

Article Overview

FBT (Fused Biconical Taper) splitters are passive optical devices that split or combine light in fiber networks, available in 1x2, 2x2, and higher configurations with customizable coupling ratios and wide wavelength support.

Key Specifications

Configurations and Split Ratios: FBT splitters are commonly available in 1x2, 2x2, 1x4, 1x8, and 2xN configurations. Standard split ratios include 50/50, but asymmetric ratios such as 10/90, 20/80, 30/70, or 1/99 are also supported for monitoring taps, power balancing, or specialized distribution applications . **Wavelength Range:** Single-mode FBT splitters typically operate over 1260-1650 nm, covering standard telecom bands. Some variants are optimized for 1310 nm or 1550 nm, while wideband and dual-window types support 1260-1620 nm for WDM or broadband applications . **Insertion Loss and Performance:** A typical 1x2 splitter has an insertion loss around 3.5 dB, with low polarization-dependent loss (PDL < 0.2 dB) and high return loss (>50 dB), ensuring minimal signal degradation . **Packaging:** FBT splitters are housed in hermetically sealed steel tubes or ABS plastic modules, providing protection and stable optical performance. Pigtails are terminated with connectors such as SC/APC or LC/UPC for easy integration . **Environmental Tolerance:** Designed for both indoor and outdoor use, FBT splitters maintain performance across -40°C to +85°C, with vibration and temperature cycling compliance per Telcordia GR-1221 standards . **Applications:**

- o FTTH Deployments: Cost-effective splitting at fiber distribution points for a small number of subscribers .
 - o CATV Networks: RF-over-fiber signal distribution using 1310/1550 nm wavelengths .
 - o PON Networks: Low-port-count splitting in GPON or EPON architectures .
 - o Network Monitoring: Asymmetric split ratios allow tapping a small percentage of the signal for testing without disrupting the main path .
 - o Fiber Optic Sensors and Test Equipment: Signal distribution and power monitoring .
- Manufacturing Notes:** FBT splitters are created by fusing and tapering two or more optical fibers under controlled heat and tension. The splitting ratio is determined by the taper length, fusion temperature, and pulling speed. This passive design requires no electrical power, making it suitable for remote or power-limited installations . **Comparison with PLC Splitters:** FBT splitters are ideal for low-ratio, cost-sensitive applications, while PLC splitters are preferred for high split counts and uniform performance across multiple outputs . FBT splitters remain a reliable, cost-effective solution for modern fiber networks, balancing performance, environmental resilience, and flexibility in split ratios for diverse telecom and data applications.

As with most technology, each type has both advantages and disadvantages when deploying them in a passive optical network.

FBT optical splitter type

When selecting and deploying FBT splitters in network topologies, several factors must be considered, such as the required splitting

FBT Splitter Technology: The Traditional Approach FBT splitters represent the traditional method of optical signal

explains how optical splitters enable FTTH, their types (FBT vs. PLC), key ratios, and how they integrate with LINK

PLC splitters are a more modern type of splitter that uses waveguide technology to split

Basically, there are two types of optical fiber splitter classified by their working principle: FBT splitter (fused biconical

In the realm of fiber optic technology, Fused Biconical Taper (FBT) splitters play an indispensable role in signal

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

Fiber optic networks rely on passive optical components to distribute signals efficiently. When it comes to splitters,

Compare PLC Splitters and FBT Splitters for 2025. Learn about cost, performance, scalability, and which splitter suits

? FBT vs. PLC Splitters: Choosing the Right Type There are two main manufacturing technologies for optical splitters,

PLC and FBT splitters differ in various aspects, including the manufacturing process, operating wavelength, failure

Optical splitters are in two types According to the working principle, So they can be divided into two types--FBT

Type of Splitters for FTTH : In this article, I will discuss about fiber optic splitters that widely used in FTTH network. A

Currently, two principal types of optical splitters have emerged to address the challenges of optical signal distribution:

FBT optical splitter type

Why use FBT splitter? FBT splitter provides high stability and reliability, low insertion loss, cost and polarization

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