/AOC Routing and Bundling

This document describes the specifications for preparing, routing, and bundling cables and attaching labels to these cables.

The FOA Reference For Fiber Optics -Outside Plant Construction

Deploying fiber above ground on poles or towers removes the need for underground digging and is particularly useful when the ground is uneven, rocky or both. Aerial installation is generally much less

The FOA Reference For Fiber Optics

Just like "wire" which can mean lots of different things - power, security, HVAC, CCTV, LAN or telephone - fiber optics is not all the same. Since all these applications require different installation procedures,

Comprehensive Technical Guide to Fiber Optic Bundles

Fiber optic bundles consist of multiple optical fibers grouped together to transmit light signals simultaneously. These bundles are integral to various applications, including imaging systems,

Cable Routing and Bundling Basics

This document describes the specifications for preparing, routing, and bundling cables and attaching labels to these cables.

DINTEK Guide to Cable Bundling and Structured Cabling

Explore the evolution of cable bundling in data cabling, balancing performance, heat control, and modern network efficiency.

Rules and Best Construction Practices for Attaching Communication

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This paper will provide a broad coverage of the various attachment options and proposed best practices for using overhead assets to better leverage a communication build out for both its

Mixing Fiber and Power Lines in Aerial Fiber Deployments

Street lights, existing telephone poles, power lines, street signs, buildings and trees all jostle for position, especially in urban areas. Plotting a route through these obstacles can be difficult and time

Overhead Optical Cable Construction Guidelines

If we can reduce failures and increase the service life of optical cables by carrying out communication optical cable construction in a

The FOA Reference For Fiber Optics

OPAC (optical power attached cable) is a type of fiber optic cable that is installed by attaching to a host conductor along overhead power lines. OPAC cables can be

The FOA Reference For Fiber Optics -Outside Plant Construction

If poles exist already, it is required to have proper permits for adding communications cables and the poles must be “made ready” by the owner of the poles are authorized parties. This may take

Fiber Technology at Electrical Utilities: Techniques for ...

Fiber is nonconductive, and fiber optic cable is generally nonconductive. Most aerial fiber optic cables are installed by lashing to a steel messenger wire strung between poles, but there is a category of

Aerial Cable Placing Procedure

Abstract An aerial cable is an insulated cable usually containing all fibres required for a telecommunication line, which is suspended between utility poles or electricity pylons. Aerial optical

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Aerial Fiber Optic Cable – Types & Installation Tips

Discover aerial fiber optic cables including ADSS, Figure-8, and OPGW types. Learn key advantages and expert installation tips for reliable outdoor networks.

Fiber Optic Patch Panel: 10 Best Options for 2025 Success

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Discover the best fiber optic patch panel options for 2024. Learn how to choose, install, and maintain your fiber network for future growth.

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