The optical module type is a 10ge optical module



Overview

Long-range 10G optical modules enable high-speed data over distances up to 80km. Learn about types, specs, compatibility, and choosing the right module.

Key Takeaways

A 10GE optical module is a pluggable transceiver that enables 10 Gigabit Ethernet (10GbE) data transmission over fiber or copper connections.

Overview

A 10GE optical module, commonly referred to as a 10G SFP+ transceiver, is a small form-factor, hot-pluggable device that converts electrical signals from network equipment into optical or copper signals for high-speed data transmission at 10 gigabits per second. It serves as the physical interface between switches, routers, servers, and the network medium, allowing flexible deployment without replacing the host hardware.

Key Features

Data Rate: Supports 10Gbps, with some variants offering backward compatibility for 1G, 2. 5G, or 5G. Form Factor: SFP+ (Small Form-factor Pluggable Plus), optimized for 10G while maintaining backward compatibility with SFP slots.

Connector Types: Fiber optic: Duplex LC connectors for multimode or single-mode fiber. Copper: Direct Attach Copper (DAC) or 10GBASE-T RJ-45 for short-range connections. Power Efficiency: Typically consumes 1W or less, making it more efficient than older XFP modules.

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Types of 10GE Optical ModulesShort-Reach (SR): Uses multimode fiber and 850 nm VCSEL lasers, supporting distances up to 300 meters on OM3 and 400 meters on OM4 fiber. Ideal for intra-data center connections.

Long-

Reach (LR/ER/ZR): Uses single-mode fiber with 1310–1550 nm lasers, supporting distances from 10 km (LR) up to 80 km (ZR), suitable for campus or metro networks. Copper Modules: Direct Attach Copper (DAC) or 10GBASE-T modules for short-range connections, typically up to 7–30 meters depending on cable type.

Applications

Data Centers: High-speed server-to-switch or switch-to-switch connections. Enterprise Networks: Backbone links and aggregation layers. Telecom Networks: Metro and long-haul fiber connections.

Flexibility: Allows network upgrades to 10GbE by swapping modules without replacing existing hardware. AdvantagesHot-swappable: Can be installed or replaced without powering down equipment. Scalable: Supports network growth and higher port density.

Interoperable: Compatible with multiple vendors and fiber types, depending on module specifications. In summary, a 10GE optical module is a versatile, high-speed transceiver that enables 10GbE connectivity over fiber or copper, with different types optimized for short or long distances, making it a core component in modern high-performance networks.

Article Content

Reach Further, Faster: Your Ultimate Guide to Long-Range 10G

Long-range 10G optical modules enable high-speed data over distances up to 80km. Learn about types, specs, compatibility, and choosing the right module.

Checking Whether the Optical Fiber and Optical Module

GE and 10GE optical modules have the same appearance. You can distinguish them based on the interface type and rate on labels attached to them. If the label

10GE SFP+ Optical Modules

Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-BXU1 must be used with SFP-10G-BXD1.

10G Optical Module Guide: Compare LRM, SR, LR, ER, ZR for the

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What Is a 10G Optical Module? A 10G optical module (also called 10G transceiver or SFP+ module) converts electrical signals into optical signals for high-speed data transmission over

10GB SFP Module Guide: Types, Specs, and How to Choose

Learn everything about 10GB SFP modules, including types, specifications, compatibility, and how to choose the right 10G SFP+ transceiver for your network.

Cisco 10GBASE SFP+ Modules Data Sheet

The Cisco SFP-10G-LR-X is a multirate 10GBASE-LR, 10GBASE-LW, and OTU2/OTU2e module for extended operating temperature range. It supports

10G SFP+ Optical Transceivers | Transceiver Module

FS 10GbE SFP+ module solutions provide a wide variety of 10 Gigabit Ethernet connectivity options for data centers, enterprise wiring closets, Internet Service Providers (ISPs) applications.

10G Optical Module Selection Guide: LRM,SR,LR,ER,ZR

By deeply understanding the differences and performance of LRM, SR, LR, ER, and ZR optical modules, we can make the right choice among many optical modules, thereby building an

Inventory Of 10G Optical Modules

SFP+ optical modules are widely used in 10G Ethernet due to their advantages of compact size, low cost and high density, and they are currently the most common 10G optical

Copy of 10G Optical Module Selection Guide: LRM, SR, LR, ER, ZR ...

In actual network construction and upgrade, it is necessary to select the appropriate 10G optical module based on specific transmission distance, wavelength, network environment and cost...

Optical Module Troubleshooting

Possible Causes The optical module installed on the optical interface is not certified for Huawei data center switches. The optical module type does not match the optical fiber type. Either or

10GE SFP+ Optical Modules

Fan Modules Installing a Power Surge Protector Pluggable Modules for Ports Understanding Optical Modules Understanding Copper Modules Understanding Hybrid Modules Guide to Using Pluggable

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300m SFP+ Optical Module

This is a standard SFP+ optical module. It uses two multi-mode optical fibers and the speed rate can up to 10Gbps, transmission distance up to 300m. This product need to use in pair and match up with

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DisplayModule for high-quality wholesale & custom LCD, TFT, and OLED display modules. We offer OEM/ODM services, competitive bulk pricing, reliable quality, and dedicated technical support.

What Is an Optical Module and Its FAQs (V200)

What Is an Optical Module and Its FAQs (V200) Describes what an optical module is and FAQs, including the fundamentals, appearance and structure, key performance counters, common types,

HTF DWDM equipment,OTN Solution,QSFP28 OSFP

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

Pluggable Optical Modules: Transceivers for the Cisco

Cisco offers a comprehensive range of pluggable optical modules for the Cisco ONS family of multiservice platforms. The wide variety of modules

What is SFP Port? Everything You Need to Know

What is an SFP port? The SFP port also refers to a Small Form-factor Pluggable port. It is a compact mechanical slot that accepts an SFP

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