A PON splitter only supports up to 64

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. Why it matters: A higher split ratio allows you to connect more users per port, reducing hardware cost per. According to the Broadband Forum, PLC splitters are essential for achieving scalable and cost-effective GPON and XGS-PON deployment in access networks. 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. Cost Efficiency: A single OLT port can serve 8–64 ONTs via a splitter, reducing the number of OLTs, fibers, and deployment labor needed. Passive Operation: Splitters have no active electronics, so they require no power, cooling, or maintenance—lowering operational costs (OPEX) for ISPs. The choice of split ratio—1×2, 1×4, 1×8, 1×16, 1×32, or 1×64—directly impacts optical power budget, network reach, subscriber density, and long-term expansion capability.

Article Content

Apr 25, 2026

Fiber Broadband Association Defines PON Splitter

This foundational document explores how splitter architecture choices impact fiber counts, splicing, and customer connections while setting the stage for

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Passive Optical Network (PON) design and managing 101

What is PON design? A passive optical network is a fiber-based network architecture that uses unpowered (passive) splitters to enable a single

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Understand GPON Technology

Maximum differential fiber distance: 20km Split ratio: Restricted by path loss, PON with passive splitters (16,32, or 64 way split) Rate: 1.24416

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Introduction to Passive Optical Network Splitter Architectures

Fiber Broadband Association Technology Committee February 2025 The choice of splitter architecture for a passive optical network (PON) network can impact many aspects of a Fiber to the X (FTTx)

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The Fiber Optic Association

The optical splitter can be centralized - only one optical splitter on the OLT PON port which means every user had their own fiber direct to the head end. The optical splitter is located in the Headend (HE),

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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

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A Quick Look at Cisco Catalyst PON Series

When a signal reaches to a passive optical splitter, split into multiple output.Cisco Catalyst PON series can support up to 1:128 ratio (1:64 is

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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.

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PON splitter? : r/homelab

One PON port can typically be split up to 64 or 128 homes if it''s close to the OLT, but less if it''s distant. We typically do a 1x2 split right as it comes out of the OLT (with splitter cassettes in the neighboring

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The FOA Reference For Fiber Optics

This reduces the cost of the system substantially by sharing one set of electronics and an expensive laser with up to 32 homes. Upstream, the passive splitter acts

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RLTECH PON (PON Line Indicators and Split Ratio Design)

PON line design requires comprehensive consideration of optical power budget, split ratio, transmission distance, and scenario demands13. RLTECH provides stable PON solutions,

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PON Fault Scenarios And Troubleshooting Basics

PON Fault Scenarios and Troubleshooting Basics A PON network consists of an OLT connected via a PON splitter to multiple ONTs (one for each subscriber, up to 64 subscribers).

Oct 15, 2025

What is PON Modules and Its Role in Modern Networking

Long Reach: Support distances up to 20km (or more with higher classes like C++/N2b) from central office to customer. High Split Ratios: Allow a

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How to Design Your FTTH Network Splitting Level and

How to Design Your FTTH Network Splitting Level and Ratio In Passive Optical Network (PON), optical splitters play an important role in Fiber to

Jun 19, 2026

Testing Fiber Optic Couplers, Splitters Or Other Passive

Testing Fiber Optic Couplers, Splitters Or Other Passive Devices A passive device used to split or combine signals on fiber optics may be called a splitter, combiner

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RLTECH PON (PON Line Indicators and Split Ratio Design)

RLTECH provides stable PON solutions, supporting commercial deployments for 1:128 high-density users. Recommended products: RH8008GL/RH8016G OLT and ONU terminals

Dec 28, 2025

Differences Between 1x2 to 1x64 PLC Splitter Applications

Application differences between 1x2, 1x4, 1x8, 1x16, 1x32, and 1x64 splitters, covering optical performance, PON design, and deployment scenarios.

Jul 18, 2025

What Is GPON? Benefits, Applications, and How It Works

Scalability: Growth is generating through splitting capacity of the fiber, within which multi-users up to 64 or more will be connected. Long Reach: GPON

Jan 07, 2026

Understanding the Split Ratios and Splitting Level of Optical Splitters

The use of optical splitters in PON allows the service provider to conserve fibers in the backbone, essentially using one fiber to feed as many as 64 end users.

Jun 24, 2026

Understanding PON Splitters

Understanding PON splitters, they are fundamental components in fiber-optic networks, enabling efficient and reliable data distribution.

Jan 22, 2026

Balanced vs. Unbalanced PON: Key Differences and Deployment Impact

In a balanced PON architecture, a single splitter or a cascade of 2 or 3 splitters divide (as shown in figure 1) the optical light from the OLT equally among all the distribution fibers. This is known as a

May 12, 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

May 08, 2026

Fiber To The Home Network Design

Here are some options on design: PONs work on the principle that splitters allow one central port to communicate with 32 or 64 users over a single fiber to the splitter

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Optical Splitters are used in PON (Passive Optical Network ...

PON (Passive Optical Networks) There are two common types of systems that make up fiber networks: Active Optical Networks and Passive Optical Networks. Each offer ways to separate data and route it

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How to Design FTTH Network Split Level and Split Ratio?

PLC vs FBT Splitters: How to Choose Selecting the right splitter is crucial for building a reliable fiber optic network. PLC splitters are based on planar

Oct 16, 2025

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

A 1:32 splitter divides input power by ~32 (adding ~15dB of insertion loss), so the remaining power supports signals up to 20km. A 1:64 splitter adds ~18dB of insertion loss, leaving

Apr 16, 2026

Fiber Splitter Ratios: Optimizing Your PON Network

PON architectures use passive splitters to divide optical signals from a single OLT port to multiple ONTs. Common ratios include 1:8, 1:16, 1:32, and 1:64. Each doubling of split ratio halves

Jul 25, 2025

1x64 2x4 1x8

1x64 2x4 1x8 - Fiber-Mart provides Fiber Optic Splitter, PLC Splitter, Fiber Splitter Box, Fiber PLC Coupler based on the PLC (Planar Lightwave Circuit) technology, which has a compact size and

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