

Which ONU optical splitter is the best



Overview

Passive optical splitter, also known as splitter, is a passive device used for power coupling and distribution of optical signals.

Key Takeaways

PLC splitters are generally considered the best choice for ONU connections in modern PON networks due to their reliability, uniform signal distribution, and scalability. Splitter Types

Planar Lightwave Circuit (PLC) Splitters are the preferred choice for large-scale PON deployments. They provide highly uniform signal distribution, operate across a wide temperature range, and support multiple wavelengths, making them suitable for GPON, XGS-PON, and NG-PON2 networks. PLC splitters are ideal for split ratios of 1:8, 1:16, 1:32, or 1:64, which are common in FTTH networks. They are compact, durable, and can be packaged in ABS or LGX boxes, often rated IP65 for outdoor use. Fused Biconical Taper (FBT) Splitters are more cost-effective but less versatile. They are suitable for low port counts (1:2 or 1:4) and test environments. FBT splitters are sensitive to temperature changes and may not distribute signals evenly, limiting their reliability in large-scale deployments.

Key Considerations

- Split Ratio: Choose a ratio that balances bandwidth and subscriber count. For example, a 1:32 splitter can serve 32 ONUs from a single OLT port, optimizing capital efficiency, while cascaded smaller splitters (e.g., 1:8 followed by 1:4) offer flexibility and better distance coverage.

- **Single-mode vs Multimode:** ONU connections typically use single-mode fiber, which ensures efficient power transfer and long-distance transmission .
- **Packaging and Durability:** Outdoor deployments require IP65-rated ABS or LGX enclosures to protect against moisture and dust. Custom labeling and pre-shipment testing (IL/RL) are standard for quality assurance .
- **Deployment Architecture:** Centralized splitters near the OLT simplify management but concentrate failure risk, while distributed splitters near subscribers reduce fiber usage and improve reach. Many networks use a cascaded approach for optimal performance .

Recommendation

For most modern ONU deployments, PLC splitters in ABS or LGX boxes with a 1:8, 1:16, or 1:32 split ratio are the best choice. They provide uniform signal distribution, high reliability, and scalability, making them suitable for both current GPON networks and future-proof XGS-PON or NG-PON2 upgrades . FBT splitters may be used only for small-scale or temporary setups.

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Optical Splitters for Central Office/Headend Optical splitters and couplers split or combine light—distributing signals injected into a

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Its reach is 20 km or farther. Within the ODN, fiber optic cables, fiber optic connectors, passive optical splitters, and

Level 1 and Level 2 Splitting in FTTH Networks-BLOG-Grandway

In the application of one-stage splitting in the FTTH network, the optical splitter can be centrally installed at the central station, but in

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PON Network Components Overview: OLT, ONU, ONT, and ODN

In ODN, fiber optic cables, connectors, passive optical splitters, and auxiliary components work together. ODN is

FTTH

Optical Signal Splitting A single fiber starting from the OLT is split through passive optical splitters to serve 64 customer-premise

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Understand GPON Technology

The ODN is composed of passive optical components (POS), such as optical fibers, and one or more passive optical

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This document provides guidance on designing and implementing fiber-to-the-home (FTTH) networks using passive optical networks

Best Optical Splitter Comparison

NOTE – For the splitter to work properly, the output fiber optic Toslink cable length should be less than 10 ft OPTICAL

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These various methods can be mixed in a network to best meet the performance and cost requirements for the network. The next

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