How to tell what kind of optical module it is



Overview

How to Check If My SFP Is Single Mode or MultimodeDevices such as optical power meters and OTDRs are often used during troubleshooting. They will not label.

Key Takeaways

Optical modules can be identified by examining labels, pull tab colors, internal encoding data, and structural characteristics. 1.

Check the Label

Most optical modules have labels displaying key information such as manufacturer, module type, transmission distance, wavelength, serial number, and production date. This is the simplest method to identify the module type, but labels can sometimes be damaged or faded due to environmental factors like heat or humidity, making other methods necessary. 2.

Examine Pull Tabs

Many modules feature pull tabs that vary in color and text markings. Industry standards often assign specific colors to certain module types, and some manufacturers print the module type or transmission rate directly on the tab. For example, Cisco modules may have the CISCO logo or indicate the data rate on the pull tab.

3.

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Read Internal Encoding Data

Optical modules contain internal encoding data that can be read using a switch or dedicated code reader. This data provides detailed information such as package type, power consumption, connector type, transmission rate, wavelength, and manufacturer. For instance, a QSFP-LR4 module's encoding data can reveal its four-channel wavelengths, 10 km transmission distance, and 3.

5W power rating. 4. Identify by Physical StructureModules differ in form factor and connector type.

Common packaging types include SFP, SFP+, SFP28, QSFP+, QSFP56, QSFP-DD, OSFP, CXP, and CFP.

SF

P modules are small and typically use LC connectors, while QSFP modules are larger, support MPO connectors, and often handle higher data rates.

OSF

P modules are designed for 400G and above, offering improved heat dissipation. 5.

Consider Fiber Type and Wavelength

Optical modules are also classified by fiber type: single-mode (1310 nm or 1550 nm) for long-distance transmission and multi-mode (850 nm) for short-distance applications. Color-coded modules, such as CWDM and DWDM, indicate specific wavelength channels for multiplexing multiple signals over a single fiber.

Summary

To accurately identify an optical module, combine multiple methods: inspect the label, check pull tab color and markings, read internal encoding data, observe the physical form factor, and consider fiber type and wavelength. Using these approaches ensures correct identification for compatibility, performance, and network planning purposes.

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