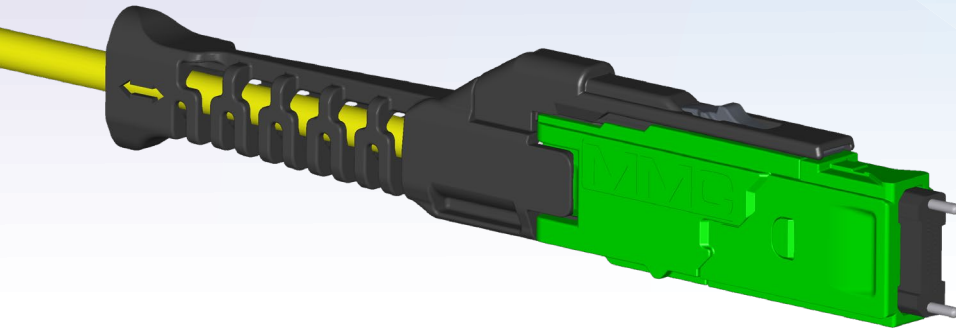




32-Fiber MMC Connectivity

EXPANDING THE FUTURE OF HIGH-DENSITY FIBER CONNECTIVITY

As global data demand accelerates with the rise of AI computing, hyperscale cloud systems, and next-generation data centers, the need for compact, reliable, and sustainable interconnect solutions has never been greater.

To address this challenge, Sumitomo Electric Lightwave (SEL) introduces the 32-fiber MMC connector, an advanced multi-fiber connectivity solution engineered for high-density applications. The connector delivers exceptional optical performance, mechanical precision, and environmental efficiency, representing a significant evolution in the field of optical interconnects enabling up to three times the number of MPO ports per panel and supporting data rates up to 1.6T.

This connector represents not just an evolution of optical technology, but a commitment to smarter, cleaner, and more scalable connectivity solutions engineered with the precision that defines Sumitomo Electric Lightwave.

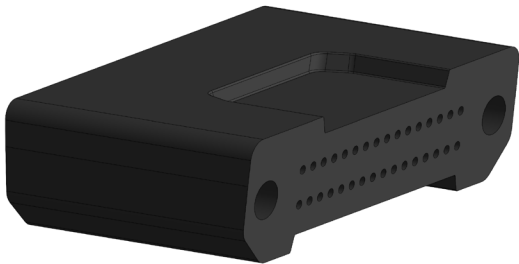
Use Cases and Applications

- AI Data Clusters
- Hyperscale Data Centers
- Cloud and Edge Networks
- High-Speed Transceivers

FEATURE	SPECIFICATION / BENEFIT
Fiber count	32 fibers per connector
Footprint	~3× smaller than MPO
Fiber type	SM/MM (200 μm coating)
Mating compatibility	MPO intermateable ferrule geometry
Connection type	Push-pull with latch retention
Typical insertion loss	< 0.35 dB 97% random intermateability
Material	High-stability thermoplastic and precision ferrule composite
Sustainability	Reduced material usage, recyclable components, minimized logistics impact

INNOVATION AND DESIGN ADVANCEMENT

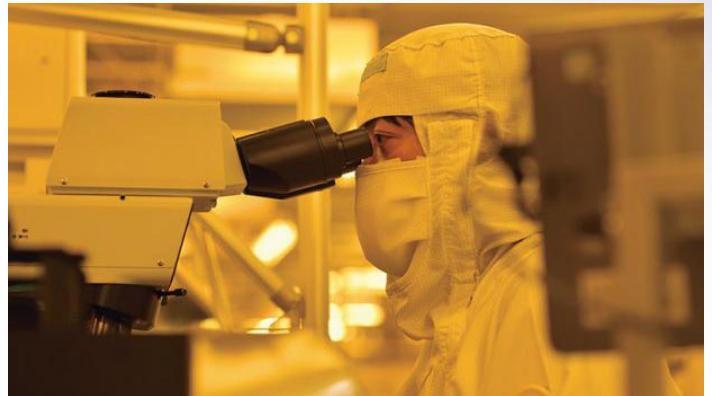
The 32-fiber MMC connector embodies our continuous innovation in precision manufacturing and fiber-optic technology. Building upon the MMC platform concept, the 32-fiber version achieves an increase of 33% in fiber capacity compared to 24-fiber designs while retaining an extremely compact geometry.



Key design innovations include:

- Miniaturized ferrule design up to three times smaller in footprint than MPO connectors, enabling unprecedented port density.
- Intermateable ferrule interface that maintains mechanical compatibility with 32-fiber MPO ferrule geometry to simplify system transitions and hybrid deployments.
- Push-pull mechanism integrated for quick, tool-free mating in dense panels, reducing installation time and improving safety in confined environments.
- Enhanced strain-relief housing engineered for durability during repetitive insertion cycles and vibration exposure typical in AI clusters and high-traffic data environments.

PRECISION MANUFACTURING AND QUALITY ASSURANCE



The 32-fiber MMC connector is produced using Sumitomo Electric Lightwave's proprietary micro-machining and ultra-fine polishing technologies, refined through decades of optical and material science expertise.

Core manufacturing highlights include:

- Micro-tolerance ferrule machining ensures sub-micron fiber alignment accuracy for consistent optical paths.
- Cleanroom-controlled production minimizes contamination and ensures surface uniformity critical for optical performance.
- Automated assembly processes guarantee repeatability and lower variability, maintaining insertion loss below industry-standard thresholds.
- Endface geometry inspection and 3D interferometric testing ensure that every connector meets the demanding specifications for AI and hyperscale environments.

PERFORMANCE AND BENEFITS

High-Density Connectivity

Accommodates 32 fibers in a connector body smaller than conventional MPOs, enabling up to three times the number of ports per panel and supporting data rates up to 1.6T.

Low Optical Loss

Engineered to maintain low insertion loss and return loss stability across all channels, even under temperature cycling or mechanical stress.

Reliability Under Load

Tested under vibration, mechanical shock, and tensile load per international standards. The push-pull interface ensures secure retention and eliminates the need for complex tooling during installation.

Ease of Maintenance and Deployment

The push-pull mechanism supports blind-mate operation and dense backplane access, simplifying installation in racks, trays, and patch panels. It remains compatible with existing MPO-based systems, allowing gradual migration to higher-density networks without full redesigns.

SUSTAINABILITY AND RESOURCE EFFICIENCY

Sumitomo Electric Lightwave integrates sustainable design and manufacturing principles throughout the 32-fiber MMC connector production process.

Key sustainability initiatives include:

- Reduced material consumption due to the smaller connector footprint, resulting in lower use of plastics and ferrule materials.
- Optimized shipping and storage through compact packaging, reducing transportation emissions.
- Extended product lifespan enabled by durable materials and precise assembly, minimizing replacement frequency and waste generation.
- Recyclable components that align with environmental responsibility and corporate sustainability goals.

