

What is the maximum range of a 40km optical module



Overview

A 10GBASE-ER SFP module is a 10Gbps Ethernet optical transceiver designed for long-distance transmission over single-mode fiber, with a maximum reach of up to 40km under the IEEE 802. Compared with short-reach and long-reach 10G SFP+ optics. In modern optical transport networks, 100G optical modules with a transmission distance of 40km have emerged as a core technology to meet the needs of carriers' backbone networks, large enterprises, and cloud service providers. Depending on different application scenarios and technical. 1. 10G SFP+ 40KM optical module □1310nm□ 10G SFP+ 40KM optical module equipped with 1310nmDFB laser and PIN detector, duplex LC interface, the highest transmission rate of 10. Long-distance variants, typically referred to as LX, EX, ZX, or ER/LR SFPs, are engineered with higher optical power budgets and longer wavelength. The maximum distance for a 10G SFP (small form-factor pluggable) transceiver can vary depending on the type of fiber optic cable being used. All modules satisfy laser safety requirements.



Article Content

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The relationship between wavelength and transmission

When paired with multimode, the maximum transmission distance is 2km, and when paired with single-mode, the maximum transmission distance is 40km. At 1310nm

Jul 30, 2025

Arista SFP-25G-ER-Arista | 25G SFP28 Transceiver, Single-Mode, 40km ...

The Arista SFP-25G-ER is a 25GBASE-ER SFP28 optical transceiver designed for extended-reach connectivity up to 40km over duplex single-mode fiber. Operating at 1310nm wavelength with LC

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Single Mode SFP vs Multimode SFP: What the

Although you can search many results on Google for single mode SFP vs multimode SFP, most of them may not be written by genuine optical

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10G-SFP+40KM 10G SFP+ Transceiver

10G SFP+ Transceiver Overview The 10G SFP+ transceivers are high performance, cost effective modules supporting data rate of 10Gbps and 40. m transmission distance with SMF. The transceiver

Aug 23, 2025

BlueOptics 10G SFP+ Transceiver | How to Achieve Maximum Distance!

In this article, we'll show you 10 simple, effective rules to help you get the maximum range from your SFP+ connections: choosing the right module, and fiber, as well as clever network planning.

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What is the maximum distance for 10G SFP□

However, in general, the maximum distance for a 10G SFP transceiver on single-mode fiber is typically up to 40 kilometers, while on multi-mode fiber it is typically up to 300 meters.

May 11, 2026

Cisco 40GBASE QSFP Modules Data Sheet

Cisco QSFP-40G-ER4 The Cisco 40GBASE-ER4 QSFP Module supports link lengths up to 40km over G.652 single-mode fiber with duplex LC connectors. The 40GE or OTU3 signal is

Nov 14, 2025

Transceiver Optical Module Cisco 1.25G SFP 1270nm CWDM

Fiber Optical Transceiver|Optical Module Cisco Compatible CWDM 1.25G SFP 1270nm 40km Duplex LC/UPC Single Mode Specifications As a CWDM 1.25G SFP transceiver, it supports data

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CWDM SFP+ 1470nm~1610nm 40km Transceiver Datasheet

This module is designed for single mode fiber and operates at a nominal wavelength of CWDM wavelength. There are eight center wavelengths available from 1470nm to 1610nm, with each step

Feb 07, 2026

1.25/9.953/10.3125Gbps SFP+ Optical Module

Hardware Description Chassis Power Fan Optical Module Pluggable Optical Modules Optical Amplifier Overview 155Mbps eSFP Optical Module 155Mbps eSFP BIDI Optical Module 1Gbps Electrical

Sep 27, 2025

What Is an SFP Module? — Complete Guide to SFP, SFP+ & SFP28

□ What Is an SFP Module? An SFP module (Small Form-factor Pluggable) is a removable, standardized transceiver that plugs into an SFP cage or slot on networking devices such

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25G BiDi SFP28 80KM Optical Transceiver | FiberMania

Perfectly designed for 25g bidi sfp28 optical transceiver 1270/1330nm 80km single-mode fiber LC for switch, router, and server optical connections.

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Extend Your 100G Reach to 40km Transmission with FS Optics

FS offers a wide range of 100G optical modules supporting transmission distances up to 40km. Purpose-built for DCI, metropolitan area networks, and telecom backbone networks, these

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SFP vs. QSFP: Differences, Use Cases, and How to Choose

Compare SFP vs. QSFP transceivers: key differences, speeds, distances, costs, and expert guidance to choose the right module for your network architecture.

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Transceiver Optical Module Cisco 1.25G SFP 1490nm CWDM

Buy Transceiver Optical Module Cisco 1.25G SFP 1490nm CWDM with 40km transmission, 1490nm wavelength. tested module for networks. Same-day dispatch.

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SFP+ 40km (10GBASE-ER): Extended-Reach Optical Module Guide

SFP+ 40km is a type of 10 Gigabit optical transceiver designed for long-distance data transmission up to 40 kilometers over single-mode fiber (SMF). In most cases, this term specifically

Aug 11, 2025

Supply Chain Resilience for Optical Modules: Failure Analysis

Every optical module datasheet specifies a maximum case temperature (Tc) – typically 70°C for commercial grade, 85°C for industrial. Yet modules routinely fail at 65°C in production. The

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SFP Module Introduction: SFP meaning, Fiber SFP and

SFP module is the core part of the optical fiber communication networks. This post will introduce everything you should know about SFP transceivers, including what

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400G, 800G, and Terabit Pluggable Optics:

Full range of 400G / 800G pluggable modules Copper cables Multimode Fiber – 100m Single Mode Fiber inside DC – 500m & 2km Single Mode Fiber Campus – 10 km

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What Are The 10 GBIT/s SFP+ Optical Modules With A

It has an optional channel wavelength range of C17-C61 (interval 50HZ/100HZ), a duplex LC interface, a maximum transmission rate of 11.3g,

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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

Jan 26, 2026

Gigabit SFP Module: A Complete Guide to 1G SFP Transceivers

? What Is a Gigabit SFP Module? A gigabit SFP module (1G SFP module) is a Small Form-factor Pluggable (SFP) transceiver designed to support 1Gbps Ethernet transmission by converting

Mar 13, 2026

100M/1000M SFP RJ-45 Cat 5/5e 100m 100M/1000M

This series of products uses a pair of single-mode optical fiber transmission, the center wavelength is optional for CWDM series 1271-1611nm (interval 20nm), the

Sep 26, 2025

QSFP-DD Transceiver Guide 2026: Complete 400G/800G Deployment

Maximum power applications: OSFP's larger size and integrated heatsink support modules up to 25W, compared to QSFP-DD's ~15W practical limit. This matters for 400G ZR+

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Small Form-factor Pluggable

Small Form-factor Pluggable connected to a pair of fiber-optic cables Small Form-factor Pluggable (SFP) is a compact, hot-pluggable network interface module

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Single Mode SFP Transceiver: Complete Guide Explained

Typical link distances range from 10km to over 80km, depending on the module type and optical power budget. Single Mode vs Multimode SFP Transceivers The primary difference between single mode

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Mastering Cisco Optics: Understanding TX/RX Light Levels

Stop guessing your fiber health. Discover how to use Cisco DOM commands to measure real-time TX/RX light levels and ensure your optical

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400G Optical Modules Explained: SR4 Vs. DR4 Vs. FR4

Key differences between SR4, DR4, FR4, and LR4 400G optical modules. Expert advice from Asterfusion engineers to optimize your data center

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