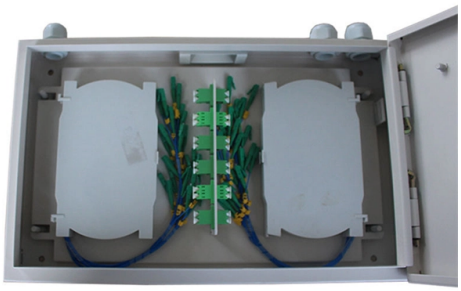
Passive Optical Splitter Types



Overview

The configuration below has individual splitters at a central location, but addresses that are typically not reconfigurable by jumpers, so this configuration is a “distributed” split.

Key Takeaways

The two main types of passive optical splitters are Fused Biconical Taper (FBT) and Planar Lightwave Circuit (PLC) splitters, each suited for different split ratios and network requirements.

Overview of Passive Optical Splitters

Passive optical splitters are devices that divide a single optical signal into multiple outputs without requiring any power, making them essential components in PON and FTTH networks. They allow a single Optical Line Terminal (OLT) to serve multiple Optical Network Terminals (ONTs), reducing fiber infrastructure costs and enabling scalable network deployment. Splitters are characterized by their split ratio, such as 1x2, 1x4, 1x8, 1x16, 1x32, or 1x64, which defines how many outputs the input signal is divided into.

Types of Passive Optical Splitters1. Fused Biconical Taper (FBT) SplittersFBT splitters are created by fusing and tapering two or more optical fibers together. Key features include: Low cost and simple manufacturing process.

Ideal for small split ratios like 1: 2 or 1: 4. Variable splitting ratios can be achieved by adjusting the tapering process. Applications: Small-scale PON deployments, local distribution, and situations where cost is a primary concern.

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2. Planar Lightwave Circuit (PLC) SplittersPLC splitters use a silica-based planar waveguide fabricated with semiconductor technology. Key features include: High uniformity of output power across all ports.

Supports large split ratios such as 1: 32, 1: 64, or higher. Compact and lightweight, suitable for mass deployment. Wide wavelength range and low insertion loss.

Applications: Large-scale FTTH networks, GPON, EPON, and 10G PON systems where consistent performance is critical.

Deployment Architectures

Splitters can also be classified based on their network placement: Centralized splitting: Splitters are located at a central office or cabinet, allowing flexible customer-to-splitter assignments via jumpers. Distributed splitting: Splitters are placed closer to end-users in closures or pedestals, with fixed assignments that cannot be easily reconfigured. SummaryFBT splitters: Cost-effective, suitable for small splits, less uniform output.

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C splitters: High uniformity, supports large splits, ideal for scalable FTTH networks. Split ratios and deployment architecture are critical for network design, affecting bandwidth distribution, cost, and scalability. Choosing the appropriate splitter type depends on the network size, required split ratio, and performance requirements.

Article Content

Introduction to Passive Optical Network Splitter Architectures

The configuration below has individual splitters at a central location, but addresses that are typically not reconfigurable by jumpers, so this configuration is a “distributed” split.

Comprehensive Guide to Optical Splitters

What is an Optical Splitter? An optical splitter is a crucial passive fiber optic device that splits and combines optical signals. It can distribute the optical energy transmitted through a single

Fiber Optic Splitter: How It Works & Types Guide

This guide demystifies fiber optic splitters, explaining their design, operating principles, types, key specifications, and real-world applications.

Optical Splitters Demystified: The Silent Heroes Powering Your FTTH ...

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An Optical Splitter, also known as a beam splitter, is a passive optical device that divides a single input optical signal into two or more output signals. Conversely, it can also combine multiple

Introduction to Passive Optical Network Splitter Architectures

Each splitter architecture discussed in this article has its own set of pros and cons. The choice of architecture depends on various factors, including customer density, cost considerations, and

Optical Splitters: Split Ratios, Splitting Architectures & PON Network ...

This guide focuses on two critical aspects of optical splitters that define FTTH performance: split ratios (how signals are divided) and splitting architectures (how splitters are

PASSIVE OPTICAL SPLITTER

The GR-1209 standard details comprehensive optical performance criteria for a passive optical splitter. There are six main specifications that are outlined in the standard.

Fiber-optic splitter

It is an optical fiber tandem device with many input and output terminals, especially applicable to a passive optical network (EPON, GPON, BPON, FTTX, FTTH etc.) to connect the main distribution

Optical Splitters for Central Office/Headend

Passive optical devices, singlemode PLC and FBT devices bare splitters and couplers specification and ordering guide. CommScope offers a portfolio of bare

What is Fiber Optic Splitter and Types

This post provides a introduction to fiber optic splitters, their types, functions, and several popular Gcabling optical PLC splitters.

Optical Splitters in Modern Networks

Unraveling the Power of Optical Splitters in Modern Networks In today''s optical network topologies, the advent of fiber optic splitters contributes to maximizing the performance of optical

The Comprehensive Guide to PON Architecture: Mastering OLT,

Comprehensive guide to Passive Optical Networks (PON), covering OLT, ODN, ONU/ONT, GPON/XGS-PON/NG-PON2 standards, deployment strategies, and FTTH network

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Passive optical network

Downstream traffic in active (top) vs. passive optical network A passive optical network consists of an optical line terminal (OLT) at the service provider''s central

Passive Optical Components Market Size, Share & Forecast

Passive Optical Components Market Dynamics 2026-2033 The Passive Optical Components Market is characterized by a complex interplay of technological advancements,

What Is Passive Optical Networking (PON)?

Passive optical networking (PON) provides Ethernet connectivity from a main data source to endpoints, using a technique called passive optical splitting.

Shop Beam Splitters & Passive Optical Splitters

Explore our collection of optical cable splitters and PON splitters for sale. Optical beam splitters are used to split the fiber optic light evenly into several parts at specific ratios. Buy optical splitters and passive

Sourcing PLC Splitter: A Complete Buyer''s Guide

As fiber optic networks continue to expand worldwide, the demand for reliable and cost-effective solutions for signal distribution grows alongside. One

What is Fiber Optic Splitter and Types

What is a Fiber Optic Splitter? Fiber optic splitter is a passive optical device used to distribute optical signals, which can divide input optical signals into multiple outputs to meet the fiber

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