

40 Gbps QSFP Media Converter

EM316-2QSFP-40G



Overview

The Fiber Driver® EM316-2QSFP-40G media module provides media conversion and distance extension for 40G or 10G Ethernet links.

The module addresses the growing need for more bandwidth for data centers and enterprises. The emergence of high-end servers and Ethernet switches with 40G Ethernet interfaces increases the need for media conversion (multi-mode to single-mode) and link range extension.

The compact, hot-swappable one-slot module has two QSFP sockets for modular QSFP transceivers. Installation and setup is simple plug-n-play. Insert the module into any powered Fiber Driver chassis with the QSFP transceivers required for the application, and then connect to the network.

Changing a connection type at any time is simple, requiring only replacement of a hot-swappable QSFP transceiver. The module ports support the MSA standard including Digital Diagnostics. Because the transceivers meet industry standards, a smaller inventory shared between applications reduces expenses and maximizes the return on investment.

MRV offers multiple QSFP pluggable transceivers:

QSFP-40GD-SX - 40 Gig QSFP Multi-mode 100 Meter

QSFP-40GD-LR4 - 40 Gig QSFP Single-mode 10 km

The multi-mode QSFP may be used with MPO MM (40G) or with fan-out cables for quad 10G interfaces.

The 40G Ethernet 802.3ba standard adopts a Wavelength Division Multiplexing (WDM) approach for single mode. The 802.3ba standard divides the 40G Ethernet signal into four 10 Gigabit Ethernet signals.

Highlights

- Multiple functions in one module:
 - 40G converter/repeater
 - Quad 10G optical multiplexer
- 40G link interface
 - Ethernet/IEEE: 802.3ba 40GE-LR4
- 40G multi-link (fiber) interfaces
 - Ethernet/IEEE: 802.3ba XLAUI
 - OIF: CEI-11G
- 10G interfaces
 - 8.5 - 11.3 Gbps
- QSFP ports for flexibility and scalability
 - Add or change optics to adjust data rates
 - Single item module inventory
- Link Integrity Notification (LIN)
- Loopback
- Management through EM316LNXM-OT
 - Command line interface (CLI)
 - SNMP management
 - Full graphical management with MegaVision Pro®
 - Port feature control
 - Digital Diagnostics
- Pseudo Random Bit Sequence (PRBS) sender/checker for connection testing (per 10G interface)
- Hot-swap support (module and interfaces)
- Fiber Driver chassis compatibility

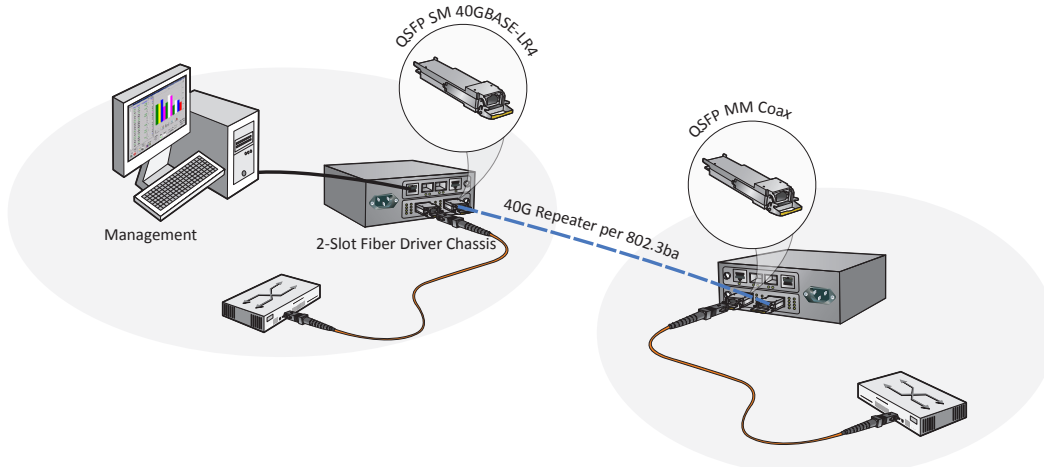
Operational Modes

Depending on the installed QSFP, the EM316-2QSFP-40G serves two primary applications:

1. 40G Converter/Repeater (Application 1)

In this mode, each interface carries a 40G Ethernet signal. The module acts as a MM-to-SM converter or as a repeater for MM-to-MM or SM-to-SM.

