Quota for Gigabit Single-Mode Fiber Optic Modules



Overview

Learn how to choose the right 1G SFP module for your network. Our guide covers compatibility, distance, fiber type, cost, and vendor selection for optimal performance.

Key Takeaways

Gigabit Single-Mode Fiber Optic (1G SFP) modules support link spans from 10 km up to 70 km depending on the type, with deployment “quota” determined by network design, port availability, and optical budget. Overview of 1G Single-Mode SFP Modules1G SFP modules are hot-swappable transceivers that convert electrical signals from switches or routers into optical signals for transmission over single-mode fiber (SMF) and vice versa. They are widely used in enterprise, data center, and telecom networks for long-distance Gigabit Ethernet links.

Common Single-

Mode Variants1000BASE-LX/LH SFP: Supports standard single-mode fiber spans up to 10 km and can operate on multimode fiber with a mode-conditioning patch cable. 1000BASE-EX SFP: Extends single-mode fiber links up to 40 km, often requiring inline optical attenuators for back-to-back connections. 1000BASE-ZX SFP: Designed for long-haul single-mode fiber links up to 70 km, with optical link budgets around 21 dB, depending on fiber quality, splices, and connectors.

1000BASE-BX SFP: Uses a single strand of SMF with wavelength-division multiplexing to transmit and receive simultaneously, supporting distances up to 10 km for standard and industrial temperature-rated versions.

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Factors Affecting Deployment Quota

The “quota” or number of modules you can deploy depends on several factors: Port Availability: Each SFP module occupies a single Gigabit Ethernet port. The total number of modules is limited by the number of SFP-capable ports on your switches or routers. Link Distance and Optical Budget: Longer distances require higher-power SFPs (e.g., EX or ZX) and may limit the number of simultaneous links due to budget constraints.

Network Design: Redundant paths, ring topologies, or high-density aggregation layers may influence how many modules are needed. Environmental Conditions: Industrial-rated SFPs (e.g., GLC-BX-D-I) allow deployment in harsh temperatures (-40°C to 85°C), which may affect module selection and quantity. Vendor Compatibility: Modules must comply with IEEE standards (802.

3z for fiber Gigabit Ethernet) and be compatible with the network equipment to ensure reliable operation.

Practical Recommendations

Plan based on link distance: Use LX/LH for up to 10 km, EX for 40 km, and ZX for 70 km single-mode fiber spans. Allocate ports efficiently: Consider “pay-as-you-populate” strategies to avoid over-provisioning SFPs before network expansion. Monitor optical power: Ensure the optical link budget is sufficient for the fiber type, splices, and connectors.

Use industrial SFPs for harsh environments: If deploying in extreme temperatures, select industrial-rated modules to maintain uptime. By considering these factors, network operators can determine the appropriate number of Gigabit single-mode SFP modules for their infrastructure while ensuring reliable long-distance connectivity.

Article Content

Ultimate Guide to 1G SFP Module Selection

Learn how to choose the right 1G SFP module for your network. Our guide covers compatibility, distance, fiber type, cost, and vendor selection for optimal performance.

1G SFP Transceivers | Mini-GBIC SFP Modules

Click to get your 1GBE transceiver modules from nearby warehouses. 30-Day Free Return. Trusted by 260K+ Enterprise Users.

Cisco SFP Modules for Gigabit Ethernet Applications

This data sheet describes the benefits, specifications, and ordering information for the Cisco SFP Modules for Gigabit Ethernet Applications.

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Gigabit Fiber SFP

THE IT PRO''S CHOICE: Designed and built for IT Professionals, this SFP module is backed for life (lifetime of module, not network switch), including free lifetime 24/5 multi-lingual technical assistance.

1000BASE SFP (mini-GBIC) Transceivers

FS Gigabit SFP module solutions provide fibre and copper connections up to 160km, includes 1000BASE-SX, 1000BASE-LX/LH, 1000BASE-EX, 1000BASE-ZX,

SFP modules – transceivers for 1/2/4G fibre channel

SFP transceivers are valued for their flexibility, low power consumption and ability to support both single-mode and multimode fiber, making them ideal for short-range

Gigabit single-mode single-core fiber optic module

Therefore, the 155M optical module is also called FE (100M) optical module, and the 1.25G optical module is also called GE (gigabit) optical module. This is the most widely used module in

Quota for Gigabit Single-Mode Optical Modules

Click to get your 1GBE transceiver modules from nearby warehouses. Trusted by 260K+ Enterprise Users. FS gigabit ethernet transceiver solutions provide fibre or copper options including 1000BASE

Single Mode Fiber SFP – SFP Single Mode LC Module (20km)

Each TEG-MGBS20 single mode fiber SFP is equipped with a duplex LC fiber connection interface, supports high-speed data rates up to 1.25Gbps, and supports gigabit single mode fiber connections

Cisco SFP Modules for Gigabit Ethernet Applications

The 1000BASE-ZX SFP operates on standard single-mode fiber-optic link spans of up to approximately 70 km in length. The SFP provides an optical link budget of 21 dB, but the precise link span length

Startech Arista Networks QSFP-40G-SR4 Compatible QSFP+ Module

Buy Startech Arista Networks QSFP-40G-SR4 Compatible QSFP+ Module, 40GBASE-SR4, 40GbE Multimode Fiber MMF Optic Transceiver, 40GE Gigabit Ethernet QSFP+, MPO Connector, 150m,

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Automatic Assembly Line (DAC Cable) 10Gtek''s automatic assembly line, assures the consistency of manufacture under the process of laser cutting, aluminum shielding stripping, isolator stripping,

Cisco QSFP-100G-FR-S= network transceiver module Fiber optic

Cisco QSFP-100G-FR-S The Cisco QSFP-100G-FR-S Module supports link lengths of up to 2 km over a standard pair of G.652 Single-Mode Fiber (SMF) with duplex LC connectors. The 100 Gigabit

Singlemode 1310 nm Fiber Optic Transceivers – Mouser

Singlemode 1310 nm Fiber Optic Transceivers are available at Mouser Electronics. Mouser offers inventory, pricing, & datasheets for Singlemode 1310 nm Fiber Optic Transceivers.

Startech Dell EMC QSFP-40G-SR4 Compatible QSFP+ Module,

Buy Startech Dell EMC QSFP-40G-SR4 Compatible QSFP+ Module, 40GBASE-SR4, 40GbE Multimode Fiber MMF Optic Transceiver, 40GE Gigabit Ethernet QSFP+, MPO Connector, 150m, 850nm, DDM,

TP-Link Gigabit SFP Module, Single-mode, MiniGBIC, LC Interface,

TP-Link Omada Gigabit SFP Module, Single-mode, MiniGBIC, LC Interface, Up to 10km Distance, Fiber optic, 1250 Mbit/s, mini-GBIC, LC, 9/125 µm, LX

Industrial Fiber Optic Ethernet Switches | SFP, Single-Mode

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