



Splice on Expanded Beam Single Mode Connectors & Termini



Overview

OFP's unique expanded beam connectors address the most common industry problem: loss of signal due to contamination. In addition to not requiring cleaning during mating in the field, all of the connectors and termini are mechanically durable and especially resistant to vibration, shock, and explosion.

The connectors are ideal for harsh environment installations, including extreme conditions, such as low/high pressures or aggressive media (oil, salt water, toxic chemicals, etc).

OFP's high performance Single Mode Expanded Beam (SMEB) technology can be used in all industry standard connectors, with 1.25mm, 2.5mm, Mil Spec termini, and ferrule assemblies.

SMEB connectors can have an 'integral splice' and are simply field or factory mounted using an automated "all in one" splice tool.



How it Works

OFP has mastered the technology to produce seamless fiber collimators. The SM core is thermally expanded and fused to the GRIN fiber. The SMEB tail, just like a standard GRIN lens, provides a collimated beam with highly controlled parameters. A reciprocal SMEB tail on the opposing side of the connection interface receives the light from the emitting source allowing for a low-loss, uninterrupted connection.

Mated SMEB pairs have low sensitivity to lateral and axial movements due to the large beam diameter at the connection interface. The gap between the fiber pairs eliminates any issues related to multiple mate-demates.



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Benefits

Performance Criteria	PC	SMEB	Performance Criteria	PC	SMEB
Insertion Loss	😊	😐	Dust Exposure	😞	😊
Return Loss (SM)	😊	😐	Vibration/Shock Susceptibility	😞	😊
Lateral Connector Misalignment	😞	😊	Repair	😐	😊
Mating Durability	😐	😊	Cleanability	😞	😊
Water Exposure	😐	😊	Wear	😞	😊



Typical Optical Specifications

Requirement	SMEB
IL Typical	0.5 dB
IL Maximum	0.9 dB
RL Typical	33+ dB
Environment	Air, Oil, Water
Connectors & Termini	LC, SC, ST, 29504, ARINC 801, M28876, TFOCA, LuxciS, Quadrax
Number of Fibers	Any number of fibers, including MT
Sensitivity	Minor to Tilt
Temperature	-55 C to +300 C
Pressure	Any

Termination Method

The SMEB connectors have a pre-installed and factory tested fiber collimator in the ceramic ferrule with a short fiber tail. In the back end of the connector housings there is a mini splice protection component. Using OFP's all in one SM splicer, the cable/fiber tail is attached to the SMEB connector with a low loss industry standard fusion splice. OFP's splice tooling performs fiber preparation, splicing and splice protection—all in one. Termination times are typically 3 minutes per fiber and can be done with minimal training.



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