MRV | Optical Communications Systems®

10/1 Gigabit Ethernet Multi-Function Media Module

EM316-10G8SW-XY

Overview

Fiber grooming (media conversion and fiber optimization) incorporates a wide variety of data transmission functions traditionally implemented through multiple independent solutions. The Fiber Driver "XY" (multi-dimensional) modules combine fiber grooming and distance extension into multi-function modules. The 10/1 Gigabit Ethernet Multi-Function Media Module (10G8SW-XY) is an extremely versatile transponder and converter for the Fiber Driver Optical Multi-Service Platform. The 10G8SW-XY module includes eight SFP ports supporting Gigabit Ethernet and two XFP ports for 10-Gigabit Ethernet. This flexible design with modular optics allows a single module to serve many applications through simple component and software configurations:
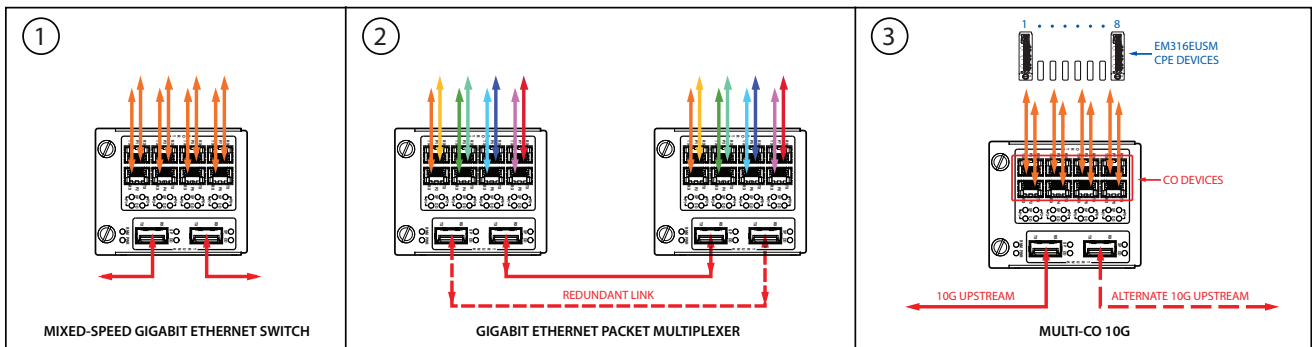
1. Mixed-Speed Gigabit Ethernet Switch – Gigabit/10 Gigabit Ethernet switching with collision domain isolation
2. Gigabit Ethernet Packet Multiplexing – Gigabit Ethernet MUX/DeMUX combines and separates eight 1-Gigabit Ethernet links over redundant 10-Gigabit Ethernet links
3. Multi-CO – Manage eight EM316EUSM CPE devices with aggregation to a 10 Gbps trunk

Highlights

- Selectable functions in one module including:
  - Mixed-speed Gigabit Ethernet Switch
  - Gigabit Ethernet Packet Multiplexer
  - Multi-CO mode to control eight EUSM CPEs
- Dual XFP interfaces supporting LAN PHY or WAN PHY
- Jumbo packet support (9600 bytes)
- Manual configuration for
  - Port loopback and enable/disable
  - SFP port auto-negotiation
- Mixed-Speed Gigabit Ethernet Switch
  - Speed-matching (10/100/1000 Mbps Ethernet)
  - Manual configuration for flow control
- Gigabit Ethernet Packet Multiplexer Mode
  - Low latency
  - Link Integrity Notification (LIN)
- Multi-CO application
  - Manages eight EUSM remote demarcations (CPEs)
  - 802.3ah remote management with MRV extensions
  - Transparent traffic aggregation to 10G LAN/WAN PHY optical link (OAM and flow control)
  - Unmanaged link support
- Full performance monitoring (64-bits counters)
- 3-slot module fits into the 3-slot (3V) and 16-slot Fiber Driver chassis
- Hot-swap support for maintenance without affecting other modules in the same chassis
- Management by command line, SNMP, or graphical interface through LNXNM

SFP/XFP Benefits

- SFP support for Gigabit Ethernet optical or copper and for multi-rate optical transceivers
- Optical performance monitoring through SFP Digital Diagnostics

MIXED-SPEED GIGABIT ETHERNET SWITCH

GIGABIT ETHERNET PACKET MULTIPLEXER

REDUNDANT LINK

MULTI-CO 10G

EM316EUSM CPE DEVICES

CO DEVICES

10G UPSTREAM

ALTERNATE 10G UPSTREAM

The versatile XY (multi-dimensional) converter family simplifies network planning and installations while reducing replacement inventory requirements. This Fiber Driver module can fill the roles of multiple legacy network components, with SFP and XFP options multiplying the possible applications still further.

