

10G optical module SERDES distance



Article Overview

10G optical modules can transmit data from a few hundred meters up to 80 kilometers, depending on the module type and fiber used.

Short-Range (SR) Modules

10G SFP+ SR modules operate at an 850nm wavelength and use multimode fiber (OM3 or OM4). They are designed for short-distance connections, typically within data centers or between racks. The maximum transmission distance is approximately 300 meters over OM3 fiber and 400 meters over OM4 fiber. SR modules are cost-effective and ideal for high-density, intra-building links .

Long-Range (LR) Modules

10G SFP+ LR modules operate at a 1310nm wavelength and use single-mode fiber (SMF). They are suitable for medium-distance links, such as campus backbones or inter-building connections. LR modules can reliably transmit data up to 10 kilometers, providing stable connectivity for metropolitan area networks or data center interconnects .

Extended-Range (ER) Modules

ER modules operate at 1550nm wavelength over single-mode fiber and are designed for long-haul applications. They can extend transmission distances to 40 kilometers, making them suitable for regional networks or connecting multiple buildings over longer distances

Article Content

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The Complete Guide to the Best Choice of 10G SFP+ Optical Modules

The Complete Guide to the Best Choice of 10G SFP+ Optical Modules 10G SFP+ Function Introduction 10G SFP+ (Small Form

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10G SR vs LR vs ER vs ZR - Optical Transceiver Distance

Compare 10GBASE-SR, LR, ER, and ZR optical transceivers by distance, fiber type, and application. Find the right

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Frequently Asked Questions of 1G and 10G Optical Transceiver

During the use of 1G/10G optical modules, customers often ask various questions. This article lists the 10 most

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10G SFP+ SR vs LR vs ER vs ZR: Optical Link Architect's Guide

10G SFP+ SR vs LR vs ER vs ZR Specifications When engineers compare 10G SFP+ SR vs LR vs ER vs ZR, they

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Inventory Of 10G Optical Modules

The 10G SFP+ SR optical module operates at a wavelength of 850nm. When used with multimode fiber, it supports a

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

A 10GBASE-ER SFP module is a long-reach 10Gbps fiber optic transceiver designed to transmit data over single-mode fiber up to

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10G 1G Multimode Transceiver Distance by Fiber Type | EDGE Optical ...

Compare 10GBASE-SR and 1G SFP multimode transceiver distances on OM2, OM3, OM4 fiber types. Maximize

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Exploring the Differences Between SFP 10G SR, LR, ER, and ZR

SFP 10G SR, short for “Short-Range,” is designed for relatively short-distance data transmission within data centers and local area

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How to Choose a 10G SFP+ Module: Speed, Wavelength, and Distance ...

Choosing a 10G SFP+ module is a systematic engineering process, not a guessing game. By methodically working

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10 Gigabit Ethernet

Optical modules are connected to a host by either a XAUI, XFI or SerDes Framing Interface (SFI) interface. XENPAK, X2, and XPAK

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10G Optical Module Selection Guide: LRM,SR,LR,ER,ZR

The selection of 10G SFP+ dual-fiber optical modules is a systematic project that requires comprehensive

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The 10G SFP+ Buyer's Guide No One Told You: Avoid These 4

Even experienced IT teams mix up 10G SFP+ modules. The names sound similar. The specs look close. But one

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Reach Further, Faster: Your Ultimate Guide to Long-Range 10G

Long-range 10G optical modules enable high-speed data over distances up to 80km. Learn about types, specs,

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10G SFP+ Module Selection for Short-Range Networks

10G optical networks have expanded beyond data centers into enterprise campuses, security monitoring systems,

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How 10G SFP+ ER Modules Enable Long-Distance Optical Link

Long-distance optical links are vital for enabling the spread of high-speed networking, but they come with unique

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How to Use 10G SFP+ Long-distance SFP Module?

There are many kinds of 10G SFP + optical transceivers in the market, some optical transceivers can transmit 80km,

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Do You Really Know 100G Optical Transceiver?

In 2016, the 100G optical transceiver modules for various data centers mostly adopted the 25Gbps Serdes program.

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SFP vs. RJ45 — Speed, Distance, Power, Cost & Deployment

Bottom line: SFP (optical) supports a much wider practical distance and flexible data-rate roadmap (1G → 10G → 25G and beyond)

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10G Optical Module Guide: Compare LRM, SR, LR, ER, ZR for the

Among the most common options are 10G SR, LRM, LR, ER, and ZR modules. Although they all support 10Gbps

Dec 28, 2025

SFP Distance Explained: Real-World Range, Limits, and Optics

Understand SFP distance, fiber optic range, and real-world limits of SR/LR modules. Learn how wavelength, fiber

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10GbE SFP+ PHYs: Requirements and leading solutions

From overview to in-depth discussion of vendors and solutions, here's why XENPAK, X2 and XFP 10G optical module

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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

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What is the minimum distance for SFP 10G SR□

The minimum distance for an SFP (Small Form-factor Pluggable) 10G SR (Short Range) module is typically specified

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SFP 10G LR vs SFP 10G ER

04-27-2017 08:32 PM Cisco has the strict spec of all their devices: 10G LR is made for max distance of 10km, while ER is within

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10G Transceivers: Types, Distances & Buying Guide

10G connectivity remains a backbone technology for data centers, enterprise aggregation, SANs, and high-performance computing.

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10G Transceivers: Types, Distances & Buying Guide

Choosing the right 10G module affects reach, cost, power, and compatibility. This guide summarizes the common 10G transceiver

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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

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10G SFP+ LR Explained: Specs, Distance, and Use Cases

Learn what 10G SFP+ LR is, how it works, key specifications, transmission distance, fiber requirements, and typical applications in

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10 gig distance limitation using SR optics ?

Looking to move one of our Nexus 5548's a few floor down to another server room. Need to uplink it back to our main

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10G SFP+ Optical Transceiver Modules | AscentOptics

AscentOptics offer a full range of 10G SFP+ products line, including 10G copper SFP 30m/80m over Cat6a/Cat7 copper cable, SR for

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Understanding the Cisco SFP-10G-ZR: A Reliable 10G Optical

Discover the Cisco SFP-10G-ZR, a robust 10G optical transceiver module designed for SMF 1550nm applications.

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How to Achieve Long Distance Transmission Beyond 120km: SFP+ 10G

Learn how SFP+ 10G ZR modules enable stable 120km+ long distance transmission with high link budget, low power

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Serdes 10G/5G

The Serdes IP supports data rates from 1.25G to 10.3125Gbps including XFI, SFI, 10GBASE-KR, CEI, XAUI, USXGMII, QSGMII,

Contact Us

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