Price list for upgraded Raman amplifiers for data center interconnects



Overview

This buyer''s guide for Raman amplifiers provides technical background, comparison of major types, selection criteria, and an overview of suppliers.

Key Takeaways

Distributed Raman amplifiers (DRAs) for data center interconnects typically cost around USD 5,800 per unit, with prices varying by vendor, configuration, and amplification type.

Overview of Raman Amplifiers

Raman amplifiers are optical devices that amplify signals using stimulated Raman scattering (SRS). They are widely used in long-haul and ultra-long-haul data center interconnects (DCIs) to maintain signal integrity over hundreds of kilometers. There are two main types: Distributed Raman Amplifiers (DRA): Use the transmission fiber itself as the gain medium, injecting pump light along the fiber to achieve distributed amplification.

This reduces noise and improves signal-to-noise ratio (SNR) over long distances. Lumped (Discrete) Raman Amplifiers (LRA): Contain a dedicated spool of fiber inside the module for compact amplification, suitable for metro or shorter links.



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Typical Pricing

Distributed Raman Amplifiers (DRA): According to recent market data, global sales in 2024 averaged USD 5,820 per unit, with an industry gross profit margin of 38–42%. These units are commonly deployed in ultra-long-haul DWDM systems and high-capacity DCIs, often requiring 3–4 units per 500–700 km of optical fiber.

Vendor-

Specific Pricing: Cisco's NCS 1010 in-line amplifier with 2x Raman (C-band, enhanced) is listed in their global price list, though the publicly available reference is from 2022. Prices for new units may be higher due to inflation, supply chain factors, and enhanced features for 400G/800G coherent optics.

Market Context

The Raman amplifier market is growing rapidly, driven by high-bandwidth data center interconnects, 5G backhaul, and cloud computing. Distributed Raman amplifiers are preferred for DCIs because they minimize nonlinear impairments and maintain signal quality over long distances. Hybrid configurations combining Raman and EDFA amplifiers are common in DCIs to achieve higher gain and lower noise figures.

Regional pricing may vary, with North America and Asia-Pacific being the largest markets due to extensive fiber infrastructure and high adoption of hyperscale data centers.

Practical Considerations

For a typical 500–700 km DCI link, expect to deploy 3–4 DRAs, resulting in a total amplifier cost of approximately USD 17,500–23,000, excluding installation and ancillary components. Lumped Raman amplifiers for shorter metro links may be slightly less expensive but are less common in hyperscale DCI deployments. When budgeting, consider vendor support, energy efficiency, and compatibility with DWDM systems, as these factors influence total cost of ownership.

In summary, new Raman amplifiers for data center interconnects generally range around USD 5,800 per unit for distributed designs, with total system costs depending on link length, number of units, and hybrid amplification strategies.

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Price list for 1 6T Raman amplifier for data center interconnects

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Optical Amplifier Portfolio

Lumentum offers L-band amplifiers (EDFAs and Raman) for geography-specific applications and fiber-scarce applications. The design approach to L-band and C+L band amplifiers differs from that of C

Raman Optical Amplifier Market Research Report 2033

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Raman amplifiers are increasingly deployed to support inter-data center connectivity and to extend the reach of high-speed optical transceivers, thereby enabling seamless data transfer and business

Raman Fiber Amplifier Market Research Report 2034

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Fiber Raman Amplifier (FRA) Future Pathways: Strategic Insights to

Discover the booming Fiber Raman Amplifier (FRA) market! This analysis reveals key trends, growth drivers, and leading companies shaping this multi-million dollar industry, projected for

Raman Amplifiers Market in the World | Report

World Raman Amplifiers Market 2026 Analysis and Forecast to 2035 Executive Summary Key Findings Worldwide demand for Raman amplifiers is expanding at a 7–9% compound annual

Roadmap on optical communications

First, we discuss O-band amplifiers because the short-reach data center optical interconnects operating in the O-band will require optical amplification for further scaling.

Raman Gain Fiber Amplifier Market Outlook 2025-2032

The North American Raman Gain Fiber Amplifier (RGFA) market is driven by rapid advancements in fiber-optic communication networks and increasing investments in 5G

Raman Optical Amplifier Board Market 2026-2032

The Raman Optical Amplifier Board Market is experiencing significant growth due to rising demand for high-speed data transmission in telecom and data centers. With global internet

Optical Transport and Data Center Interconnects

Optical Transport and Data Center Interconnects Lumentum solutions address the continually increasing needs for higher data transmission speeds, fiber optic network capacity and network agility. This is

Telecom Raman Amplifiers Market Scope, Size, and Growth

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Optical Amplifiers Market 2025

Growth in Data Center Interconnect (DCI) Applications The rapid expansion of hyperscale data centers is driving demand for high-speed, high-capacity interconnects over distances ranging from tens to

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