COETZER OPTICAL SYSTEMS (Pty) Ltd

SC optical module divided into A and B

Overview

Compared to LC optical modules and MPO optical modules, SC optical modules are used less frequently.

Key Takeaways

SC optical modules are often divided into A and B channels to support duplex bidirectional communication over a single fiber pair.Overview of SC Connectors

The SC (Subscriber Connector or Square Connector) is a widely used fiber optic connector featuring a square push-pull design with a 2.5mm ferrule diameter, allowing easy insertion and removal without rotation . SC connectors are commonly used in single-fiber bidirectional optical modules, such as 1.25 G Gigabit SC optical modules, where data transmission occurs in both directions over a single fiber pair .

Duplex Configuration: A and B Channels

In duplex SC modules, the connector is divided into two channels labeled A and B:

• Channel A: Typically designated for transmitting data from the module to the network or receiving end.

• Channel B: Typically designated for receiving data from the network or sending end. This division ensures bidirectional communication over a single fiber pair, preventing signal interference and maintaining proper data flow. The A/B labeling also helps maintain correct polarity when connecting patch cords and optical modules, which is critical for network performance .
Applications
• Single-fiber bidirectional modules: SC connectors with A/B channels are used in modules that transmit and receive data over a single fiber, such as GPON, EPON, and Gigabit optical modules.

• Local Area Networks (LANs): Duplex SC connectors are widely used in LANs for high-density fiber patch panels.

• Optical transceivers: Ensures proper alignment of transmit and receive channels when connecting optical modules to network equipment .
Key Points
• SC connectors are easy to use due to their push-pull design.

• The A/B division is essential for maintaining signal directionality in duplex optical modules.

• Proper connection of A and B channels is critical to avoid data loss or miscommunication. In summary, the A and B channels in SC optical modules represent the two separate paths for bidirectional data transmission, ensuring reliable communication in single-fiber optical networks.

Article Content

Do You Know Which Connectors Are Commonly Used In Optical

In this blog, ETU-L ink will introduce the following connectors commonly used to connect optical modules, which are LC connector,

Knowledge related to SC interface optical modules

Compared to LC optical modules and MPO optical modules, SC optical modules are used less frequently. SC optical modules mainly

Optical module

Optical modules can either plug into a front panel socket or an on-board socket. Sometimes the optical module is replaced by an

Fiber Adapters

Fiber Adapters Belden offers standalone Fiber Adapter modules for use in a variety of applications. Connector types include LC

Detailed Explanation of FC, ST, SC, and LC Fiber-Optic Interfaces

It is an optical fiber connector that can be configured as duplex, triplex, or quadruplex, and is widely used in local area

A Breakdown of Fiber Optic Patch Connectors and Their Applications

The job of the transceiver is to translate electrical signals into optical pulses and this strategy offers huge versatility. A

Optical Transceiver Market Size, Share, Analysis 2030

The global Optical Transceiver Market size in terms of revenue was estimated to be worth $13.6 billion in 2024 and is poised to reach

Optical Coupler

A commonly used configuration has one input and two outputs (1x2), i.e., the optical signal is divided into two paths (or two optical

SFP Fiber Optic Connector Types: LC, SC, MPO Explained

In real deployments, connector choice often determines whether an optical module can be integrated seamlessly into existing fiber

SC APC SFP Module Guide for Optical Network Selection

Explore how to select SC APC SFP modules for optical networks, including specs, compatibility, applications, and performance insights.

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