

Gigabit Ethernet via Single-Mode Fiber



Article Overview

Gigabit Ethernet (1000BASE-LX) over single-mode fiber allows for high-speed data transmission over long distances, typically up to 10 kilometers.

Overview of 1000BASE-LX

- **Standard:** 1000BASE-LX is a Gigabit Ethernet standard designed for long-distance communication over single-mode fiber (SMF). It operates at a wavelength of 1310 nm, which is optimal for single-mode applications.
- **Distance:** This standard supports distances of up to 10 kilometers (6.2 miles) on standard single-mode fiber. Some vendors may offer extended distances of up to 20 kilometers under specific conditions .

Advantages of Using Single-Mode Fiber

- **Longer Distances:** Single-mode fiber can transmit data over much longer distances compared to multimode fiber, making it ideal for connecting buildings or campuses that are far apart.
- **Higher Bandwidth:** It supports higher bandwidths, which is essential for modern data-intensive applications and services.
- **Reduced Signal Loss:** Single-mode fiber experiences less signal attenuation, which enhances the reliability of the connection over long distances.

Equipment for Gigabit Ethernet Over Single-Mode Fiber

- **SFP Transceivers:** The 1000BASE-LX SFP (Small Form-factor Pluggable) transceiver is commonly used for Gigabit Ethernet over single-mode fiber. It is hot-swappable a...

Article Content

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Optical Fiber and 10 Gigabit Ethernet

Due to significant manufacturing complexity, cutoff shifted single-mode fiber is typically much more expensive than other single-mode

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Single Mode ST Gigabit Fiber Media Converter

Single Mode ST Gigabit Fiber Media Converter - Built-in Fiber Module 20 km (12.42 Miles) ST - to UTP Cat5e Cat6

Nov 13, 2025

ipolex Gigabit Single-Mode LC Fiber to Ethernet Media ...

About this item Seamless Conversion of LC Fiber to Copper - This fiber optic to ethernet media converter kit includes a single mode

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Gigabit Media Converters | 1000Base-T to 1000Base-X | Perle

Perle Gigabit Media Converters transparently connect Gigabit Ethernet to 1G multimode or single mode fiber extending the life of non

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Gigabit Ethernet

Gigabit Ethernet competes with Fiber Distributed Data Interface (FDDI) and Asynchronous Transfer Mode (ATM)

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Single Mode and Multimode Fiber for Future Networks

The most popular single mode fiber standards are G.652 and G.657 G.652.D is standard single mode fiber G.657.A1 and G.657.A2

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Single-mode Fiber and 10 Gigabit Ethernet

Single-mode Fiber and 10 Gigabit Ethernet Standard single-mode fiber can address nearly any application, depending on the level of

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StarTech 1000 Mbps Gigabit Single Mode Fiber Media Converter

The ET1000S40LC2 1000 Mbps Gigabit Single-Mode Fiber Media Converter (LC, 40 km) enables you to extend a Gigabit Ethernet

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SFP: 1000BASE-LX Gigabit Ethernet Single-mode Fiber

Contact us for estimated delivery. All product-related documents, such as certificates, declarations of conformity, etc., which were

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Single vs Dual Fiber Media Converters (2025): A/B Pairing and WDM

Introduction Fiber media converters quietly solve a big, practical problem: they bridge copper Ethernet to fiber and extend links far

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10GB ethernet on singlemode fiber distance limitations

Hi, How far can a 10Gb ethernet signal travel over singlemode fiber? I found a nice table that covers multimode fiber

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Single-Mode (SM) LC Fiber Media Converter for 10/100/1000

Extend Ethernet Over Extraordinary Distances: Convert and extend a 10/100/1000 Mbps Ethernet signal to Gigabit single-mode LC

Jul 11, 2026

2 PoE Port Gigabit PoE/PoE+ Single Mode LC 1310nm Fiber

PoE Fiber Media Converter transparently links a single-mode fiber to a copper UTP Ethernet port while still providing

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Single Mode Gigabit Ethernet to Fiber Optic Converter

The ETH-FIBER-SM-2 has a RJ45 connector for the gigabit Ethernet port, and either an ST type or SC type connector for the fiber

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Single vs Dual Fiber Media Converters (2025): A/B Pairing and WDM

A fiber media converter takes an Ethernet signal on copper (RJ-45) and converts it to an optical signal on fiber, or vice versa. There

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Gigabit Fiber Media Converter | Multimode to Single Mode | Perle

Transparently convert Single Mode to Multimode, or extend the distance of a Multimode network. These Fiber Converters have

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GbE Fiber Media Converter

Gigabit Ethernet Copper-to-Fiber Media Converter - SM LC - 20 km - TAA Convert and extend a Gigabit Ethernet connection up to

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100 Gigabit Ethernet

In May 2019, the IEEE P802.3cu Task Force started working to define single-wavelength 100 Gbit/s PHYs for operation over SMF

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25 Gigabit Ethernet connectivity over singlemode fiber, 100% Cisco ...

This Cisco-compatible SFP-25G-LR-S transceiver module allows you to connect a singlemode 25GBase-SR fiber cable to the SFP28

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Gigabit SFP Module: A Complete Guide to 1G SFP Transceivers

A gigabit SFP module is a hot-pluggable transceiver designed to deliver 1Gbps Ethernet connectivity over fiber or copper, and it

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What's the Difference in Singlemode vs. Multimode Fiber Cables?

Is It Time For A Move To Fiber? If you're looking at moving into faster network backbone speeds, especially 10Gbe

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Single-mode Fiber

Note again that the IEEE 802.3ae specification for 10 Gigabit Ethernet assumes standard single-mode fiber (IEC types B1.1 and

Dec 06, 2025

1000BASE-LX: Complete Technical and Deployment Guide

1000BASE-LX is a Gigabit Ethernet optical standard designed for reliable fiber transmission over extended distances. It remains one

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1000 Mbps Gigabit Singlemode Fiber Optic Ethernet Media Converter

This 1000 Mbps Gigabit Singlemode Fiber Ethernet Media Converter is a cost-effective way to change your copper network signal to

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Multimode fiber vs singlemode fiber vs copper | CommScope

In the world of networking infrastructure, there are three contenders for the crown: copper, singlemode fiber and multimode fiber.

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Single Mode ST Gigabit Fiber Media Converter

Extend your Gigabit or Fast Ethernet Network Over Single Mode Fiber Up to 20 km With Ease AN-UMGSM-AS-20J-ST Will

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Expanding Singlemode Fiber Capabilities in Ethernet Applications

The lifecycles of technology innovation and standards refinement are tightly entwined in a space as huge and long

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1000BASE-LX: Complete Technical and Deployment Guide

They provide gigabit Ethernet connectivity over single-mode fiber up to 10km, enabling stable backbone communication. The low

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Multimode or singlemode-which one is the best for 10-Gigabit Ethernet ...

Many in-building backbone systems are wired with multimode fiber, which some say is not ideal for 10-Gigabit Ethernet, and will lead

Contact Us

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