10G Optical Modules Various Models



Overview

Long-range 10G optical modules enable high-speed data over distances up to 80km. Learn about types, specs, compatibility, and choosing the right module.

Key Takeaways

10G optical modules are primarily SFP+ transceivers, available in SR, LR, ER, ZR, BIDI, CWDM, and DWDM types, supporting various distances and wavelengths. Common 10G SFP+ Module Types10G SFP+ SR (Short Range)Wavelength: 850 nmFiber: MultimodeMaximum Distance: 300 metersFeatures: Low cost, low power consumption, compact size, high density 10G SFP+ LR (Long Range)Wavelength: 1310 nmFiber: Single-modeMaximum Distance: 10–20 kmFeatures: Miniaturized, low power, suitable for campus or data center interconnects 10G SFP+ ER (Extended Range)Wavelength: 1550 nmFiber: Single-modeMaximum Distance: Up to 40 kmFeatures: Long-distance transmission for metropolitan or service provider networks 10G SFP+ ZR (Ultra-Long Range)Wavelength: 1550 nmFiber: Single-modeMaximum Distance: 80–120 kmFeatures: Used for long-haul optical links 10G SFP+ BIDI (Bidirectional)Single-fiber operation using paired modules (e.g., SFP-10G-BXD1 with SFP-10G-BXU1)Wavelengths: Typically 1270/1330 nm or 1310/1490 nmMaximum Distance: Varies by model, often 10–20 kmFeatures: Reduces fiber usage by transmitting and receiving on a single fiber 10G CWDM/DWDM ModulesWavelengths: Coarse or Dense Wavelength Division MultiplexingFiber: Single-modeMaximum Distance: 40–80 km (CWDM), up to 120 km (DWDM)Features: Multiplex multiple wavelengths over a single fiber for high-capacity networks Form Factor and StandardsForm Factor: SFP+ is the most common 10G module form factor, offering high density and hot-swappable capability Standards Compliance: IEEE 802.

© 2026 DOLPHIN FIBER SYSTEMS - All rights reserved

3ae, SFF-8431, SFF-8472, and RoHS Connectors: LC duplex for optical modules; RJ-45 for 10GBASE-T copper modules Vendor ExamplesCisco: Offers 10GBASE SFP+ modules for SR, LR, ER, and 10GBASE-T with RJ-45 interfaces Huawei: Provides BIDI and ER modules, requiring paired operation for single-fiber links FS: Supplies a wide range of 10G SFP+ transceivers for data centers and ISPs Ruijie: XG-SFP-LR-SM1310 supports 10 km over single-mode fiber, LC connector, IEEE 802. 3ae compliant Summary10G optical modules are versatile and designed for different network distances and fiber types.

S

R modules are ideal for short intra-rack connections, LR and ER modules for longer campus or metro links, and BIDI, CWDM, and DWDM modules for fiber-efficient or high-capacity networks. SFP+ remains the dominant form factor due to its compact size, low power, and hot-swappable design. Choosing the right module depends on distance, fiber type, wavelength, and vendor compatibility.

Article Content

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, compatibility, and choosing the right module.

10G Optical Modules: Short-Range vs. Long-Range

Understand short-range and long-range 10G optical modules in terms of distance, budget, energy use, and scalability to make the right choice.

Cisco 10GBASE SFP+ Modules Data Sheet

The Cisco® 10GBASE SFP+ modules (Figure 1) give you a wide variety of 10 Gigabit Ethernet connectivity options for data center, enterprise wiring closet, and service provider transport

Cisco Optics | Transform Your Network

Get the highest quality, performance-leading optical transceivers for any network architecture. Find the transceiver model to fit your network.

10GbE SFP+ Transceiver Modules

FS 10G SFP+ transceiver module solutions provide a wide variety of reliable 10 Gigabit Ethernet connectivity options for data centre, enterprise, and service

10G Bidi SFP+ Modules Selection Guide

© 2026 DOLPHIN FIBER SYSTEMS - All rights reserved

Choose the right 10G Bidi SFP+ Modules by checking compatibility, distance, wavelength pairing, and reliability for optimal network performance.

Guide to 10G BiDi SFP+ Optical Transceivers

In this guide, we dive into Fibrecross''s portfolio of 10G SFP+ Optical Transceivers, explain how BiDi optics work, compare module options, and share best practices

How to Choose a 10G SFP+ Optical Module

Various Form Factors: Walsun provides a range of 10G optical modules in different packaging, including SFP+, XFP, X2, and XENPAK, to meet diverse network device and customer

10G Optical Transceiver Modules | AscentOptics

We offer a wide range of high-quality 10G transceivers for various applications and network protocols eck out our catalog and order online today - AscentOptics.

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

Each 10G optical module type—SR, LRM, LR, ER, and ZR—is designed for a specific scenario. Understanding their differences helps you optimize network performance, cost, and reliability.

Why Do SFP+ Module Prices Vary So Much?

Pricing and Positioning of SFP+ Modules from Different Suppliers Before discussing the differences in SFP+ prices, we first need to understand the pricing across

SFP Optical Transceiver Modules for Long Distance: A

Discover everything you need to know about SFP optical transceiver modules for long-distance fiber transmission. Compare LX, EX, ZX models and

13 SFP Module Manufacturers in 2026

13 SFP Module Manufacturers in 2026 This section provides an overview for sfp modules as well as their applications and principles. Also, please take a look at the list of 13 sfp module manufacturers

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

Industrial Grade Optical Modules Market: $15.44B by 2025, 11.1% CAGR

© 2026 DOLPHIN FIBER SYSTEMS - All rights reserved

Industrial Grade Optical Modules Market: $15.44B by 2025, 11.1% CAGR Industrial Grade Optical Modules by Application (Military, Aerospace, Satellite Radar, Others), by Types (10G, 25G,

H3CSFP-XG-LX-SM1310-S 10G SFP+ Multi-mode Optical Module

High quality H3CSFP-XG-LX-SM1310-S 10G SFP+ Multi-mode Optical Module from China, China''s leading product market Fibre Channel Switch product market, With strict quality control Fibre

10G BiDi SFP+ TX1550nm/RX1490nm 70KM LC Optical Transceiver

Get 10G BiDi SFP+ TX1550nm/RX1490nm 70KM LC Optical Transceiver from ETU-Link Technology CO .,LTD,we supply excellent SFP+ 10G BiDi 70KM SFP Module. Long using life,high

Explanation of Optical Module Parameters

Considering that some newcomers to optical modules may not understand the letters on the optical module or the specific meanings of the parameters on the optical module, the following is

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: https://dolphinspreschool.co.za
Technical inquiry: https://dolphinspreschool.co.za/project-desk.html
African project coordination: Waterfall City, Midrand, Gauteng, South Africa

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 DOLPHIN FIBER SYSTEMS - All rights reserved