

Do you need to make  
the connection?

Amphenol

*The Inter-Connection*

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# Fibre Optic Connectors – the right solution

Fibre optic connectors have been in use in the battlefield arena for many years, but the development of cost effective solutions has only recently become an issue. In the past, a lensed fibre optic connector was traditionally used for any area, within the army, which was not considered a benign environment. Due to cost becoming a major driver, this decision has been challenged over the last few years, with more butt joint technology being adopted.

For non front line tactical requirements, the use of a butt joint connector has considerable advantages over the use of a lens connector:

- Lower insertion loss - easier single mode capability
- Significantly lower cost - second line maintenance not required
- Smaller in size - higher connector/panel density

- Lighter in weight - better man
- transportation

The price and optical performance advantages, along with the reduced design and tooling costs, have led to the development of a wide range of butt joint connectors, covering most potential requirements. These include the hermaphroditic HMFm connector which allows for piggy back expanding of cable reels across large distances -the traditional role of the fibre optic lens connector. A further benefit has been noted due to the lower insertion loss figures, which in turn, have enabled the system designer to use COTS solutions, to include TREE performance and higher data rates.

The acceptance of the butt joint connector by the ILS (Integrated Logistic Support) teams, has been obtained through the improved ability to clean and repair a scratched fibre termination, using lens wipes and lapping film. Existing lens connector assemblies have an attrition rate during use, the damage often being related to cable damage. When this damage rate is accepted, the use of a lower cost, more easily repaired or replaced system, becomes an attractive alternative.

One scenario where the lens connector

still offers the best solution is in the very front line of the battlefield. In the harsh intensity of the front line, the ability to clean a connector with a quick wipe of the sleeve, to rid the front face of dirt and mud, becomes a major priority. With these applications in mind, the only current solution is a fibre optic lens connector. For some time, Amphenol have manufactured the Stanag approved field lens connector, CTO series. Whilst this is an excellent device, it is also a traditional lens connector in its design, cost and performance.

By speaking to the users, Amphenol understood that a new lens connector should address the advantages of a butt joint connector, yet still retain the advantages of a lens connector, in the front line tactical environment:

- High resistance to dirt / contamination
- reliable
- Easy clean - shirt cuff cleaning possible
- Blind mate - physical mating identification
- Extremely rugged - capable of full front line environment

Amphenol's development of the new CTOS lens connector fulfills these requirements, maintaining the Stanag approved, lens, mating and environmental protection mechanism as its base line.

These improvements include:

- Smaller - diameter now 40mm from 52mm - mated length 257mm from 460mm
- Simplified mechanism for lower cost
- 2 or 4 way in same shell size
- Multimode 2db insertion loss - single mode capability
- Lens, lens window and body field repair options

Developing a complete range of fibre optic connectors, has enabled Amphenol to offer the system designer a cost effective solution, whatever his needs, from the most benign to the harshest of environments.



Fibre optic tactical product set - CTOS,

HHQM, HMFm & Quad splice