

10G optical module frequency



Article Overview

10G optical modules typically operate at wavelengths of 850nm for short-range (SR) and 1310nm for long-range (LR) single-mode transmission, corresponding to optical frequencies around 230-350 THz.

Wavelength and Frequency

10G optical modules use specific wavelengths to transmit data over fiber:

- Short-Range (SR) Modules: Operate at 850nm using multimode fiber (MMF), suitable for distances up to 300-400 meters depending on fiber type . The optical frequency for 850nm light is approximately 353 THz.
- Long-Range (LR) Modules: Operate at 1310nm using single-mode fiber (SMF), supporting distances up to 10 km . The corresponding optical frequency is roughly 229 THz. These wavelengths are chosen to balance signal integrity, chromatic dispersion, and fiber attenuation, ensuring reliable 10G transmission over the intended distances.

Module Types and Applications

- 10G SFP+ SR: Ideal for intra-data center connections, server-to-switch links, and short-distance interconnects. Lower cost and lower optical power make them suitable for high-density environments .
- 10G SFP+ LR: Designed for medium-distance links, such as inter-building or campus networks, where single-mode fiber is used to maintain signal quality over longer distances

Article Content

Aug 21, 2025

Introduction of 10G SFP+ Optical Modules

10G SFP+ optical module is a popular category widely used in data centers, enterprise networks, edge devices, and

Jun 28, 2026

Optic Modules Datasheet

Features and Benefits The following table lists the different pluggable optic modules and supported platforms, along with the

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Arista Optics Modules and Cables

Overview Arista's Optical Modules and Cable portfolio offer a wide variety of high-density and low-power 800G (dual 400G), 400G,

Jan 05, 2026

10GBASE-LRM SFP Module Guide: Specs, Distance & Use Cases

In this guide, you will learn what a 10GBASE-LRM SFP module is, how it works, its key technical specifications, and when it makes

Jun 24, 2026

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

WHGEARLINK modules are known for their reliability, energy efficiency, and excellent performance in demanding environments.

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10 Gigabit Ethernet

10 Gigabit Ethernet Router with two dozen 10 Gigabit Ethernet ports and three types of physical-layer

Feb 27, 2026

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

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

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Technical Characteristics Of 10G Optical Modules With 1310nm And

Technically, 10G optical modules with 1310nm wavelength utilize uncooled DFB lasers, resulting in a lower cost. The

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10GE SFP+ Optical Modules

If the SFP-10G-ER-1310 is connected to a 10Gbase-ER standard optical module (1550nm, 10GE, 40km), the maximum transmission

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Types and Applications of 10G, 40G, 100G Optical Modules

The 10G optical module transmits data signals through optical fibers, providing high-speed, high-bandwidth data

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

The 10G SFP+ dual-fiber optical module is a small pluggable optical transceiver that adopts a dual-fiber bidirectional

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

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

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Cisco 10GBASE SFP+ Modules Data Sheet

The SFP-10G-ZR-I has a cold start at -40°C; the transceiver will be operational except optical traffic is not supported from -40° to

Apr 11, 2026

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

Choosing the correct 10GBASE standard requires balancing distance, fiber type, optical budget, and cost. 10G-LR is ideal for single

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10G SFP+ Transceiver, -T, LR, SR, Bidi, CWDM, DWDM

10Gtek® 10G SFP+ transceivers include -T, SR, LR, LRM, ER, ZR, and C/DWDM, BiDi series . 10G SFP+ transceivers are

Dec 23, 2025

10G, 25G, 50G and 100G Optical Transceivers and Ethernet Standards

This article continues the series on legacy optical transmission standards and legacy transceivers, moving from older formats to

May 04, 2026

SFP Optical Module Specifications: Standards & Performance

A practical guide to SFP Optical Module Specifications, covering data rates, optical budget, Tx/Rx power, DDM/DOM,

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Optical module

An optical module is a typically hot-pluggable optical transceiver used in high-bandwidth data communications applications. Optical

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A Brief Discussion on 100G Optical Modules in Data Centers

Dive into the technological revolution of data centers transitioning from 10G to 25G/100G network architectures to

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How to Choose a 10G SFP+ Optical Module

How to Choose the Right Walsun 10G SFP+ Optical Module When selecting the appropriate Walsun 10G SFP+

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

A practical, engineer-grade guide to 10GBASE-LR: what it is, 1310nm single-mode SFP+ specs, optical budget examples,

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Inventory Of 10G Optical Modules

SFP+ optical modules are widely used in 10G Ethernet due to their advantages of compact size, low cost and high

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10G SFP+ Optical Transceivers | Transceiver Module

FS 10GbE SFP+ module solutions provide a wide variety of 10 Gigabit Ethernet connectivity options for

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UniFi 10G Multi-Mode Optical Module

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

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UniFi 10G CWDM Single-Mode Optical Module

SFP+ transceiver for CWDM that supports 10G connections up to 20 km using single-mode fiber with a duplex LC UPC connector.

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Cisco 10GBASE SFP+ Modules Data Sheet

The Cisco SFP-10G-LR-X is a multirate 10GBASE-LR, 10GBASE-LW, and OTU2/OTU2e module for extended operating temperature

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10G SFP+ 80 km DWDM Optical Transceiver Datasheet

10G SFP+ 80 km DWDM Optical Transceiver Datasheet Overview The T1-SFP-10G-DWDM80-Cxx is a high performance, cost

Dec 12, 2025

Unlocking High-Speed Connectivity: The Ultimate Guide to Short

A short-range 10G optical transceiver enables fast, reliable data transfer up to 300m using multimode fiber, ideal for

Contact Us

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