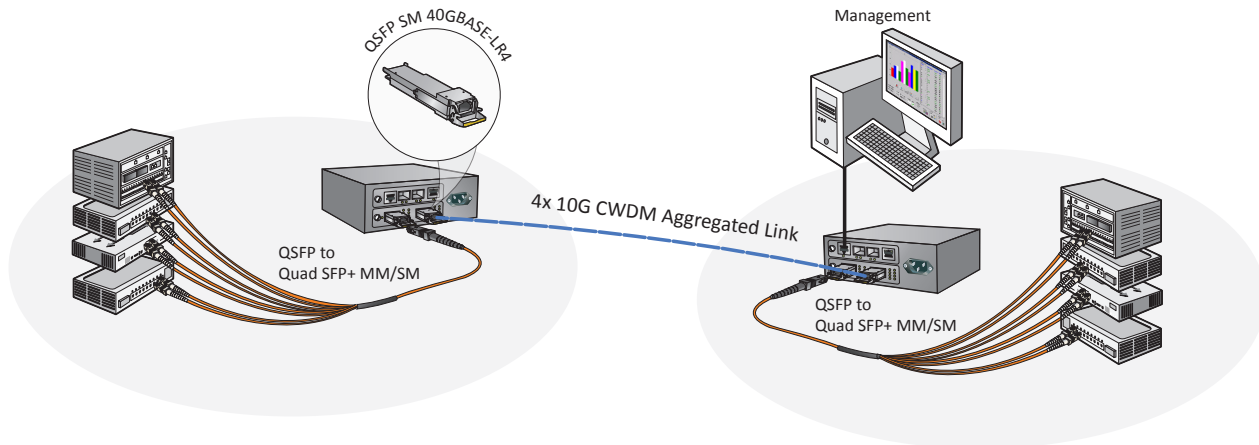
Application 1: 40G Mode



2. 10G 4-Channel Multiplexer (Application 2)

In this application, the module multiplexes four 10G interfaces over a dual-strand single-mode optical link. The EM316-2QSFP-40G provides full 3R signal recovery and embedded electronic dispersion compensation, assuring a link reach of 15-20 km with qualified fiber installation.

Application 2: 4 x 10G Mode



The EM316-2QSFP-40G also offers advanced module loopback and PRBS capabilities on each 10G interface. Loopback simplifies validation of the installation, debugging the optical link, and finding potential faults on either the client or line interface. PRBS provides additional circuit testing.

Management

The EM316LNxNM-OT management module provides Fiber Driver® network administration through a command line, SNMP, and MegaVision Pro®, the MRV Communications graphical network management system. The EM316LNxNM-OT monitors QSFP port status, manages module configuration, and provides vendor information.

Physical Specifications	
Operating Temperature Range*	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 25 mm x 175 mm deep (3" x 1" x 7" deep)
Weight	Approximately 213 g (7.5 oz)
Regulatory Compliance	FCC Part 15 (Class A); IC (Class A); EMC Directive: Emission (Class A) and Immunity; RoHS 2 Directive; China RoHS; WEEE Directive

* Operating Range listed is for the module only. Operating Range of pluggable interface(s) used may differ.

Ordering Information						
Model	Function	Protocol	Connectors Port/Link	Wavelength	Budget (dB)	Distance Range
EM316-2QSFP-40G	40G converter/repeater, Quad 10G Optical Multiplexer module with QSFP Interfaces	Ethernet/IEEE: 802.3ba 40GE-LR4, Ethernet/IEEE: 802.3ba XLAUI, OIF: CEI-11G	QSFP (x2)	QSFP Dependent		

For more information on Fiber Driver product line and other MRV products, visit <http://www.mrv.com> or send an email to MRV sales at sales@mrv.com.

MRV operates Worldwide sales and service offices across four continents.

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