The SFP interfaces support connections to many media types:
- Single or dual fiber 1000Base-X
- Multi-mode (MM) or MM extended (MMX)
- Single-Mode at 1310 nm or 1550 nm (up to 120 km)
- Coarse and Dense Wave Division Multiplexing
- Copper 1000Base-T or 10/100/1000 Base-T (for SGMII host interfaces)

The modular XFP interfaces support 10-Gigabit Ethernet LAN PHY or WAN PHY connections. XFP's available from MRV include solutions for:
- Multi-Mode (MM) or MM extended (MMX)
- Single-Mode at 1310 nm or 1550 nm (up to 120 km)
- Coarse and Dense Wave Division Multiplexing

Most available SFP and XFP transceivers use MSA-compliant Digital Diagnostics to provide advanced optical performance monitoring for proactive network administration and maintenance. The small form-factor is also designed for portability and interoperability, so inventory costs and downtime may be reduced with fewer spare parts shared between many systems.

The 10G8SW-XY module supports jumbo packets up to 9600 bytes in compliance with internetworking protocols including MPLS over Ethernet, Q-in-Q (VLAN stacking), MAC-in-MAC, and others.

Applications

The flexible architecture of the 10G8SW-XY module is designed to support the applications described below:

Mixed-Speed Gigabit Ethernet Switch
In this mode, the module acts as a mixed-speed Ethernet switch with eight SFP ports for 1000Base-X interfaces and two XFP ports for 10G Ethernet interfaces.
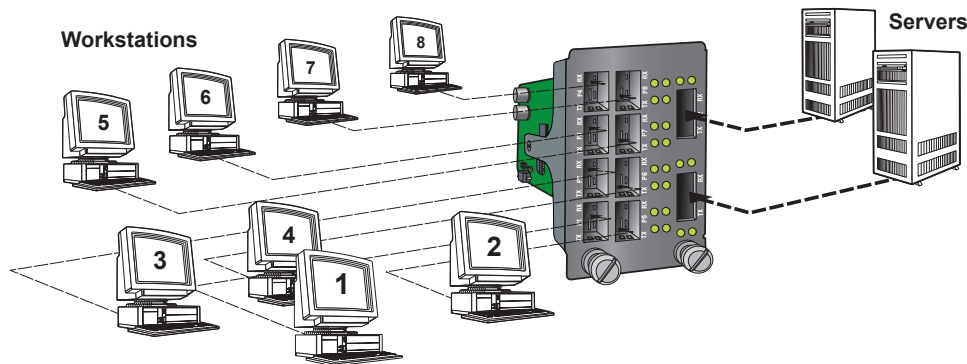

The mixed-speed Ethernet switch adds or drops Gigabit Ethernet traffic to or from a linear 10-Gigabit Ethernet fiber-optic network.

