

## Article Overview

Planar optical waveguide splitters, commonly known as PLC splitters, are classified based on input/output configurations, packaging types, and functional characteristics for optical networks.

## Input/Output Configurations

PLC splitters are primarily categorized by the number of input and output ports:

- o 1xN Splitters: One input fiber splits into multiple output fibers, commonly used in FTTH networks. Standard configurations include 1x4, 1x8, 1x16, 1x32, and 1x64 .
- o 2xN Splitters: Two input fibers feed multiple outputs, allowing redundancy or bidirectional signal distribution. Typical configurations include 2x8, 2x16, 2x32, and 2x64 . These configurations determine the splitting ratio and are selected based on network design requirements.

## Packaging Types

PLC splitters are also classified by their physical packaging, which affects installation and handling:

- o Bare Fiber Splitters: No connectors; fibers are exposed for splicing .
- o Blockless Splitters: Compact, minimal packaging for flexible deployment .
- o ABS Splitters: Encased in ABS plastic for protection and durability .
- o Fan-Out Splitters: Individual fibers are separated with protective tubing for easy connection .
- o Tray Type Splitters: Organized in trays for high-density applications .
- o Rack-Mount Splitters: Designed for centralized distribution in telecom racks .
- o LGX Splitters: Modular format compatible with LGX enclosures .
- o Mini Plug-In Splitters: Small form factor for space-constrained installations .

## Functional Characteristics

PLC splitters are further classified based on performance and specialized features:

- o Polarization Maintaining (PM) Splitters: Maintain polarization state for sensitive applications .
- o Low Insertion Loss Splitters: Optimized for minimal optical power loss, typically below 0.5 dB per output .
- o Low Polarization Dependent Loss (PDL): Ensures uniform performance across polarization states .
- o High Uniformity Splitters: Provide consistent power distribution across all output ports .

## Splitting Ratios

# In planar optical waveguide splitters

The split ratio defines how optical power is divided among outputs. Common ratios include 1:8, 1:16, 1:32, 1:64, and their 2xN equivalents. Uniformity and excess loss are key metrics to evaluate splitter performance.

## Applications

PLC splitters are widely used in:

- o FTTH (Fiber to the Home) networks for distributing signals to multiple subscribers.
  - o PON (Passive Optical Networks) for efficient optical signal distribution.
  - o Short-range optical communication systems using planar optical waveguides and plastic optical fibers.
- These classifications ensure that PLC splitters meet diverse network requirements, offering reliability, compactness, and cost-effective deployment.

PLC optical splitters are based on planar lightwave circuit technology, which uses a silica-based waveguide to split the optical signal.

PLC Splitter (Planar light-wave circuit splitter) is a type of optical power management device that is fabricated using

PLC (Planar Lightwave Circuit) splitters are crucial components in optical networks, facilitating the distribution of optical

The device employs a large-core step-index POF with a core diameter of 1 mm, enabling efficient coupling of

These splitters are manufactured and tested to GR-1209/1221 to provide the high performance and reliability needed in the outside

In this paper, we proposed an optical splitter planar waveguide design with super multi channels. The design utilizes

In this paper, 1 &#215; 8 s - bend - arc based symmetrical and wavelength insensitive optical beam splitter is modeled using beam

Description The Gigalight Planar Lightwave Circuit (PLC) splitter is a type of optical power management device based on silica

Corning's Planar Light Circuit (PLC) splitters are fully passive optical branching devices that exhibit uniform signal-splitting for the

## In planar optical waveguide splitters

Planar waveguide splitters are a good alternative to multi-channel splitters. They do not have to be assembled in cascading order

PLC Splitter Product Description: Planar lightwave circuit (PLC) splitter is fabricated using silica optical waveguide technology and

Planar waveguide splitters are a good alternative to multi-channel splitters. They

In the world of fiber optics, where high-speed data transmission is king, some components

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

The 1&#215;32 Planar Waveguide Optical Splitter features a low-profile package, measuring 20 mm in width, 80 mm in length, and 6 mm

The EM4 high reliability, high grade and superior performance planar lightwave circuits (PLC) based planar waveguide optical signal

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