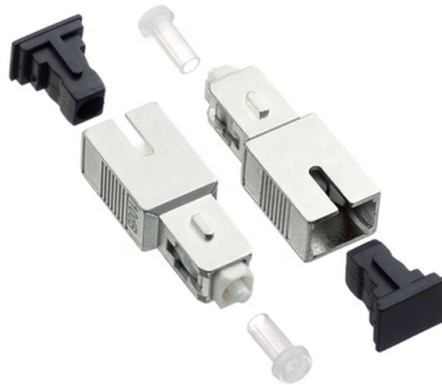


# How many kilometers is a mid-range optical module



## Overview

These modules primarily facilitate optical signal transmission with a range between 2 kilometers (KM) and 10 kilometers (KM), enabling high-speed, stable, and low-latency data transfer. This is why two modules with the same form factor can have dramatically different ranges—some limited to a few hundred meters, while others reliably reach tens of kilometers. A frequent source of confusion comes from real-world deployment experiences shared across engineering communities. Many. The global mid-distance optical module market size was valued at USD 520 million in 2024. The main focus is on four models: FR4/FR8 (2km) and LR4/LR8 (10km). It employs four non-cooled EML lasers with CWDM. At a wavelength of 850nm, a 100M optical module can transmit up to 2km, a 1G can transmit up to 550m, a 10G can transmit up to 300m, a 40G can transmit up to 400m, and 100G and 400G can transmit up to 100m. Common wavelengths include: 850nm: For multimode SFP modules, suitable for short-distance transmission.



## Article Content

Dec 20, 2025

### What Are the Key Parameters of Optical Modules

Understand the key parameters of optical modules, including transmission rate, distance, wavelength, and fiber compatibility, for better network

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### SFP+10G 1310nm 10Km LC Optical Module Guide

Conclusion The SFP+10G 1310nm 10Km LC optical module is a powerful and versatile solution for high-speed, long-distance data transmission. Understanding

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### Understanding Transmission Distance: Short-Range vs

Understanding Transmission Distance: Short-Range vs Long-Range Optical Modules! Do you really need a 10km module for a 300m connection?

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### Optical module transmission distance and related classification

In the actual use of long-distance optical modules, in many cases, the maximum transmission distance of the module cannot be achieved. This is because the optical signal will have

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### Long Distance Optical Module Characteristics and Application

Long-distance optical modules refer to optical modules with a transmission distance of more than 30km, which can meet network data transmission requirement. In the actual use of long-distance optical

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### Understanding the Transmission Distance of Optical

In the complex world of network design, understanding the reach of optical modules is crucial. From ensuring fast, local connections with SR to

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## Parallel Optics and WDM Optics Subassemblies for High-speed

The common optical modules are divided into short distance (≤2km), middle distance (10~20km), long distance (≥30km).

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## SFP Modules Technical Parameters

3. SFP Modules Transmission Distance Indicates the maximum transmission distance the module supports, measured in meters (m) or kilometers

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## Understanding Long Distance Fiber Optic Runs for New

This guide will break down the essentials, from selecting the right hardware to troubleshooting common issues that can arise in long-distance fiber runs.

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## Wavelength and Transmission Distance of Optical

The price of the optical sources and signal converters that are paired with 850nm optical transceiver modules is far lower than the prices of 1310nm and 1550nm

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## Overview of 400G QSFP-DD Mid-Range Optical

The "LR" in QSFP-DD LR4 optical module denotes long-distance transmission of 10km. It utilizes four EML lasers with CWDM wavelengths (5nm

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## The relationship between wavelength and transmission

The transmission distance of optical modules is divided into short distance, medium distance, and long distance. Short distance transmission usually refers to

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## Middistance Optical Module Market Outlook 2026-2032

These modules primarily facilitate optical signal transmission with a range between 2 kilometers (KM) and 10 kilometers (KM), enabling high-speed, stable, and low-latency data transfer.

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## Fiber Optic Cable Range: Comprehensive Guide

Fiber optic cable range varies depending on whether you're using single or multimode fiber. Learn the potential for both cable types.

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What is the range of SFP in KM?

The range of an SFP (Small Form-Factor Pluggable) module can vary depending on the specific type and intended use of the module. SFP modules are commonly used for both multimode

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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.

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Fiber Optic Cable Distance: A Comprehensive Guide

Single-mode fiber optic cables are more suitable for long-distance, high-speed transmission than multimode fiber optics. For most applications, the

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Basic Knowledge Of Optical Module Transmission Distance

Optical modules are generally categorized into short-range (less than 2 km), medium-range (10 km to 20 km), and long-range (more than 20 km) based on

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

10GBASE-ER SFP modules operate with higher transmit power and tighter receive sensitivity ranges than standard 10G optics to ensure sufficient optical margin over long distances. Typical transmit

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What is the difference between LR and SR transceiver?

LR (Long Range) and SR (Short Range) are terms commonly associated with optical transceiver modules, particularly in the context of fiber-optic communication. These designations help

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Overview of 400G QSFP-DD Mid-Range Optical

**QSFP-DD Mid-Range Optical Modules** There are various types of QSFP-DD optical modules for 2km-10km transmission. The main focus is on four

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

SFP distance refers to the maximum effective range over which an SFP optical module can transmit data while maintaining signal integrity. It is typically measured in kilometers (km) for

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**Optical Modules: The Backbone of Next-Generation**

Optical modules enable high-speed, low-latency links across 5G fronthaul, midhaul, and backhaul. Learn how transceiver types, standards, and

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**Optical Module: A Comprehensive Analysis from Source**

In the future, with continued technological innovation and breakthroughs, optical modules will play an more critical role in driving

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**The relationship between wavelength and transmission**

At 1310nm wavelength, 100Mbps, 10G, 40G, and 100G optical modules can transmit up to 40km, and 400G can transmit up to 500m. 3. 1550nm: The attenuation of

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**Short Range SFP Module: What It Is and How Far It Works**

Learn what a short range SFP module is, its transmission distance, fiber types, and how to choose the right SR SFP for data center and enterprise network connections.

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**What are the detailed parameters of the optical module**

**Transmission distance:** Transmission distance refers to the distance that optical signals can be directly transmitted without relay amplification, and the unit is kilometers (also called

## Contact Us

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