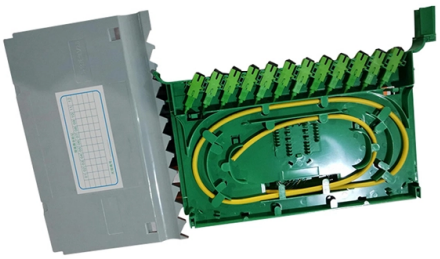
# What does a 10G optical module component look like



## 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

A 10G optical module, commonly an SFP+ transceiver, is a compact, rectangular, hot-pluggable device with a metal or plastic casing, designed to plug into a network switch or router port.

### Physical Appearance

A typical 10G SFP+ module is small, roughly the size of a USB stick, with a rectangular metal or plastic housing that protects the internal optical and electronic components. One end of the module has a connector interface that plugs into the switch or router port, while the other end has optical ports for fiber cables or an RJ-45 connector for copper-based 10GBASE-T modules. The module often includes a label or sticker indicating the model, supported wavelength, and distance specifications.

Key FeaturesHot-pluggable design: Can be inserted or removed without powering down the network device. Compact form factor: SFP+ modules are the industry's smallest 10G form factor, allowing high port density in switches. Optical interface: Depending on the type, the module may have LC fiber connectors for multimode or single-mode fiber, or an RJ-45 port for copper connections.

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Internal components: Includes a laser or LED transmitter, a photodiode receiver, and circuitry to convert electrical signals to optical signals and vice versa. Variants by Reach and Fiber TypeSR (Short Reach): Uses 850nm wavelength, multimode fiber, distances up to 300–400 meters, typically intra-building.

L

R (Long Reach): Uses 1310nm wavelength, single-mode fiber, distances up to 10 km, suitable for campus or metropolitan networks.

E

R (Extended Reach): Uses 1550nm wavelength, single-mode fiber, distances beyond 40 km, for long-haul connections.

### Summary

In essence, a 10G optical module is a small, rectangular, plug-in device that bridges network equipment and fiber or copper cabling. Its compact design, hot-swappable capability, and optical or copper interface make it versatile for data centers, enterprise networks, and long-distance connections.

## 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.

SFP-10GLR-31: 10G LR Optics Specs and Compatibility Guide

This guide provides a comprehensive technical overview of SFP-10GLR-31, including its specifications, wavelength characteristics, fiber compatibility, and differences compared with other

Cisco 10GBASE SFP+ Modules Data Sheet

This data sheet describes the benefits, specifications, and ordering information for the Cisco 10GBASE SFP+ Modules Data Sheet.

How many optical chips are contained in a 10G optical module?

The number of “optical chips” inside a 10G optical module is not fixed. It varies depending on packaging architectures such as SFP+ / XFP / X2, as well as application scenarios like SR / LR / ER.

UniFi 10G Multi-Mode Optical Module

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SFP+ transceiver that supports 10G connections up to 400 m using multi-mode fiber with a duplex LC UPC connector.

TI Optical Module 10G SFP+ Total Solution

This application note covers 10km 10G DML base SFP+ design details and test solution: includes module side schematic, PCB layout, firmware, BOM, debugging tips; also evaluation board

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.

SFP+ SR, LR, and ER Modules: Your Definitive Guide to Choosing

High-speed data transmission in enterprise and data center networks is driven by 10G optical modules. Choosing the proper SFP+ module, whether it be SR, LR, or ER, can have

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

By deeply understanding the differences and performance of LRM, SR, LR, ER, and ZR optical modules, we can make the right choice among many optical modules, thereby building an

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

ITPro Today, Network Computing, IoT World Today combine

ITPro Today, Network Computing and IoT World Today have combined with TechTarget . The page you are looking for may no longer exist.

FortiGate SFP Connectivity: The Architect''s High-Availability Guide

In the field, we strongly advise against populating high-density cages (like the 100F) with adjacent 10G copper modules. These modules draw up to 3W of power, significantly higher than the

Teaching resources

Tes provides a range of primary and secondary school teaching resources including lesson plans, worksheets and student activities for all curriculum subjects.

EML vs VCSEL vs CW Laser: Optical Transceiver Guide (2025)

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Compare EML, VCSEL, and CW laser technologies in optical transceivers. Covers cost, reach, speed, the 2025 EML shortage, and silicon photonics alternatives.

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.

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 wrong choice can break your network — or waste thousands in avoidable

Advanced Optical Modules Market in Italy | Report

The Italian advanced optical modules market sits at the intersection of telecommunications, data communications, industrial automation, and scientific instrumentation. These tangible electronic

The Key External Components of Optical Modules

An optical module serves as the backbone of modern fiber-optic communication. Its appearance often resembles a compact rectangular device, designed to fit seamlessly into

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