10 Gigabit Optical Module Parameters and Transmission Distance



Overview

Transmission rate: 10 Gbit/s Target transmission distance: 10km (single-mode fiber) Center wavelength: 1310nm Maximum transmit optical power: 0. 2dBm Minimum extinction ratio: 3. 5dBmIn 10G Ethernet deployments, three 10G SFP+ transceiver types are most commonly used: SFP-10G-SR, SFP-10G-LRM, and SFP-10G-LR. Each module is designed for different fibre distances and environments, making it important to understand their characteristics before selecting the appropriate option for. 10GBASE-LR is a 10-gigabit Ethernet optical standard that operates at 1310 nm over single-mode fiber (SMF), supporting link distances of up to 10 km. Today, we'll discuss in simple terms why they are effective and where they can be used. Core Advantages: High speed, long range, and easy compatibility The. A 10GBASE-ER SFP module is a long-reach 10Gbps fiber optic transceiver designed to transmit data over single-mode fiber up to 40km, making it a key solution for extended Ethernet links beyond standard campus or data center distances. Key factors to consider in the design of 10 Gigabit Ethernet networks are: The network topology, including operating distances, splice losses and numbers of connectors (i.



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Article Content

Jan 06, 2026

Dahua, Gigabit Optical Module, Transmission distance up to 20 km,

Industrial Optical Module Series is a hot-pluggable device with a unique sturdy design. Developed to adapt to even the harshest of environments, it has a wide operating temperature range and is Plug

Jul 14, 2025

10 Gbit/s SFP+ Optical Modules

10 Gbit/s SFP+ optical modules apply to 10 GE optical ports. The wavelength can be 850 nm, 1310 nm, or 1550 nm, and the transmission distance ranges from 0.5 km (0.31 mi) to 80 km (49.71 mi).

Apr 28, 2026

10G Single-Mode Optical Module: The Reliable Choice for High

In this context, 10 Gigabit single-mode optical modules, capable of handling both high speeds and long distances, become a reliable choice. Today, we''ll discuss in simple terms why they

Jul 17, 2025

10GBASE-ER SFP Module Explained: Distance, Specs & Use Cases

Learn what a 10GBASE-ER SFP module is, how it works, key specifications, transmission distance, and when to use it in enterprise networks

Mar 15, 2026

A Simple Guide to SFP-10G-SR and Its Practical Uses

When it comes to cost-effective 10 Gigabit Ethernet over short to medium distances, the SFP-10G-SR optical transceiver remains a cornerstone

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Dahua, Gigabit Optical Module, Transmission distance up to 20 km,

Features: Single mode single fiber LC port | 1310 nm sending, and 1550 nm receiving | Transmission distance up to 20 km |

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10G single-mode OSX010000: a reliable solution for enterprise high ...

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This article will introduce what a 10G single-mode optical module is, the technical parameters and application fields of the 10G single-mode optical module OSX010000.

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SFP 10G LR transceivers deliver reliable 10Gbps links over 10 km

As enterprise networks, data centers, and service provider infrastructures continue to scale, the demand for reliable 10-Gigabit Ethernet (10GbE) connectivity over longer distances has become a standard

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10 Gigabit Fiber SFP+ Optical Transceiver Module

10 Gigabit Connectivity Intellinet Network Solutions 10GBase-LR Fiber SFP+ Optical Transceiver Module, model 507479, is the right choice when it comes to connecting two buildings at 10 GbE

Nov 26, 2025

SFP-10G-SR vs LRM vs LR: Which 10G Module Should

Compare SFP-10G-SR, LRM, and LR modules by distance, fiber type, and cost to find the right fit for your 10G network deployment.

Aug 29, 2025

What Is 10GBASE-LR? SMF 1310nm 10km SFP+ Explained

The standard establishes key parameters including the typical operating wavelength of 1310 nm, transmission reach of up to 10 km, and the use of 64b/66b encoding to maintain efficient high-speed

May 04, 2026

Inventory Of 10G Optical Modules

The 10G electrical port module is an electro-optical conversion module packaged in SFP+ form factor, with an RJ45 interface. It is usually used with Cat6A or Cat7 network patch cords,

Jan 04, 2026

Ethernet

They run at 10 Mbit/s, 100 Mbit/s, and 1 Gbit/s, respectively. Fiber optic variants of Ethernet (that commonly use SFP modules) are also very popular in

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Cisco SFP-10G-LR Module: 10km Range & Specifications

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Complete guide to Cisco SFP-10G-LR module specs, 10GBASE-LR standard compliance, 1310nm laser operation, and EDGE Optic compatibility details.

Oct 28, 2025

10 Gigabit Ethernet Fiber Design Considerations

This paper has introduced some basic fiber related concepts and outlined some of the key points to understand and consider when designing a 10 Gigabit Ethernet network.

Feb 18, 2026

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 cost and complexity that an operator is willing to employ. The

Sep 05, 2025

What Is 10GBASE-LR? SMF 1310nm 10km SFP+ Explained

10GBASE-LR is a 10-gigabit Ethernet optical standard that operates at 1310 nm over single-mode fiber (SMF), supporting link distances of up to 10 km. It is typically implemented using SFP+ transceivers

Dec 30, 2025

Guide to 10G BiDi SFP+ Optical Transceivers Modules（2025）

How does the Fibrecross 10G BiDi SFP+ module provide 10Gb/s speed through single-mode fiber and support a transmission distance of up to 80 kilometers.

Apr 29, 2026

What Are The 10 GBIT/s SFP+ Optical Modules With A

5. 10G DWDM SFP+ 40KM optical module（Wavelength division module） It has an optional channel wavelength range of C17-C61 (interval

Dec 23, 2025

Optical Fiber and 10 Gigabit Ethernet

As a result, multimode fiber has dominated in shorter distance and cost sensitive LAN applications. Optical Fiber Standardization A number of domestic and international organizations are involved in

Jun 30, 2025

Wavelength and Transmission Distance of Optical

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The price of the optical sources and signal converters that are paired with 850nm optical transceiver modules is far lower than the prices of 1310nm and 1550nm

Jan 09, 2026

Optical Fiber and 10 Gigabit Ethernet

Introduction As 10 Gigabit Ethernet (10GbE) is introduced into networks the physical limitations and properties of optical fiber introduce new challenges for a network designer. Due to the increased data

Nov 06, 2025

SFP-10G-ER Explained: Powering 40km 10Gbps Optical

This comprehensive guide dives deep into the SFP-10G-ER optical transceiver module. Learn its technical specifications, key applications,

Nov 16, 2025

10 Gigabit Ethernet Fiber Design Considerations

The 10 Gigabit Ethernet operating distances provided in the tables below are limited by the channel insertion loss, the cable bandwidth for multimode fiber, and the optical transceiver characteristics

Sep 30, 2025

Introduction of 10G SFP+ Optical Modules

10G SFP+ Optical Module is a type of SFP+ transceiver that supports 10 Gigabit per second (10Gbps) data rates and is an enhanced version of the

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