

Article Overview

A PC (Physical Contact) fiber optic connector features a slightly curved end face that allows direct contact between fiber cores, reducing air gaps and enabling reliable optical connections.

Definition and Structure

A PC connector is a type of fiber optic connector where the end face is polished to achieve physical contact between two fiber cores. The end face is slightly convex, with the fiber core positioned at the highest point of curvature. This design minimizes the air gap between connected fibers, improving light transmission and reducing signal loss compared to older flat-polished connectors ().

Performance

- o Return Loss: PC connectors typically have a return loss of around -40 dB, which is higher than the original flat polish style but lower than UPC (-50 dB) and APC (-60 dB) connectors ().
- o Insertion Loss: The physical contact reduces insertion loss by ensuring better alignment of fiber cores.
- o Durability: While PC connectors are stable and reliable, repeated mating can degrade the surface over time, which is why UPC and APC connectors are often preferred for high-performance applications ().

Comparison with UPC and APC

- o UPC (Ultra Physical Contact): An improved version of PC with a more pronounced convex dome, offering better surface finish and lower return loss (~-50 dB). Suitable for most digital and analog transmission systems ().
- o APC (Angled Physical Contact): Features an 8° angled end face to minimize back reflection, achieving the lowest return loss (~-60 dB). Ideal for RF, CATV, and high-frequency applications ().

Applications

PC connectors are widely used in data centers, LANs, MANs, and general fiber optic communication systems where moderate return loss is acceptable. Standard connector types such as SC, FC, and ST often adopt PC end face polishing ().

Summary

The PC fiber optic connector is a foundational connector type that ensures physical contact between fiber cores, reducing air gaps and providing reliable optical performance. While largely replaced by UPC and APC in high-performance systems, PC connectors remain cost-effective and suitable for many standard

Fiber optic connector end face PC

communication applications ().

Fiber Optic Terminus End Face Quality Standards Introduction Good fiber optic performance relies on connectors that are

To overcome the high insertion loss and reflectance of flat end faces, engineers introduced

What fiber connectors have UPC PC and APC connector types? No all fiber connectors

PC stands for Physical Contact. This polishing style was created to solve the biggest problem of the early flat-polished

Understand the differences between PC, UPC, and APC fiber assemblies end-face designs, and why return loss and

Back reflection represents the light reflected back to the source from a connector mating or other discontinuity in a fiber. It is the

To put it simply, PC, UPC, and APC define the type of polish used on the fiber optic connector end face or ferrule. The

Flat PC (Physical Contact) UPC (Ultra Physical Connector) APC (Angle Physical Connector) The following excerpt from the Fiber

However, the end faces of PC and UPC fibers are flat, and the difference is in the quality of grinding. Therefore, the

Compare PC vs UPC vs APC fiber connectors to choose the best type for your network. Understand differences in

In your fiber cabling systems, you will find essential components such as fiber connectors and optic cables. These may

This is the 3rd of a 3 part post from the white paper entitled "Fiber Optic 3D Metrology". We will define and lay out the

PC connector stands for physical contact fiber connector, which allows the end faces of two

In fiber optic networks, connectors are essential for linking different sections of optical fibers. The

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performance of these

The difference between straight (PC) and angled (APC) cut can make the difference

Definition: A PC end face refers to the fiber connector end face that adopts physical contact. The end face

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