

FALCON EXPANDED BEAM CONNECTOR APPROVED FOR 40GBIT/S

White paper 2021/01
The Falcon technology approved for
40 Gbit/s data transfer

Fiber optic solutions for communication in harsh environments have been developed over time to include several different solutions to overcome the presence of dust, debris, wide temperature ranges, shocks, and vibrations. The increasing demand for faster and more robust fiber optics are driven by the need for more data to be transferred over longer distances. As an example, coaxial communication has limited ability to transfer e.g. high resolution radar pictures over longer distances. Furthermore, it's galvanic content makes it detectable, in situations where not revealing the position of the soldiers are crucial for their safety.



FALCON™ - The smallest expanded beam connector on the market.

Facts about Micropol:

- Micropol is a Swedish company, established in 1988
- Technology leaders in passive fiber optics
- Business areas: Defence & Security, Industry, Telecom and MedTech
- 2100 m2 production facility, including clean room production
- Certified according to ISO 9001:2015
- 29 employees, whereof 20 in production
- Annual turnover 60 MSEK

Expanded beam connectors combined with fiber optic cables with extreme endurance, is the solution of choice for these applications. Up until now, the expanded beam technology has had limitations regarding the amount of data transferrable over one set of lenses and is often specified to 10Gbit/s. The FALCON™ technology developed by Micropol Fiberoptic, and in use by several armed forces, is the only expanded beam connector available on the market, that are approved to transfer 40Gbit/s. That is offering a new set of options regarding applications to be used with expanded beam.

Third party tested

The FALCON™ technology has been tested and approved by the Swedish Defence Material Administration and are in use by the Swedish Armed Forces since many years. The testing confirmed the robustness of the optical performance during environmental stress (ref. Micropol Fiberoptic White paper 2020/01). The most recent test confirming the 40Gbit/s ability, was performed by Swedish defence global Saab Group in 2021 and approved that the FALCON™ expanded beam technology can transfer 40Gbit/s over each channel, independent of using singlemode or multimode fiber. The secret lies in lens geometry and alignment.

The combination is powerful – the robust-ness of the expanded beam technology, transferring large data volumes.

Facts about FALCON:

- Temperature range -57°C – +85°C (+100°C optional)
- Insertion loss <1,2 dB vs. NATO std <2,5 dB
- Only 12-channel junior connector in the world with collimated light beam according to MIL-DTL-83526
- Only expanded beam connector approved for 40Gbit/s transmission (optional)