

The main forms of optical splitters

Article Overview

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

Fused Biconical Taper (FBT) Splitters

FBT splitters are an older, widely used type of optical splitter. They work by fusing and tapering two or more optical fibers together, allowing light from the input fiber to be gradually redistributed among the output fibers. The split ratio can be controlled by adjusting the length, torsion, and stretch of the fibers during the fusion process. FBT splitters are cost-effective and ideal for low split ratios (e.g., 1x2, 1x4), making them suitable for short-distance applications. However, they may exhibit uneven light distribution and are less effective for high-channel networks .

Planar Lightwave Circuit (PLC) Splitters

PLC splitters are a modern technology that uses photolithographic techniques to create waveguides on a silica or semiconductor substrate. Light is guided through these waveguides and split evenly across multiple outputs, providing uniform power distribution regardless of the split ratio. PLC splitters are ideal for high split ratios (e.g., 1x32, 1x64) and large-scale networks such as FTTH, FTTX, and PON systems. They are compact, support many branching channels, and maintain signal quality across different wavelengths, though they are generally more expensive than FBT splitters .

Other Considerations

- o Balanced (2xN) splitters: These have two input fibers and N output fibers, often used for redundancy in networks.
- o Insertion loss and uniformity: PLC splitters typically offer lower insertion loss and more consistent output power compared to FBT splitters.
- o Applications: FBT splitters are suitable for smaller networks or low-channel applications, while PLC splitters are preferred for large-scale deployments requiring high reliability and uniform signal distribution . In summary, FBT splitters are cost-effective for small-scale, low-split applications, whereas PLC splitters provide precise, uniform splitting for high-channel, large-scale optical networks. The choice depends on network size, split ratio, and performance requirements.

Fiber-optic splitter A fiber-optic splitter, also known as a beam splitter, is based on a quartz substrate of an integrated waveguide

The main forms of optical splitters

Optical components that create two beams by splitting incident light are beamsplitters. Read more about the different types of

What is a Fiber Optic Splitter? Fiber optic splitter is a passive optical device used to distribute optical signals, which

Optical splitters work by using different methods--such as fused biconical taper, planar

PLC splitter, or the Planar Waveguide Circuit splitter, is a passive device to divide one or two optical signals to

Optical splitters can be divided into two types based on their working principles: Planar Lightwave Circuit (PLC)

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

Types Types of fiber optic couplers include splitters, combiners, X-couplers, trees, and stars, which all include single window, dual

Bandwidth coupler and splitters are some of the most important passive devices which are widely used in a number of

What's an optical splitter? How does the fiber optic splitter work? How many fiber splitter types? How to choose the

Beamsplitters can be used in a wide range of fields, such as optics and interferometry. These important devices come in

The optical splitter is an optical power distribution device that splits one optical signal into multiple optical fiber signals

Fiber optic splitters enable a signal on an optical fiber to be distributed among two or more fibers. Since splitters contain no

Different Form Factors of Optical Splitters Splitters come in various shapes to fit different environments. Bare Fiber

Explore the workings of fiber optic splitters, their technical specifications, and wide-ranging

The main forms of optical splitters

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

Web: <https://www.kremgroup.co.za>

