

Article Overview

The FC-APC interface is a fiber optic connector with a threaded ferrule and an angled physical contact (APC) polish, designed to minimize back reflections and ensure high-performance optical transmission.

Overview of FC Connectors

The FC connector is a fiber-optic connector featuring a threaded body that secures the connection, making it ideal for high-vibration environments and precision applications. It is commonly used with single-mode fibers and polarization-maintaining fibers in telecommunications, datacom, measurement equipment, and laser systems. The fiber is embedded in a 2.5 mm ferrule, typically made of zirconia ceramic or stainless steel, and spring-loaded to maintain proper contact force. A key prevents rotation during mating, ensuring alignment of the fiber cores .

APC Polish and Its Advantages

The APC (Angled Physical Contact) polish on an FC connector involves an 8° angled tip on the ferrule end face. This design significantly reduces back reflections, achieving typical return losses of around 60 dB, which is critical for high-precision optical systems such as lasers and RF-over-fiber applications . Compared to standard PC or UPC polishes, APC connectors are preferred in systems sensitive to reflected light, as the angled interface directs reflected light out of the fiber core, minimizing interference and signal degradation .

Applications and Usage

FC-APC connectors are widely used in:

- o Telecommunications networks for long-haul single-mode fiber links
- o High-frequency RF systems to maintain signal fidelity
- o Laser systems where back reflection can affect performance
- o Measurement and test equipment requiring stable, low-reflection connections

They are often terminated on patch cables of various lengths (1-10 m) and can be connected using mating sleeves to ensure proper core alignment and minimal reflection .

Key Considerations

- o Threaded design ensures secure connections in high-vibration environments.
- o Angled polish (APC) reduces back reflection compared to PC or UPC connectors.
- o Compatibility: FC-APC connectors require matching APC receptacles; they are not compatible with

FC-APC Interface

standard FC-PC connectors.

o Key width: FC connectors may have narrow or wide key ferrules, which must match the coupler or collimator for proper alignment .

In summary, the FC-APC interface combines the mechanical stability of the FC connector with the optical performance of an angled polish, making it ideal for applications where low back reflection and precise fiber alignment are critical.

Fiber connectors are not all the same. As well as the different physical types - such as SC, FC and E2000 -

The LC, SC, and FC indicate the different structures of fiber connector types, whereas the

Features FC/APC Narrow Key (2.0 mm) Connectors High Return Loss (Low Back Reflection) of 60 dB (Typical) 0.3 dB Connector to

Explore the key differences between APC, UPC, and PC fiber optic connectors. Learn about their performance,

IEC 61754-13:2024 defines the standard interface dimensions for the type FC-PC family of connectors. This third edition cancels and

The "APC" stands for "angled physical contact" because these connectors allow the surfaces of two

These single mode fiber optic patch cables are FC/APC terminated on both ends, making them ideal for systems that are sensitive to

Learn about the different types of fiber optical adapters including FC/PC Simplex Multimode, LC/APC Simplex Single Mode, and

Entdecken Sie die Geheimnisse der FC/APC-Steckverbinder, die für optimale Glasfaserverbindungen mit

FC/PC and FC/APC Single-Mode, PM Patch Cables and Cable Assemblies Many devices used in data transmission, sensor

Angle-polished connections are distinguished visibly by the use of a green strain relief boot. The

81000NI - FC/APC connector interface, good for >10000 reconnection cycles, 2.03mm (0.08") key

way. (for R-keying only, narrow

Non-angled versions may be denoted FC/PC or with specialized designations such as FC/UPC or FCU to

Therefore, to avoid confusion in connector use during experiments (and prevent damage to equipment ports such as

The FC connector is available in tunable non-tunable PC versions for flexibility in specific performance requirements. The FC/APC

Single-mode and polarization-maintaining fiber cables. Sch#228;fter+Kirchhoff offers single-mode, polarization-maintaining and multi

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