



Copper to Fiber with Auto-Negotiation



Overview

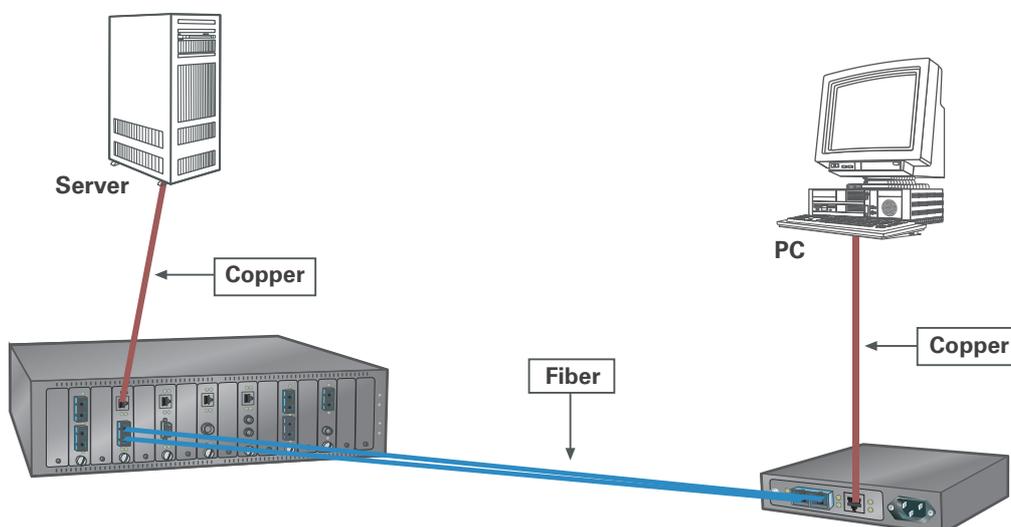
Once confined to the LAN or Campus environment, Ethernet has been adopted into today's growing optical infrastructure and now covers everything from the enterprise to the campus network, and from the core of the MAN to the subscriber access network.

Simplicity and scalability, along with wide availability of interoperable equipment has made Ethernet a popular choice for providing seamless end-to-end optical connectivity. Wide acceptance and growing demand reinforces the mindset that Optical Ethernet (OE) networks are the most cost effective to deploy and maintain.

In addition to the Auto-negotiate 10/100Base-TX port, other important features of the EM316EFAN include Auto MDI/MDIX and Link Integrity Notification (LIN). With LIN enabled, loss of link at any TX/RX point of one module will cause the TX/RX points of the modules at both ends of the effected OE link to be disabled. In this way, switches/routers that are link-state dependant can accurately react to link conditions, primarily in fault tolerant designs. With Auto MDI/MDIX either a straight through or crossover cable can be used to connect the 10/100Base-TX port.

Features

- 10/100Base-TX Ethernet copper to fiber (SM, MM) 100Base-FX conversion
- Supports Auto-negotiation and Auto MDI/MDIX
- Supports manual configuration for both speed and duplex mode
- Transmission distances of up to 135 km on SM, up to 8 km MM
- Link Integrity Notification (LIN) – end-to-end link state assurance
- Compatible with any IEEE 802.3u compliant devices
- Hot-swappable
- Compatible with all Fiber Driver chassis





The EM316EFAN media converters are available with a standard Auto-negotiate 10/100Base-TX Ethernet port, and either an MM or SM Fiber port. Distances up to 8 km can be reached over Multimode (MM) fiber, and up to 135 km over Singlemode (SM) fiber. Single Fiber SM versions are also available, which use proven Fiber Driver

technologies to combine TX and RX signals onto a single fiber strand over distances up to 100 km.

For additional information, including pricing and availability, contact your nearest authorized MRV Communications representative.

Physical Specifications: Copper to Fiber with Auto-Negotiation

Operating Temperature Range:	0°C to 50°C (32°F to 122°F)
Storage Temperature:	-40°C to 95°C (-40°F to 203°F)
Relative Humidity:	85% maximum, non-condensing
Physical Dimensions:	25 mm x 75 mm x 175 mm deep (1" x 3" x 7" deep)
Weight:	120 - 240 g (4.2 - 8.5 oz) depending on configuration
Emission Compliance:	FCC - PART 15, SUBPART B, 1999, CLASS A; CE MARK - EN 50081-1:1992;
	EN 50082:1997; EN 55024:1998; EN 55022:1998; AS/NZS 3548:1995

