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Fiber Optic PC-APC



Overview

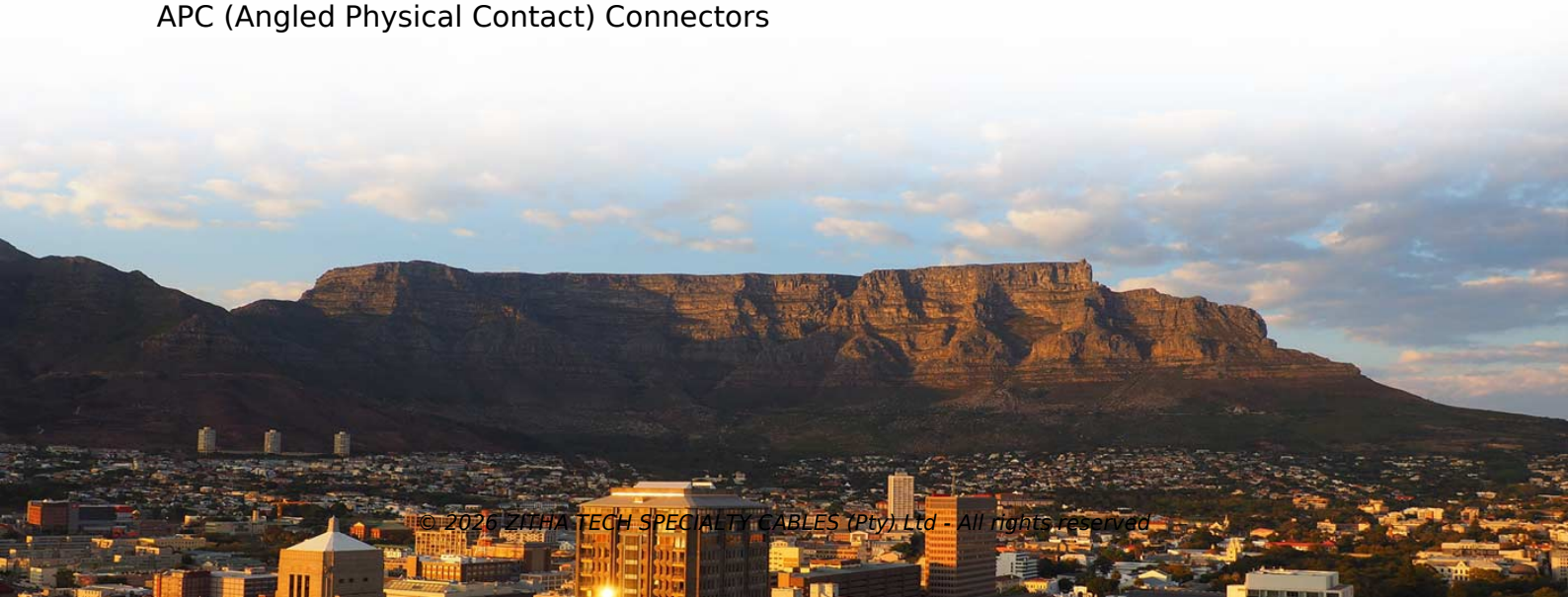
APC, UPC, PC Fiber Connector Types Comparison and Today, this post will introduce APC, UPC, and PC fiber connector types, which are PC vs UPC vs APC Fiber.

Key Takeaways

PC (Physical Contact) and APC (Angled Physical Contact) are fiber optic connector types distinguished by their end-face polish, affecting return loss and signal reflection.PC (Physical Contact) Connectors

PC connectors were the earliest fiber polish type, featuring a slightly curved or convex end-face that allows the fiber cores to make direct contact, minimizing air gaps between fibers . This design reduces optical return loss (ORL) compared to flat connectors, but typical return loss is around -40 dB, which is relatively high by modern standards . PC connectors are largely used in older telecom systems where back reflection is less critical. They are compatible with other flat or slightly domed connectors but are generally being replaced by UPC and APC connectors in new installations .

APC (Angled Physical Contact) Connectors



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APC connectors feature an 8° angled ferrule end-face, which directs reflected light into the fiber cladding rather than back toward the source . This significantly reduces back reflection, achieving a return loss of around -60 dB, making APC ideal for high-frequency applications such as RF, CATV, L-Band satellite, GPS, and long-distance single-mode links . The angled design also helps maintain signal integrity in systems sensitive to reflections, such as WDM and PON networks. APC connectors are typically color-coded green for easy identification and must be mated with other APC connectors to maintain performance .

Key Differences Between PC and APCFeaturePCAPCEnd-face geometrySlightly curved/convex8° angledReturn loss~-40 dB~-60 dBBack reflectionHigherMinimalTypical applicationsLegacy telecom, low-demand systemsHigh-frequency RF, CATV, WDM, PON, long-distance single-modeCompatibilityCan mate with PC or UPCMust mate with APC onlyColor codingBlue or blackGreenSummary

PC connectors provide basic physical contact suitable for older or less demanding systems, while APC connectors are optimized for low back-reflection and high-performance optical networks. Choosing the correct connector type is critical for minimizing signal loss and ensuring network stability, especially in high-speed or analog systems .

Article Content

PC vs UPC vs APC Fiber: Key Differences Explained

PC ConnectorsCommon PC Use CasesUPC ConnectorsWhen to Use UPC ConnectorsAPC ConnectorsLeading Use Cases For APCAPC connectors are the best choice when back reflection is the greatest concern. A perfect example is analog fiber optics. Analog signals suffer more from back reflection, which is largely solved by the APC angle. Analog fiber optics are rising in popularity as a replacement for copper coaxial cables. Some applications are more sensitive to return ...See more on cablesandkits shopfiberoptic

Fiber Polish Types: PC, UPC, APC, SPC Differences

The four fiber polish standards explained. PC, SPC, UPC, and APC: what each polish means, the return

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