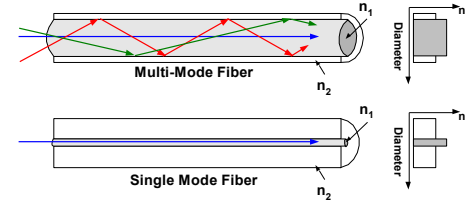


Fibre Optic Technology

A simple guide, specific to our industry to explain some of the basics of fibre and fibre connectors.

Single mode Fibre - There are two types of fibre but just one type that is suitable for aerial and satellite installations; Single mode fibre is used 100% of the time, multi mode fibre is unsuitable for use in the aerial and satellite industry.



Fibre sheathing - Fibre optic cables are very delicate but with appropriate outer sheathing can be very robust. Choose the outer sheathing to suit the environment; anti-rodent, additional underground armour, outdoor UV protection, and their performance in a fire (LSZH) should all be considered.



Connector types - Whilst there may be dozens of different types of connectors used internationally, there are only a small number that we are likely to come across ourselves and just three that we are likely to install.



FC – (Ferrule Connector) Adopted by Global Invacom the ‘FC’ is a very common connector. With a ‘keyway’ locator to ensure that the connection is perfectly aligned and a screw thread similar to an F-connector making the connector “vibration-proof” the FC connector is always popular.



SC – (Subscriber/Square connector) Developed by NTT and due to its high quality low cost and ease of use, the ‘SC’ has become the most popular connectors in the industry. Featuring a quick push-pull coupling that eliminates rotation which can damage fibre end faces the SC connector is always a great choice and gaining preference with many manufacturers.



LC – (Lucent/Little connector) Developed by Lucent technologies the ‘LC’ connector has a press-click fitting. Smaller and more compact than an SC, the LC is ideal for higher density requirements. The LC uses a 1.25mm ferrule half the size of the ST connector. The LC has a good performance and always a popular choice.

What is a Ferrule? - To protect the fibre at the point of connection, an outer ceramic sleeve is bonded to the fibre called a ferrule. The end face of the fibre and the ferrule is then polished to an exact angle to allow a seamless connection.

Ferrule Polishing - It is essential that both end faces of a fibre connection have matching polished angles. The most economical angle to match is 90°. However, to reduce “back-reflection”, angled polishing is widely used. Connectors are therefore further categorised by the angle that their end face (ferrule) is polished. These are then further identified by their standardised colour.



PC – (Physical contact) Identified by their blue or black colouring, the PC connector is a standard face and is often not included within the description. An FC/PC connector may therefore often be simply referred to as FC. (<-40dB back reflection)



UPC – (Ultra Physical contact) Also identified by their blue or black colouring, the UPC connector has a reduced back reflection ratio than the PC by adding further angles to the edges of the ferrule. Whilst UPC is a superior end face, they are compatible with both PC and UPC connections. (<-50dB back reflection)



APC – (Angled Physical contact) Identified by green colouring and polished to an 8° angle the APC connector must be fitted with an opposing APC connector. Offering the best choice in reducing return losses, the SC/APC connector is continuing to gain preference with many manufacturers (<-60dB back reflection)

