

# 1km and 300m optical modules



## AI Overview

Optical modules for 300 m typically use multimode fiber (MMF) at 850 nm, while 1 km modules use single-mode fiber (SMF) at 1310 nm or 1550 nm, supporting high-speed Ethernet connections.

**300 m Optical Modules**

Short-range (300 m) optical modules are designed for multimode fiber (MMF) networks, commonly used in data centers, server rooms, and switch-to-switch interconnects. Key features include:

- Data rates: 1G, 10G, or higher (SFP/SFP+ modules)
- Wavelength: 850 nm (VCSEL-based)
- Fiber type: OM3 or OM4 multimode fiber
- Standards compliance: IEEE 802.3ae 10GBASE-SR, SFP+ MSAA
- Applications: Short-distance interconnects, rack-to-rack connections, and intra-data center links
- Examples: STC-10G-SR 10G SFP+ SR module supports up to 300 m over OM3 fiber, hot-pluggable, low power consumption, and full DDM functionality.

**1 km Optical Modules**

Medium-range (1 km) optical modules are typically single-mode fiber (SMF) transceivers, suitable for campus networks, metro links, or longer intra-building connections. Key features include:

- Data rates: 1G, 10G, or higher
- Wavelength: 1310 nm or 1550 nm
- Fiber type: Duplex single-mode fiber
- Standards compliance: IEEE 802.3z 1000BASE-LX or 10GBASE-LR
- Applications: Inter-building connections, longer reach within enterprise networks
- Examples: 10GBASE-LR SFP+ modules can reach up to 1 km over duplex SMF, providing reliable high-speed Ethernet connectivity.

**Key Differences**

| Feature           | 300 m Module             | 1 km Module                   |
|-------------------|--------------------------|-------------------------------|
| Fiber type        | Multimode (OM3/OM4)      | Single-mode (SMF)             |
| Wavelength        | 850 nm                   | 1310 nm or 1550 nm            |
| Typical use       | Data center, short links | Campus, metro, inter-building |
| Cost              | Lower                    | Higher                        |
| Power consumption | Low                      | Moderate                      |

**Summary**

300 m modules are optimized for short-range multimode fiber connections, ideal for high-density data center environments. 1 km modules use single-mode fiber for longer reach, suitable for enterprise or campus networks. Both types support hot-pluggable SFP/SFP+ form factors and comply with relevant IEEE standards, ensuring interoperability with switches, routers, and optical...

## Article Content

### 25Gbps SFP28 Optical Module

25Gbps-SFP28-MMF-850nm-0.1km-commercial 25Gbps-SFP28-SMF-1310nm-10km-industry 25Gbps-SFP28-SMF-1310nm-0.3km-industry 25Gbps-SFP28-SMF-1310nm-40km-commercial

### SFP Optical Transceiver Modules for Long Distance: A Complete

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

### 10G SFP+ Optical Transceivers | Transceiver Module

Click to get your 10G SFP+ transceiver modules from nearby warehouses. 30-Day Free Return. Trusted by 260K+ Enterprise Users.

### 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, compatibility, and choosing the right module.

### Fiber Optic Cable Distance: A Comprehensive Guide

For example, a fiber optic cable with a distance of 1km supports a bandwidth of 500MHz, while a fiber optic cable with a distance of 2km can only

### SFP Multimode

These SFP transceivers are for multimode fiber optic cables. You should ensure that SFPs or network equipment at each end of the fiber are multimode and are operating on the same wavelength (850nm

Dell Networking, Transceiver, SFP+, 10GbE, SR,

The Dell™ SFP+ transceiver delivers fiber connectivity to extend the range of your network. This hot-pluggable transceiver with SFP (Small Form Factor Pluggable)

### “Understanding Transmission Distance: Short-Range vs

Do you really need a 10km module for a 300m connection? Many customers unknowingly overspend by not matching transceiver distance with real

### 25Gbps SFP28 Optical Module

25Gbps SFP28 Optical Module 25Gbps SFP28 Optical Module 25Gbps-SFP28-MMF-850nm-0.1km-commercial 25Gbps-SFP28-SMF-1310nm-10km-industry 25Gbps-SFP28-SMF-1310nm-0.3km

### 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 network performance with proper selection.

## Fiber Modules

SFP modules support very low EMI and excellent ESD protection. Featuring low power consumption, these fiber modules are ideal for enterprise LAN networks and other optical links.

## Models, specifications, and compatibility

Models, specifications, and compatibility SFP+ optical transceiver modules provide a transmission rate of 10.31 Gbps and use LC connectors. 10G BiDi transceivers always require paired sets: a -U must

## Arista Optics Modules and Cables

Each module is optimized for different media and reach (ranging from 0.5 meters to 80 kilometers). All interface speeds, from 1G to 400GE have connectivity options that include Direct Attach copper

## Cisco 10GBASE SFP+ Modules Data Sheet

Using 2000MHz \* km MMF (OM3), up to 300m link lengths are possible. Using 4700MHz \* km MMF (OM4), up to 400m link lengths are

<1km Transceivers Module | HEYOPTCIS - HeyOptics

10GBASE-SR XFP 850nm 300m DOM LC MMF Transceiver Module \$53.00 USD Quick shop Add to cart

## Mini-Gbic Module | Intelbras

Meet the Mini-Gbic Module line that meets the most diverse demands of connections for structured cabling. Know more!

## How to Estimate an Optical Module's Transmission

Optical modules distinct from one another in their transmission distance, a feature that should be taken into account in addition to other

## SFP Distance Explained: Real-World Range, Limits,

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

## 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.

## Fiber Optic Canister V2

This 1km Fiber Optic Canister V2 provides a lightweight, high-bandwidth tether solution for FPV drones, enabling stable video feed, control, and data links over kilometers — ideal for long-range flights,

### Optical Transceiver Modules Prices & Specifications

What is Optical Transceiver Modules/SFP? Optical Transceiver Modules/SFP, also called fiber optic transceiver or optical transceiver, is a typically hot-pluggable

### 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.

## Contact Us

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