

What are the two types of fiber optic splitters

Article Overview

Fiber optic splitters are primarily classified into PLC (Planar Lightwave Circuit) and FBT (Fused Biconical Taper) types, each suited for different network scales and applications.

Overview

A fiber optic splitter is a passive device that divides a single optical signal into multiple outputs or combines multiple inputs into one, without requiring electrical power. They are essential in FTTH (Fiber to the Home), PON (Passive Optical Networks), and other optical communication systems to efficiently share a single fiber among multiple users or devices .

Main Types

1. Planar Lightwave Circuit (PLC) Splitters

- o Technology: Uses photolithography to create waveguides on a silica glass substrate, allowing precise and uniform light distribution .
- o Split Ratios: Supports high split counts, such as 1x16, 1x32, 1x64, or even 1x128 .
- o Advantages: Uniform signal distribution, low insertion loss, wide wavelength range (1260-1650 nm), temperature stability, and high reliability .
- o Applications: Ideal for large-scale networks, FTTH deployments, data centers, and high-density telecom networks.
- o Packaging Options:
 - o Bare Fiber: No connectors, spliced directly to network fibers.
 - o Micro Tube: Encapsulated in micro steel tubes for junction boxes.
 - o ABS Box: Compact plastic enclosure for indoor use.
 - o LGX Box: Metal enclosure with standard fiber interfaces for plug-and-play integration.
 - o Rack Mounted: Designed for 19-inch racks in data centers .

2. Fused Biconical Taper (FBT) Splitters

- o Technology: Two or more fibers are fused and stretched under heat to form a tapered structure that splits light according to a predetermined ratio .
- o Split Ratios: Typically smaller splits like 1x2, 1x4, or 2x2.
- o Advantages: Cost-effective for low-split applications, simple design.
- o Limitations: Less precise than PLC, sensitive to wavelength variations, not ideal for high-split or WDM applications .

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o Applications: Small networks, cost-sensitive deployments, or situations where only a few outputs are needed.

Other Classifications

o Indoor vs. Outdoor Splitters: Outdoor splitters are rugged, weatherproof, and often housed in IP-rated enclosures for pole-mounted or underground use. Indoor splitters are compact and designed for controlled environments like equipment rooms or fiber distribution boxes .

o Balanced Splitters (2xN): Have two input fibers and N outputs, used for redundancy or distributing multiple signals proportionally .

o Multiplexed Splitters (2:8, 4:16): Combine multiple inputs into multiple outputs, useful for distributing separate signals like data and video .

Summary

o PLC splitters are preferred for high-density, large-scale networks due to uniformity, scalability, and stability.

o FBT splitters are suitable for smaller, cost-sensitive networks with fewer outputs.

o Splitters can be packaged in various forms to suit installation environments, from bare fiber to rack-mounted units. Understanding these types helps in selecting the right splitter for network size, application, and environmental conditions, ensuring efficient and reliable optical signal distribution .

What is a Fiber Optic Splitter? At its core, a fiber optic splitter (also known as a beam splitter or optical splitter) is a passive device

According to the principle, fiber optic splitters can be divided into Fused Biconical Taper (FBT) splitter and Planar Lightwave Circuit

Fiber optic couplers are optical devices that connect three or more fiber ends, dividing one input between two or more outputs, or

An optical splitter is a crucial passive fiber optic device that splits and combines optical

This guide focuses on two critical aspects of optical splitters that define FTTH performance: split ratios (how signals

Classified by Manufacturing Technique There are two main types of optical splitters based on manufacturing

This guide covers what optical fiber splitters are, the main types of optical fiber splitters you should know

What are the two types of fiber optic splitters

about, how

Conclusion Optical splitters are essential in modern fiber optic networks. They efficiently

The multimode optical splitter implies that the fiber is optimized for 850nm and 1310nm operation, whereas the single

Fiber optic splitters are primarily categorized into two main types based on their working principles: Planar Lightwave

Optical splitters are the unsung heroes of the internet age. They allow us to share high-speed fiber connections

Splitters can be constructed using a variety of singlemode and multimode fibers and most connector types for a variety of

Two types of fiber optic splitters are commonly used in PON networks: One is the FBT coupler splitter and the other is

Fiber splitters are indispensable components in modern fiber optic networks, driving the

Optical splitters can be divided into two types based on their working principles: Planar

Optical splitters are versatile and can be utilized in various types of fiber optic networks, including single-mode and

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