

How many optical splitters can one PON port support



Overview

An OLT PON port can theoretically support up to 64 ONUs in EPON and up to 128 ONUs in GPON. However, the ideal split ratio depends on multiple real-world factors including bandwidth demand, service type, fiber distance, and optical power loss. In fiber optic networks, especially in FTTx deployments, the number of Optical Network Units (ONUs) that a single PON port on an Optical Line Terminal (OLT) can support directly affects network planning, cost-efficiency, and service scalability. In this article, we'll explain the concept of split. By dividing a single optical signal from a central Optical Line Terminal (OLT) into multiple outputs for Optical Network Terminals (ONTs) at users' homes, splitters eliminate the need for dedicated fibers to each residence—slashing infrastructure costs while scaling network reach. 1x32 splits were common in North America for G-PON architectures. According to the Broadband Forum, PLC splitters are essential for achieving scalable and cost-effective GPON and XGS-PON deployment in access networks. Then, feeder fibers connect splitter ports to the end customer via a hub or drop terminal, again. The most common splitters deployed in a PON system is a uniform power splitter with a 1:N or 2:N splitter ratio, where N is the number of output ports. The optical input power is distributed uniformly across all output ports.

Article Content

Feb 03, 2026

16-Port XGS-PON OLT with 8-Port 10G SFP+ + 2-Port 100G

Flexible 10G XGS-PON Solution for FTTH and Enterprise Applications offers a high-capacity, carrier-grade fiber access solution. Each of its 16 XGS-PON ports supports a 1:256 split ratio, en

Apr 24, 2026

The Hidden Limits of GPON: Understanding 1:32 Splitter Saturation

Upgrade the Protocol: If your 1:32 splitters are consistently hitting bandwidth ceilings, it's time to move from GPON (2.5G) to XGS-PON (10G). This quadruples your "pie" without needing to ...

Jan 27, 2026

Optical Splitters: Split Ratios, Splitting Architectures & PON Network ...

A split ratio describes how many output ports a splitter has, and how evenly the input optical power is distributed across those ports. For example, a 1:32 splitter takes 1 input signal and ...

Dec 24, 2025

Fiber Construction, Part 3: Certifying PON with Unbalanced Splitter ...

The splitters in these single-split architectures are usually 1×16 or 1×32, equating to one common port and either 16 or 32 splitter ports feeding service to customers.

Apr 09, 2026

Fiber Construction, Part 3: Certifying PON with ...

The splitters in these single-split architectures are usually 1×16 or 1×32, equating to one common port and either 16 or 32 splitter ports feeding ...

Jan 11, 2026

Introduction to Passive Optical Network

A Cisco Catalyst PON Series OLT can support up to 128 Cisco Catalyst PON Series ONTs per port. A Cisco Catalyst PON Series OLT provides 8/16xPON ports, 4xG combo ports and 2x10G small form ...

Dec 03, 2025

Design and Installation Challenges and Solutions for Passive ...

The passive optical splitters serve to branch the signal from one PON port on the OLT to typically up to 32 ONTs located in or near the work areas. With typically four gigabit Ethernet ports per workgroup ...

Mar 31, 2026

Fiber Optic Splitters for PON Networks: 2025 Guide

In this guide, you'll learn how fiber splitters function in PON networks, the difference between PLC and FBT types, and how to choose the best model for your rollout in 2025.

Feb 07, 2026

Introduction to Passive Optical Network Splitter Architectures

A fiber broadband provider typically determines and overall split ratio for the network, such as 1x32 or 1x64, and uses combinations of splitters to meet that ratio with each PON port.

Mar 01, 2026

Split Ratios and Splitting Level of Optical Splitters

A typical split ratio in a PON application is 1:32, meaning one incoming fiber split into 32 outputs. And the qualified fiber optic signal can be transmitted over 20 km.

May 14, 2026

How Many ONUs Can an OLT PON Port Support?

An OLT PON port can theoretically support up to 64 ONUs in EPON and up to 128 ONUs in GPON. However, the ideal split ratio depends on multiple real-world factors including bandwidth ...

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.chromadecksigns-eastrand.co.za>

Email: sales@chromadecksigns-eastrand.co.za

Phone: +32 2 318 5792

Address: Avenue Louise 500, 1050 Brussels, Belgium

This document is for informational purposes only. Specifications subject to change without notice.

