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.Overview of Splitter Ports

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

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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.

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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

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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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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

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

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