10km optical module wavelength

Article Overview

A 10G SFP+ LR optical module designed for 10km single-mode fiber operates at a wavelength of 1310 nm.

10G SFP+ LR (Long Reach) modules are standardized for single-mode fiber transmission up to 10 kilometers, using a 1310 nm wavelength to balance signal integrity, chromatic dispersion, and attenuation over medium distances . This wavelength is chosen because it allows stable 10G transmission without requiring dispersion compensation, making it ideal for interconnecting switches, routers, and servers across enterprise, campus, or metropolitan area networks.

Key Characteristics

o Fiber Type: Single-mode fiber (SMF) is required due to its narrow core, which minimizes modal dispersion and supports reliable long-distance transmission .
o Maximum Distance: Typically up to 10 km under standard conditions, though some modules can reach slightly longer distances depending on fiber quality .
o Standards Compliance: These modules follow IEEE 802.3ae 10GBASE-LR specifications and SFP+ Multi-Source Agreement (MSA) standards, ensuring interoperability across vendors .
o Connector Type: LC duplex connectors are commonly used for these modules .
o Applications: Suitable for data center interconnects, campus networks, and backbone links where medium-range 10G connectivity is required . In summary, if you are deploying a 10km 10G optical link, the module will operate at 1310 nm over single-mode fiber, providing a reliable balance of distance, signal quality, and compatibility across network equipment.

With this Mini-Gbic you can carry out installations up to 10km away using Single Mode optical fiber (SMF) using two fibers through

XG-SFP-LR-SM1310 10GBASE-LR SFP+ 1310-nm 10-km DOM Duplex LC SMF Optical Transceiver Module Applicable to data

Extend 10GbE Networks Up to 10km with SFP+ 10G LR Fiber Transceiver Reliable, high-speed connectivity with the SFP-10G-LR

Transmission distance of up to 10km (6.21 mi.) Duplex LC optical interface Supports data rates of up to 10.31Gbps Supports 1310nm

The price of the optical sources and signal converters that are paired with 850nm optical transceiver modules

is far lower than the

These 10G BIDI modules offer various wavelength options and can support transmission distances comparable to

In fiber-optic communications, wavelength-division multiplexing (WDM) is a technology which multiplexes a

The GE SFP 10KM Converter Modules are equipment that enable the increase of the coverage area of networks and, combined with

GLSUNMALL"s Cisco SFP-10G-LR compatible SFP+ transceiver module provides 10GBase-LR throughput up to 10km over

Discover everything you need to know about SFP optical transceiver modules for long-distance fiber transmission.

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

Get the 1000BASE-LX SFP transceiver for compatible fiber optic connections up to 10km at 1310nm wavelength with

This document is a quick reference to some of the formulas and important information related to optical technologies.

Grandstream F-SM1310-10KM-10G is an ultra-fast, single-mode fiber transceiver module for long-distance optical networking. With a

10G SFP+ LR is a standardized 10G optical transceiver designed for single-mode fiber transmission up to 10km using a 1310nm

Multi-mode optical fiber is a type of optical fiber mostly used for communication over short distances, such as within a building or on a

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