

Number of ports on the optical splitter



Overview

As a result, multiple parallel optical output ports need to divide the signals between ports for reducing the magnitude.

Key Takeaways

Optical splitters typically have 2 to 128 output ports, with common configurations being 1:2, 1:4, 1:8, 1:16, 1:32, and 1:64.

The number of ports on an optical splitter, also called the split ratio, defines how many output fibers a single input fiber is divided into. For example, a 1:32 splitter takes one input signal and distributes it to 32 outputs, allowing one OLT (Optical Line Terminal) port to serve 32 ONUs (Optical Network Units) or end users. Splitters can be uniform, distributing optical power evenly, or non-uniform, where outputs receive different power levels for specialized applications.

Common Split Ratios

- Small splits: 1:2, 1:4 – often used in low-density networks or short-distance deployments.
 - Medium splits: 1:8, 1:16 – balance between coverage and signal strength.
 - Large splits: 1:32, 1:64 – typical in FTTH (Fiber to the Home) networks to maximize OLT port utilization.
 - Maximum theoretical splits: GPON can support up to 1:128, though 1:64 is more practical for performance and bandwidth considerations.
- Cascaded and Distributed Splitting

To achieve higher split ratios, cascaded splitters are used. For instance, a 1:32 split can be implemented using a 1:4 splitter followed by four 1:8 splitters, resulting in 32 outputs . Splitters can be deployed in centralized locations (co-located at the OLT or central office) or distributed in the field (closures or pedestals), affecting fiber management and network flexibility .

Example Product Port Counts

Some optical terminals, like the Corning Evolv® Openable Terminal, provide 2, 4, 6, or 8 ports, suitable for smaller distribution points or tap-off solutions . Larger PLC splitters in PON networks can reach 32 or 64 output ports, supporting high-density subscriber connections .

Practical Considerations

- Bandwidth per user decreases as the number of ports increases, so network planners often choose split ratios based on expected traffic and distance .
- Cascading splitters allows flexible network design while maintaining optical power budgets.
- Deployment location (centralized vs distributed) impacts maintenance, scalability, and fiber usage . In summary, optical splitters range from 2 to 128 ports, with 1:32 and 1:64 being the most common in modern PON networks, and the choice depends on network density, bandwidth requirements, and deployment strategy.

Article Content

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A split ratio describes how many output ports a splitter has, and how evenly the input optical power is distributed

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Split Ratios and Splitting Level of Optical Splitters

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A fiber broadband provider typically determines and overall split ratio for the network, such as 1x32 or 1x64, and uses combinations

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By dividing a single optical signal into multiple outputs, optical splitters allow one Optical Line Terminal (OLT) to serve

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Use this optical power splitter calculator to estimate split ratio loss, branch output dBm, insertion loss, excess loss, margin, and PON

Understanding The Split Ratios And Splitting Level Of Optical Splitters

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What Is Optical Splitter in FTTH?

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Understanding Optical Coupler and Optical Splitters

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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

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

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Coupler and Splitter Overview – fiberopticnetwork

Thus, multiple parallel optical output ports must divide the signal between the ports, reducing its magnitude. The

Optical Splitters are used in PON (Passive Optical Network

PON consists of an optical line terminal (OLT) at the service provider's central office and optical network units (ONUs) near or at the

Optical Splitters in Modern Networks

Splitting ratio: Defined as the output power of the splitter output port in the system application, it is related to the

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What are the Benefits of Using Optical Splitters? The utilization of splitters offers two significant benefits: Scalability

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Overview of Fiber Optic Splitters A fiber optic splitter, also known as an optical splitter or a beam splitter, is a passive optical device

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Note: "N" denotes the number of output ports. The insertion loss is tested by using a light source and power meter (or) by using an

Optical Splitters

Optical Splitters An optical splitter takes light from one fiber and splits it into two or more light streams. They are used in FTTH

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Home -The Fiber Optic Association

Attenuation of a Splitter The ideal attenuation of a symmetrical optical splitter is calculated according to the following formula:

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