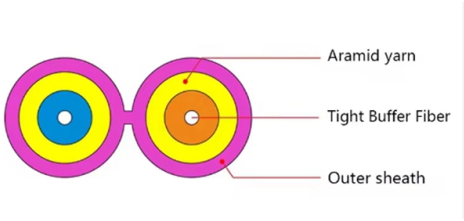
Optical splitter and ONU



Overview

WO2022001230A1 An optical splitter, an ODN, a method for identifying an optical link in which an ONU is located, an OLT, an ONU, and a PON system. H3C Pass.

Key Takeaways

In a PON system, the ONU connects to an optical splitter via the Optical Distribution Network (ODN), allowing a single OLT to serve multiple end users efficiently. Overview of the ConnectionIn a Passive Optical Network (PON), the Optical Line Terminal (OLT) at the service provider's central office sends optical signals downstream through the Optical Distribution Network (ODN).

The OD

N includes optical fibers and passive optical splitters, which divide the signal from the OLT to multiple ONUs (Optical Network Units) or ONTs (Optical Network Terminals) near end users.

The ON

U converts the optical signal into electrical signals for user devices and aggregates upstream data back to the OLT. Role of the Optical SplitterThe optical splitter is a passive device that distributes the optical signal from a single fiber to multiple fibers, enabling a point-to-multipoint topology. Splitters can have various ratios, such as 1: 32 or 1: 64, depending on the number of ONUs served.

In some deployments, primary splitting connects the OLT directly to ONUs via a single splitter, while secondary splitting uses a cascade of two splitters to extend coverage in larger or rural areas.

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Connection Methods

The OL

T connects to the optical splitter through a single optical fiber. The splitter then connects to multiple ONUs, each receiving a portion of the optical signal. Downstream data is broadcast to all ONUs, with each ONU extracting its intended data using identifiers like GEM port IDs in GPON systems.

Upstream data from ONUs is time-division multiplexed (TDMA) to avoid collisions and sent back to the OLT.

Placement and Deployment

Splitters are typically installed in fiber distribution boxes (FDBs), at intersections of optical paths, or in rack-mounted 1U boxes for compact deployment. The choice of splitting ratio and placement depends on network density: urban areas often use primary splitting for cost efficiency, while rural areas may use secondary splitting to cover wider distances.

Summary

The ON

U connects to the optical splitter as part of the ODN, enabling efficient downstream distribution and upstream aggregation of data. The splitter's passive nature allows multiple ONUs to share a single OLT port, optimizing fiber usage and network scalability. This architecture is fundamental to GPON, EPON, and other PON technologies.

Article Content

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An optical splitter, an ODN, a method for identifying an optical link in which an ONU is located, an OLT, an ONU, and a PON system.

H3C Passive Optical Splitter ONU

The splitter is one of the important components of the PON network. As an optical distribution network, it can connect OLT and ONU devices to distribute data downstream and concentrate data upstream.

What are OLT, ONU, ONT and ODN in PON?

An optical distribution network (ODN) mainly has primary splitting and secondary splitting, or centralized splitting and cascade splitting. The

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Discover essential FTTH products like OLT, ONU, optical splitters, and fiber distribution boxes. Learn how to design and deploy an efficient FTTH network for

The Comprehensive Guide to PON Architecture: Mastering OLT,

Between the central OLT and the distributed ONUs, the network relies solely on passive optical splitters and fiber optic cables. This passivity translates directly into three compelling strategic

Decoding OLT, ONU, ONT, and ODN in PON Network

The OLT device is connected to the management switch and ONU, with a splitter positioned between the OLT and ONU. The entire PON infrastructure can deliver multiple services

Understand GPON Technology

The OLT is connected to the optical splitter through a single optical fiber, and then the optical splitter connects to ONUs/ONTs. GPON adopts WDM

OLT ODN ONU ONT: The Guide to FTTH Network Components

Confused by optical access networks? We explain the exact differences between OLT ODN ONU ONT components and how they work in FTTH PON architectures.

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

Learn about optical splitter split ratios (1:N, 2:N), centralized vs. cascaded architectures, and how to choose the right setup for FTTH PON networks.

What is OLT, ODN, ONU, and ONT in FTTH?

In both setups, an optical splitter is used to divide the fiber signal from the OLT to serve multiple ONUs/ONTs. OLT, ODN, ONU, and ONT form the foundation of any FTTH PON system,

What is Fiber Optic Splitter and Types

What is a Fiber Optic Splitter? Fiber optic splitter is a passive optical device used to distribute optical signals, which can divide input optical signals into multiple outputs to meet the fiber

Understanding Optical Splitter Loss

Understanding Optical Splitter loss ratios and insertion loss is fundamental to building a reliable fibre optic network.

1X4 SC/APC Fiber Optic FTTH Splitter FBT Optical Coupler 1:4 SC

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Summary High-Performance 1x4 PLC Optical Splitter, This 1x4 SC/APC fiber optic FTTH splitter is designed for stable and precise optical power distribution in FTTH, FTTB passive optical network

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Fiber Optic Splitter: How It Works & Types Guide

This guide demystifies fiber optic splitters, explaining their design, operating principles, types, key specifications, and real-world applications.

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An optical splitter is a crucial component in fiber optic communication systems. It serves to divide a single optical signal into multiple output signals, allowing for efficient distribution of data across

Optical Splitter 1 In 2 Out: A Comprehensive Guide

Learn about optical splitter 1 in 2 out basics, applications, design, performance, and installation from our comprehensive guide.

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