

Can two optical modules be connected one LC and one SC

Article Overview

Two optical modules with different connector types (LC and SC) cannot be directly connected without an adapter or hybrid patch cable.

Connector Compatibility

LC (Lucent Connector) and SC (Subscriber Connector) are different physical interfaces for fiber optic modules. LC uses a 1.25 mm ferrule and is common in modern SFP/SFP+ modules, while SC uses a 2.5 mm ferrule and is often found in legacy networks or FTTH deployments . Because of the ferrule size and locking mechanism differences, you cannot plug an LC connector directly into an SC port .

Solutions for Connecting LC to SC

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LC-SC Hybrid Patch Cable: A pre-terminated fiber cable with an LC connector on one end and an SC connector on the other. This allows direct optical transmission between mismatched modules without additional adapters .

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Fiber Optic Adapter: An LC-to-SC adapter can be used to bridge the two connectors. The LC module plugs into the adapter, which then connects to the SC module. This method may introduce slight insertion loss, typically around 0.2-0.3 dB .

Considerations

o **Optical Specifications:** Ensure both modules match in wavelength, fiber type (single-mode or multimode), and duplex/full-duplex operation. A connector adapter only solves the physical interface issue; mismatched optical parameters will prevent proper communication .

o **Insertion Loss:** Each adapter or hybrid cable adds a small amount of loss. For short distances, this is usually negligible, but for long-haul or high-speed links, it should be considered .

o **Network Planning:** LC is preferred for high-density modern networks due to its smaller size, while SC may be used for legacy or field-deployed equipment. Using adapters or hybrid cables allows gradual migration without replacing all infrastructure .

Summary

You cannot directly connect an LC module to an SC module. To establish a working link, you need either a hybrid LC-SC patch cable or an LC-to-SC adapter, while ensuring that the optical parameters of both modules

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are compatible for proper signal transmission .

Confused about the LC vs SC SFP module choice? We explain the physical differences, density benefits, and why Wolontek

This installation note provides the installation instructions for the Cisco small form-factor pluggable (SFP) and SFP+

It is likely to mix two modules with similar appearances or insert the same-sized transceiver into the wrong switch port.

A duplex connector is essentially two single connectors side by side, often in a plastic assembly. Duplex style fiber

Fiber Optic Networking Guide SC or LC Connector Fiber optic cables are awesome because one can transmit large

With the increasing demand for high-speed optical communications in data centers,enterprise networks,and carrier

Fiber optic connectors are an essential component of any fiber optic network, allowing for the connection and transmission of optical

Both SC SFP and LC SFP transceiver connector are integral parts of fiber optic networks, but the right choice

If you are upgrading a network switch or deploying fiber to the home (FTTH), you will inevitably face the connector choice: LC vs SC.

While both SC SFP module and LC SFP module serve the same purpose of establishing a connection between the

The topic of fiber optic connectors is comprehensive and may span across documents. This white paper primarily focuses on two

In this guide, we explain exactly how to match optical modules with the right patch cord, based on practical

Learn how to identify fiber optic connectors, choose the right adapters, avoid APC/UPC mismatches, and prevent

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The development of fiber connectors can be divided into two stages. The one is the

SC connector is too large for SFP module. So you need a converter. If your connection is using single fibre strand

Confused about fiber optic patch cords? Learn the differences between single mode and

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