Gigabit Ethernet Packet Multiplexer

In this mode, the module acts as an Ethernet packet multiplexer at each end of the redundant trunk link. It combines eight Gigabit Ethernet links over a redundant 10-Gigabit Ethernet link. By mapping the eight 1-Gigabit Ethernet ports to a 10-Gigabit Ethernet link, the module optimizes the fiber usage and can reclaim some existing fiber for new services.
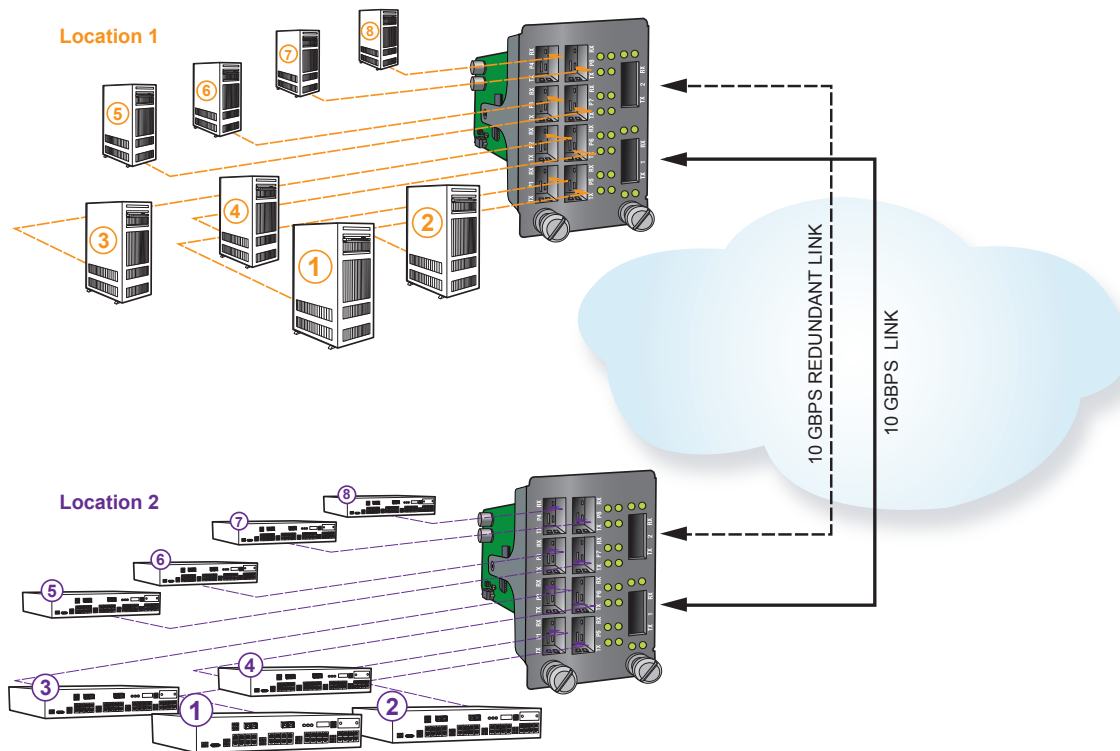
Multi-CO 10G

In this mode, a single 10G upstream link aggregates 1 Gbps Ethernet links from up to eight EM316EUSM CPEs or unmanaged Ethernet devices.
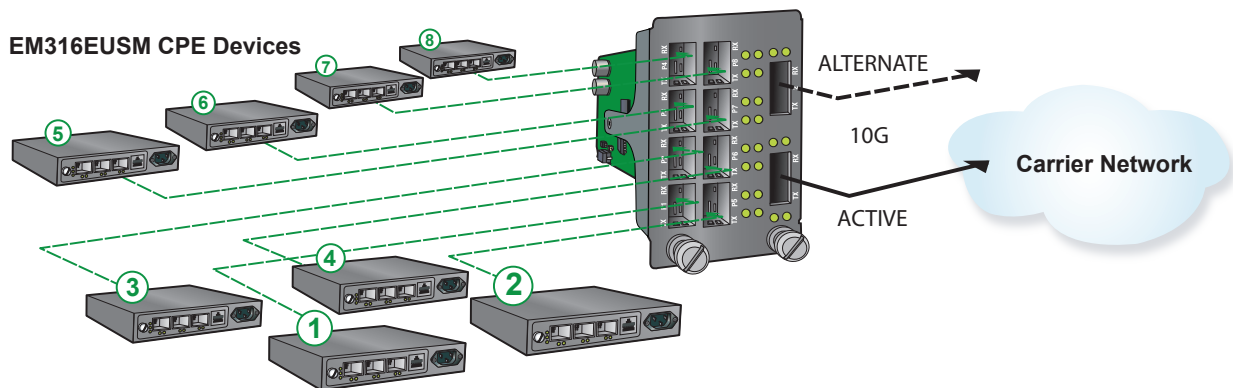
Physical Specifications

Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Relative Humidity	85% maximum, non-condensing
Physical Dimensions	75 mm x 75 mm x 175 mm (3" x 3" x 7")
Weight	531 g (18.7 oz)
Power Requirement	25 Watts
Regulatory Compliance	FCC Part 15, Class A; IC, Class A; EMC Directive: Emission (Class A) and Immunity; WEEE Directive: Wheelie Bin Mark; RoHS Directive; China RoHS

	Model	Function	Protocol	Connectors
Ordering Info	**EM316-10G8SW-XY**	Gigabit/10-Gigabit Ethernet Multi-Function Media Module	1000BASE-X 10-Gigabit Ethernet LAN WAN PHY	SFP (x8) / XFP (x2)

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