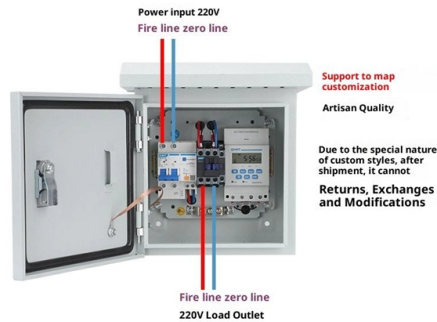


# How to match optical module switches

Product Wiring Diagram



## Overview

Most switch brands have specific compatibility requirements, especially when using third-party optical modules.

## Key Takeaways

Matching optical modules with switches requires verifying compatibility in speed, wavelength, fiber type, port type, and vendor support to ensure reliable network performance.

Key Factors for Compatibility

- **Module Type and Port Speed** Optical modules come in different types such as SFP (1G), SFP+ (10G), SFP28 (25G), QSFP+ (40G), and QSFP28 (100G). Ensure the module speed matches the switch port. For example, a 1G SFP cannot operate at full speed in a 10G-only SFP+ port, and vice versa, even if the form factor fits physically .
- **Wavelength Matching** Both ends of a fiber link must use modules with the same wavelength. A 1310nm module will not communicate with an 850nm module. Mismatched wavelengths can cause data loss or degraded performance .
- **Fiber Type** Verify whether the module is designed for single-mode (SMF) or multi-mode fiber (MMF). Using the wrong fiber type can result in signal attenuation or link failure .
- **Duplex Mode** Full-duplex modules must be paired with full-duplex modules. Connecting a full-duplex module to a half-duplex module will prevent data transmission .

- **Vendor Compatibility and Coding** Many switches, such as Cisco, HPE, Juniper, and Aruba, maintain Supported Transceiver Lists. Some vendors use EEPROM coding to verify module authenticity. Using a module not recognized by the switch may trigger alarms like “unsupported transceiver.” Third-party modules can be coded to match major brands for interoperability .
  - **Distance and Environmental Grade** Check the module's maximum transmission distance and environmental specifications (temperature, industrial grade) to ensure it meets deployment requirements .
- Practical Steps to Ensure Compatibility
- **Consult Official Compatibility Lists:** Check the switch manufacturer's documentation or online tools (e.g., Cisco Optical Device Compatibility Matrix) to confirm supported module models and minimum software versions .
  - **Verify Technical Parameters:** Confirm speed, wavelength, fiber type, duplex mode, and distance requirements.
  - **Use Proven Suppliers:** Choose modules from reputable vendors that comply with IEEE, SFF-8472, and MSA standards to reduce compatibility risks .
  - **Test in a Lab Environment:** Before large-scale deployment, test modules with the intended switch to ensure stable operation.

#### Summary

To match optical modules with switches effectively, validate the module type, speed, wavelength, fiber type, duplex mode, vendor support, and environmental specifications. Following these steps prevents link failures, ensures stable network performance, and simplifies troubleshooting in enterprise or industrial deployments .

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This article provides instructions on how to view the Optical Module Status on your switch.

## Optical Components and Modules

Everything you need to build an optical network from end-to-end. Thin-film filter and PLC based AWG for multiplexing, a full suite of

## Can the CloudEngine Series Switches Use Optical Modules Matching

The CloudEngine switches can use the optical modules matching Huawei S series switches, AR series routers, WLAN products, and

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## Checking the Optical Module Type

The selected optical modules must be supported by the optical interfaces. Check whether the optical module used on the switch is

## What Is an Optical Module

An optical module is a device for converting electrical signals to optical signals and vice versa, widely used in telecommunications

## SFP Fiber Optic Module and Switch Port Matching Selection Guide

SFP fiber optic modules are essential components for high-speed network connectivity, and selecting the right SFP module that

## Cisco Optics-to-Device Compatibility Matrix

Comprehensive compatibility information for Cisco optical transceivers and network devices Disclaimer: Cisco makes the data in this

## SFP Modules Aren't All the Same—How to Choose Wisely

SFP modules may be small, but their role in network performance is critical. By paying close attention to compatibility,

## 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,

## How to Choose SFP Module for Compatibility, Speed, and Distance

Learn how to choose the right SFP module based on compatibility, speed, fiber type, wavelength, and distance.

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Objective The Cisco Small Business Series Switches allow you to plug in a Small Form-factor Pluggable (SFP) transceiver in their

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### Replacing an Optical Module

Use optical modules certified for Huawei data center switches. Non-certified optical modules cannot ensure transmission reliability

### How to Install and Remove Optical Modules Safely

Small Form-factor Pluggable modules (SFP module) are the workhorses of modern network connectivity, enabling

### Checking Whether the Optical Fiber and Optical Module Match

Read documents about optical modules. Install an optical module on an interface of the matching type, and then run the display

### FAQs About Optical Modules

For details about the optical modules supported by optical ports on switches, see "Appearance and Structure" of a specific switch

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