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Fiber FC and SC connectors



Overview

Fiber Connector Types play a pivotal role in ensuring efficient and reliable communication in modern networks.

Key Takeaways

FC connectors are threaded and highly reliable for high-vibration environments, while SC connectors are square, push-pull, and widely used for general networking and data center applications.SC (Subscriber Connector)

Design and Locking: SC connectors feature a square body with a push-pull latch mechanism, making them easy to insert and remove . Applications: SC connectors are commonly used in routers, switches, GBIC transceivers, and FTTH deployments. They are suitable for environments where frequent plug-and-play is required . Advantages:

• Simple plug-in design

• Good mechanical stability

• Inexpensive and widely available

• Supports duplex configurations for high-density networking Disadvantages:

• Can disconnect if pulled sharply

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• Larger footprint compared to LC connectors Ferrule Size: Typically 2.5 mm, compatible with multimode and single-mode fibers . Polish Options: SC connectors can come in PC, UPC, or APC polish styles, affecting return loss and reflection performance .
FC (Ferrule Connector)

Design and Locking: FC connectors have a round metal body with a screw-threaded coupling, providing a secure connection that resists accidental disconnection . Applications: FC connectors are ideal for telecom systems, optical distribution frames (ODFs), long-haul networks, and high-vibration environments such as factories or railway systems . Advantages:

• Highly reliable under vibration

• Dust-resistant and rugged

• Precise fiber alignment for low insertion loss Disadvantages:

• Larger and less convenient for high-density installations

• Slower to connect and disconnect due to threaded design Ferrule Size: Typically 2.5 mm, similar to SC, supporting both single-mode and multimode fibers . Polish Options: FC connectors also support PC, UPC, and APC end-face polishes, with APC preferred for analog signals to minimize back-reflection .
Key Differences Between FC and SCFeatureSCFCBody ShapeSquareRound, metalLocking MechanismPush-pull latchScrew-threadedBest UseGeneral networking, data centersTelecom, long-haul, high-vibrationEase of UseQuick plug-inRequires screwing, slowerPort DensityModerateLower, bulkierDurabilityModerateHigh, vibration-resistantCommon PolishPC, UPC, APCPC, UPC, APC

Summary: SC connectors are preferred for general-purpose networking and high-density applications due to their ease of use, while FC connectors are chosen for telecom and industrial environments where mechanical stability and vibration resistance are critical . Both connector types remain widely used, with the choice depending on the specific network requirements and environmental conditions.

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