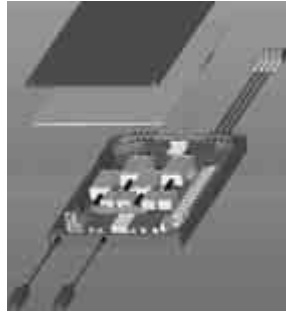
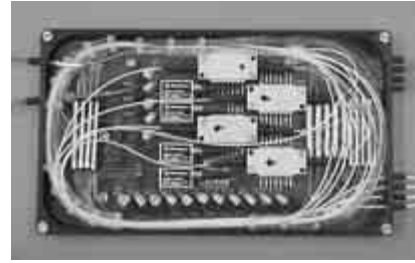


Advanced Optical Modules

Concept to Production



Concept

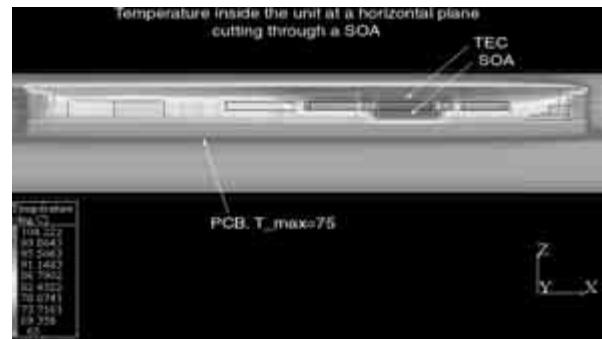


Production

Tyco Electronics offers fully designed optical modules for individual customer requirements. Modules can offer complete integration of passive, active, and electrical components. Solutions can incorporate:

- Amplifier technologies: EDFA, SOA, EDWA
- Protection circuitry
- Line balancing/equalization
- Amplification for transparent networks

- Fiber management, component placement/ profiles and impact on thermals
- Design for manufacturability
- Reliability



Design for Manufacturability



From complex optics to packaging designs for specialized customer needs including:

- Electrical and optical design
- Scale to manufacturing; optimize costs and benefits of discrete vs integrated solutions

- Custom packaging of standard devices and increase density
- Integrated E/O components
- Module layouts optimized to meet GR-63
- Standard modeling tools (Pro-E)
- Component layout to maintain bend radius compliance
- Design for repair-ability

Advanced Optical Modules (Continued)

Turn-Key Solutions



Full turn-key packaging services offering customer print builds of electro-optic modules:

- Daughter card mezzanine modules
- Advanced fiber management solutions
- Channel and line cards
- Inventory management — customer, vendor

**Advance Optical Module
Qualification Capabilities**



Tyco Electronics will qualify modules to various Industry Standards:

- GR326 singlemode connectors
- GR1435 MT connectors
- GR1380 splice integrity
- GR1209 branching components
- GR1221 reliability assurance
- GR63 environmental integrity for network systems
- Custom testing for module performance parameters

ATCA Splitter Cassette



Rugged Fiber Optic Products (Continued)

Rugged Media Converter & Ethernet Link Extender Solutions

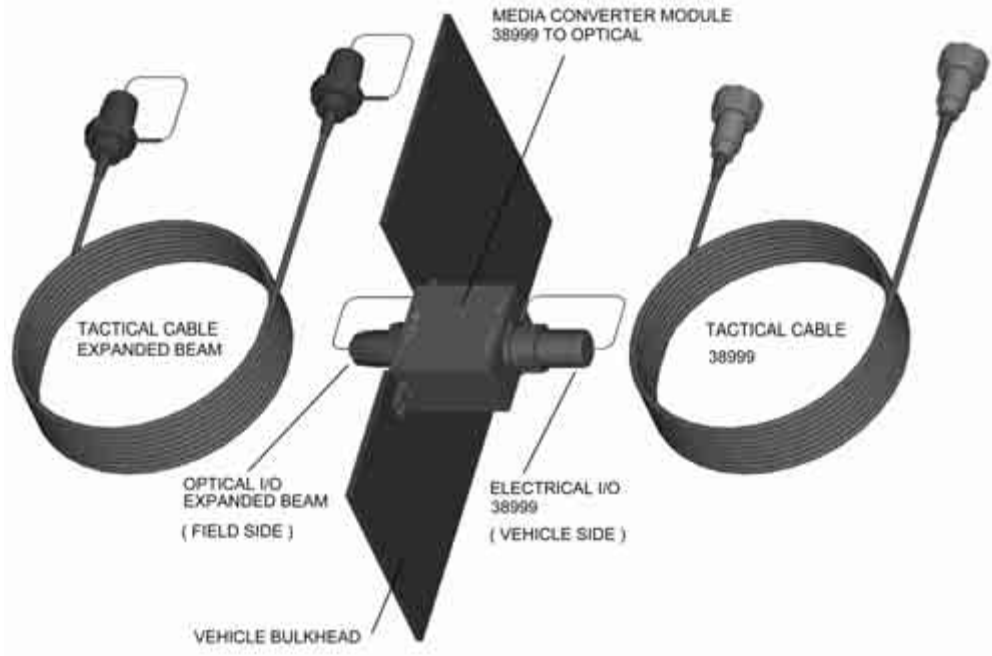
Harsh Environment Optical Media Converter Assemblies allowing blind mate field applications over one, two, or four fibers

Tyco Electronics offers solutions for Harsh Environment applications of Ethernet Media Converters.

This page demonstrates Tyco Electronics' capabilities for Advanced Optical Modules. These include Fast, Gigabit, and Ethernet Link Extenders.

For additional Advanced Optical Modules, see Fiber Management & Packaged Solutions, Catalog 1307895, Section 3.

Contact your local Tyco Electronics Sales Representative with your specific design needs.



Design Objectives

Specifications	Results
Standard	IEEE802.3, IEEE802.3u Ethernet @ 10/100 Mb/s
Data Rates	10 and 100 Mb/s auto negotiation (option to force 10 Mb/s for legacy systems)
Duplex Mode	Full or half-duplex auto-negotiation and N-Way support
Max. Forward Rate	14,880 packets per second (pps) @ 10 Mb/s, 148,800 pps @ 100 Mb/s
Fiber Connector	Multimode
Fiber Working Range	TBD
Optical Budget	TBD
Optical Wavelength	Multimode
Emissions	Complies with FCC Class A and CE Class A
Safety	UL, CE
Temperature Range	-40° - 85°C with humidity 10% to 90% non-condensing
Dimensions	Ø 2.0" (51 mm) X 7.7" (195 mm) from cap to cap Ø 2.0" (51 mm) X 6.6" (168 mm) X 7.6" (194 mm) for 90 assembly
Power Consumption	TBD
Power	5VDC
Qualification	Complies with MIL-STD-810D environmental requirements