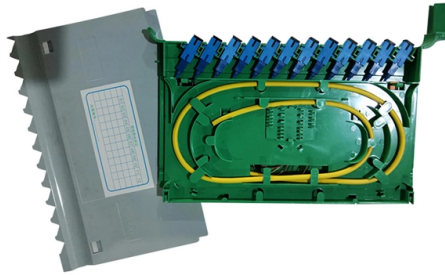


Outdoor Optical Cable Structure Types



Article Overview

Outdoor optical cables come in various structures such as loose tube, aerial, armored, micro, and ribbon designs, each tailored for specific environmental and installation conditions.

Loose Tube Cables

Loose tube cables encase optical fibers in gel-filled buffer tubes, providing protection against moisture, temperature fluctuations (-40°C to $+70^{\circ}\text{C}$), and mechanical stress. This design allows fibers to move freely within the tube, maintaining signal stability in harsh outdoor environments. They are ideal for high-humidity areas, exposed conduit runs, and transitions between outdoor and indoor networks due to their crush-resistant and moisture-blocking construction.

Ribbon Cables

Ribbon cables group fibers into flat, ribbon-like structures, typically in multiples of 12 or 24. This structure enables fast mass fusion splicing, making them suitable for high fiber-count networks such as data centers, central offices, or metro backbones. They are available in both armored and dielectric types for outdoor use.

Micro Cables

Micro cables are ultra-compact, with diameters of 1–2 mm, allowing high fiber density in space-constrained environments. They are suitable for congested ducts, LANs, and building connections, and can be installed in microducts using air-blown or jetting t...

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Understanding Outdoor, Indoor, and Indoor/Outdoor Optical Fiber Cables

1. Outdoor Optical Fiber Cable The most common type of cable we encounter in communication engineering is usually outdoor optical fiber cable. To meet the usage requirements of

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