

The two optical modules cannot communicate



Overview

Ensure that the transmit and receive power values of the two optical modules are in the normal range.

Key Takeaways

Optical modules may fail to communicate due to mismatched types, incompatible fibers, incorrect power levels, or module certification issues.

Common Causes

- **Module Compatibility and Certification** Optical modules must be compatible with the devices they connect. For example, Huawei CE and CloudEngine series switches require certified optical modules; non-certified modules may prevent interfaces from going Up . Check the module label for manufacturer certification.

- **Fiber Type Mismatch** Single-mode modules (1310 nm or 1550 nm) must connect to single-mode fibers (yellow), and multimode modules (850 nm) must connect to multimode fibers (orange). Using mismatched fibers can cause link failure .

- **Wavelength and Transmission Distance** Modules with different wavelengths or transmission distances may not interconnect properly. Ensure both ends use the same wavelength and that the module's supported distance exceeds the fiber length .

- **Interface Status and Power Levels**
- Check if the interface is manually shut down.

- Verify transmit and receive power levels; too high or too low can prevent communication .
- Ensure the module's nominal rate matches or exceeds the interface rate.
- Connector and Port Issues
- Core diameters of fibers must match the transceiver specifications.
- Dirty or scratched connectors can increase optical loss. Clean connectors with proper fiber cleaning tools .
- Avoid touching fiber tips to prevent contamination.
- Environmental and Operational Factors
- Excessive heat or poor airflow can affect module performance.
- Electrostatic discharge (ESD) can damage internal circuits. Use anti-static precautions during handling .

Troubleshooting Steps

- Verify Module Certification and Compatibility Replace non-certified or incompatible modules with certified ones.
- Check Fiber Type and Connector Confirm single-mode or multimode fiber matches the module. Clean connectors and inspect for damage.
- Inspect Interface Status Use device commands to check if the interface is administratively down or generating alarms.
- Measure Optical Power Ensure transmit and receive power are within the module's specified range.
- Replace Suspected Faulty Components If issues persist, replace one module or fiber at a time to isolate the problem.
- Monitor Environmental Conditions Ensure proper ventilation and avoid high temperatures or ESD exposure. By systematically checking module certification, fiber compatibility, power levels, interface status, and environmental factors, most communication failures between optical modules can be resolved .

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During the use of the optical transceiver module, various problems will inevitably occur. The following summarizes the

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How to ensure interoperability between two optical transceivers? How to ensure fiber optic transceivers? Read this

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Optical modules are electronic devices used in communication systems to transmit optical signals. These modules

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Fault Symptom Two optical interfaces on different switches are interconnected through optical fibers. The local optical interface is

Optical Module Troubleshooting

Optical Modules on the Local and Remote Devices Cannot Communicate Fault Description A switch is connected to a

Addressing SFP Failures: Fix Your Malfunctioning SFP Transceiver

The optical module is damaged by ESD (Electrostatic Discharge). ESD will absorb dust, change the impedance

Optical Modules Fail to Communicate

The used optical modules are not certified for Huawei data center devices. The optical modules and optical fibers do not match. An

The Key External Components of Optical Modules

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