10km optical module model



Overview

Understand short-range and long-range 10G optical modules in terms of distance, budget, energy use, and scalability to make the right choice.

Key Takeaways

10km optical modules are typically SFP+ or QSFP28 transceivers operating at 1310 nm over single-mode fiber, supporting link distances up to 10 km. Common 10km Optical Module TypesSFP-10G-LR ModulesOperate at 10 Gbps over single-mode fiber (SMF) at 1310 nm wavelength. Support link distances up to 10 km.

Commonly used in enterprise backbones, metro networks, and data center interconnects. Often include Digital Diagnostic Monitoring (DDM/DOM) for real-time monitoring of optical power, temperature, voltage, and bias current. Examples: Moduletek SFP-10G-LR-10KM-C-H15, compatible with Cisco, Huawei, Juniper, and other major switches.

QSFP28 100G ModulesDesigned for 100 Gbps transmission using four 25 Gbps channels aggregated into a single stream. Operate at 1310 nm over single-mode fiber for distances up to 10 km. Hot-pluggable QSFP28 form factor with LC duplex connectors.

Example: Huawei OSN010N24 100G QSFP28 LC 10km module, suitable for data center interconnects, metro networks, and backbone systems.

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Key Specifications to Consider

Form Factor: SFP+ (10G) or QSFP28 (100G) depending on speed requirements. Wavelength: Typically 1310 nm for 10 km single-mode fiber links. Compatibility: Ensure the module is compatible with your switch or router vendor (Cisco, Huawei, Juniper, etc.).

Temperature Range: Commercial modules usually support 0–70°C; industrial versions may support wider ranges. Monitoring: DDM/DOM support allows tracking of optical power, temperature, and voltage for reliable operation. Standards Compliance: 10GBASE-LR for 10 Gbps, 100GBASE-LR4 for 100 Gbps, compliant with IEEE 802.

3 standards.

Deployment Considerations

Fiber Type: Single-mode fiber (G. 652) is required for 10 km links. Optical Budget: Ensure the transmitter power and receiver sensitivity meet the link budget for your fiber distance.

Interoperability: Multi-source agreements (MSAs) ensure modules from different vendors can work with various network devices. Environmental Factors: Consider temperature, humidity, and electromagnetic interference in deployment environments. 10 km optical modules are widely used in enterprise networks, data centers, and metro backbone networks, providing reliable long-distance connectivity with high signal integrity and low latency.

Choosing the right module depends on speed, form factor, vendor compatibility, and monitoring requirements.

Article Content

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.

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

10GBASE-LR is a 10-gigabit Ethernet optical standard that operates at 1310 nm over single-mode fiber (SMF), supporting link distances of up to 10 km.

SFP-10G-LR-1310nm DDM 10KM Optical Transceiver

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Features Sfp-10G-Lr-1310Nm 10km DDM Optical Transceiver ModuleWhat Is An (Fiber) Optical Transceiver?How to Classify Optical Transceivers?How to Choose The Right Optical Module?Modules CompatibilitySelect The Original One Or Compatible One According to The Budget SituationIn order to meet a variety of needs of transmission, the manufacturers launched a variety of categories of optical modules. Below are some common methods to classify them.See more on mefiberoptic 4,5/5(2)aoatech

SFP-S1013L-10 10Gbps SFP+ LR

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

10Km SFP+ Optical Module

This product need to use in pair and match up with fiber converter and optical Ethernet switch with SFP slot, it can be used in Ethernet, telecom and optical fiber communication and other industries.

10G SFP+ LR 1310 nm 10 km Optical Transceiver

The 10G SFP+ LR 1310 nm 10 km Optical Transceiver Module delivers carrier-grade performance for 10 Gigabit Ethernet links up to 10 km over ITU-G.652 single

XG-SFP-LR-SM1310 10GBASE-LR SFP+ 1310-nm 10-km DOM

The XG-SFP-LR-SM1310 is aligned to IEEE 10GBASE-LR optical specifications and supports a link length of up to 10 kilometers over a single-mode fiber (SMF) with an LC connector.

10G SFP+ LR Explained: Specs, Distance, and Use Cases

In 10G SFP+ modules, “LR” stands for Long Reach and specifically refers to a standardized transmission distance of up to 10km over single-mode fiber. It is not a marketing label, but a distance

NovaStar Single Mode 10G SFP Optical Module-S

Available now through Azar Pixel, the NovaStar single-mode 10G SFP Optical Module-S is designed to bridge optical signals. This module is a perfect choice

What is an Optical Module?

Optical modules operate at the physical layer, which is the bottom layer of the OSI model. Its function is quite simple: it achieves photoelectric conversion. It converts optical signals into electrical signals

HTF DWDM equipment,OTN Solution,QSFP28 OSFP

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HTFuture offers industry-leading fiber optic products and WDM system solutions with global recognition for excellence and innovation.

Cisco 10GBASE SFP+ Modules Data Sheet

The Cisco® 10GBASE SFP+ modules (Figure 1) give you a wide variety of 10 Gigabit Ethernet connectivity options for data center, enterprise

OEM ODM 10G BIDI SFP+ Optical Transceiver Module 10km Single

Model Number YW-TS-XPBL-273310-10DC Type Fiber Optic Transceivers Brand Name YOONGWIN Place of Origin Jiangsu, China Warranty Time 12 months Product Name 10Gb/s BIDI SFP+ 10km

H3CSFP-XG-LX-SM1310-S 10G SFP+ Multi-mode Optical Module

High quality H3CSFP-XG-LX-SM1310-S 10G SFP+ Multi-mode Optical Module from China, China''s leading product market Fibre Channel Switch product market, With strict quality control Fibre

NSComm100G Optical Transceiver Modules: A Practical Guide

This guide breaks down QSFP28 modules - SR4, LR4, and DR, with advice on reach, fiber types, connectors, power, DOM, interoperability, and lifecycle management.

SFP Optical Transceiver | SFP Optical Module | Perle

For example, by simply replacing the pluggable optical transceiver, a media converter that was originally used in a multimode network can be re-configured to operate over a CWDM network. Perle SFP

Top Optical Modules for POTN Deployment: SFP, QSFP, and OSFP

Modern optical transport networks are the nervous system of digital infrastructure. As data demand continues to multiply, choosing the right optical module becomes a crucial decision in

10KM Single Mode SFP-10G-LR Optical Module is widely ...

LYAART 10KM Single Mode SFP-10G-LR Optical Module is widely Compatible with Switch 1310nm 10G Optical Module (Size : 80KM) : Buy Online at Best Price in KSA - Souq is now Amazon.sa:

disk on module | Newegg

40G QSFP+ PLR4 PSM for Juniper QSFPP-4X10GE-LR JNP-QSFP-4X10GE-LR 4 x 10GBASE-LR 40GBASE QSFP+ PLR4 1310nm 10km DOM MTP/MPO-12 SMF Optical Transceiver Module Model

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