DUAL FIBER

Ordering Info	Part Number	Function	Protocol Port / Link	Connectors ¹ Port/Link	Wavelength (nm) Port / Link	Budget (dB) ² Port / Link	Range ³ Port / Link
	EM316EFAN/M	Auto-negotiate 10/100Base-TX Ethernet Copper to Multimode, Dual Fiber 100Base-FX	10/100Base-100Base-FX	RJ-45 / DSC	NA / 1310	NA / NA	1-100m / 0-2km
	EM316EFAN/MX	Auto-negotiate 10/100Base-TX Ethernet Copper to Multimode, Dual Fiber 100Base-FX	10/100Base-100Base-FX	RJ-45 / DSC	NA / 1310	NA / NA	1-100m / 2-8km
	EM316EFAN/S	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Dual Fiber 100Base-FX	10/100Base-100Base-FX	RJ-45 / DSC	NA / 1310	NA / 12	1-100m / 0-20km
	EM316EFAN/S1	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Dual Fiber 100Base-FX	10/100Base-100Base-FX	RJ-45 / DSC	NA / 1330	NA / 17	1-100m / 0-35km
	EM316EFAN/S2	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Dual Fiber 100Base-FX	10/100Base-100Base-FX	RJ-45 / DSC	NA / 1310	NA / 24	1-100m / 25-45km
	EM316EFAN/S3	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Dual Fiber 100Base-FX	10/100Base-100Base-FX	RJ-45 / DSC	NA / 1550	NA / 24	1-100m / 35-90km
	EM316EFAN/S4	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Dual Fiber 100Base-FX	10/100Base-100Base-FX	RJ-45 / DSC	NA / 1550	NA / 29	1-100m / 40-110km
	EM316EFAN/S5	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Dual Fiber 100Base-FX	10/100Base-100Base-FX	RJ-45 / DSC	NA / 1550	NA / 33	1-100m / 45-130km

SINGLE FIBER

Ordering Info	Part Number	Function	Protocol Port / Link	Connectors ¹ Port/Link	Wavelength (nm) Port / Link	Budget (dB) ² Port / Link	Range ³ Port / Link
	EM316EFANSF/S2	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber 100Base-FX.	10/100Base-TX	RJ-45 / SC-APC	NA / 1310	NA / 18	1-100 m / 0-35 km
	EM316EFANSF/S3	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber 100Base-FX.	10/100Base-TX	RJ-45 / SC-APC	NA / 1550	NA / 18	1-100 m / 35-70 km
	EM316EFANSF/S4	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber 100Base-FX.	10/100Base-TX	RJ-45 / SC-APC	NA / 1550	NA / 24	1-100 m / 35 - 100 km
	EM316EFANSF/S5	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber 100Base-FX.	10/100Base-TX	RJ-45 / SC-APC	NA / 1550	NA / 28	1-100 m / 50 - 110 km



DUAL WAVELENGTH SINGLE FIBER (Sold in pairs only)

Ordering Info	Part Number	Function	Protocol Port / Link	Connectors ¹ Port/Link	Wavelength (nm) Port / Link	Budget (dB) ² Port / Link	Range ³ Port / Link
	EM316WEFANC/S2	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber100Base-FX.	10/100Base-TX	RJ-45 / SC	NA / 1310,1550	NA / 14 (@1310 nm)	1-100 m/0 - 25 km
	EM316WEFANT/S2	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber100Base-FX.	10/100Base-TX	RJ-45 / SC	NA / 1310, 1550	NA / 22 (@1310 nm)	1-100 m/20 - 45 km
	EM316WEFANT/S3	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber100Base-FX.	10/100Base-TX	RJ-45 / SC	NA / 1550, 1590	NA / 32 (@1550 nm)	1-100 m/30 -120 km
	EM316WEFANC/EZX	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber100Base-FX.	10/100Base-TX	RJ-45 / SC			
	EM316WEFANT/EZX	Auto-negotiate 10/100Base-TX Ethernet Copper to Singlemode, Single Fiber100Base-FX.	10/100Base-TX	RJ-45 / SC			

¹Default connectors listed, others optional.

²Higher budgets available.

³All specifications, distance claims and operational parameters are based on industry average fiber cable performance; 9µ Singlemode performance of 0.25 dB/km for 1550 nm and 0.5 dB/km for 1310 nm, and 62.5µ Multimode performance of 3 dB/km for 850 nm and 1.5 dB/km for 1300 nm. For non-standard fiber applications or additional information contact MRV Communications

DL = Dispersion Limited

MRV has more than 50 offices throughout the world. Addresses, phone numbers, and fax numbers are listed at www.mrv.com. Please e-mail us at sales@mrv.com or call us for assistance.

MRV (West Coast USA)
20415 Nordhoff St.
Chatsworth, CA 91311
800-338-5316
818-773-0900

MRV (East Coast USA)
295 Foster St.
Littleton, MA 01460
800-338-5316
978-952-4700

MRV (International)
Business Park Moerfelden
Waldeckerstrasse 13
64546 Moerfelden-Walldorf
Germany
Tel. (49) 6105/2070
Fax. (49) 6105/207-100

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