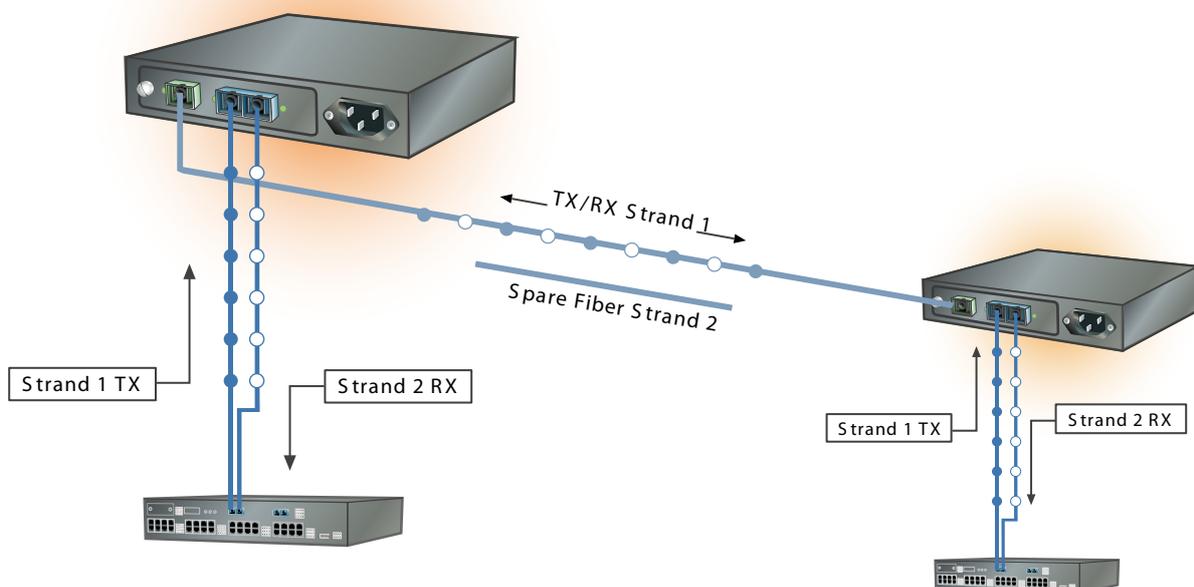**Datasheet**

FD

Single Fiber

Features

○ Combines transmit (TX) and receive (RX) signals onto a single fiber strand

○ Effectively doubles fiber cable availability

○ Hot swappable

○ SNMP managed

○ Supports wide range of protocols

○ Fits all Fiber Driver chassis*

* If used in a 1-slot Fiber Driver chassis, requires use of NC316BU-1HP/AC or NC316BU-1HP/DC chassis, with AC or DC power supply respectively

Overview

The Fiber Driver™ family's Single Fiber modules use unique technologies, which provide the ability to combine transmit (TX) and receive (RX) signals onto a single fiber strand. This effectively doubles the available fiber in a network, and eliminates the need for additional fiber installation. The Fiber Driver Single Fiber modules employ two technologies in order to combine the TX and RX on the single strand:

1. Single wavelength bi-directional for both transmit and receive.
2. Dual wavelength bi-directional - one wavelength for transmit and the the second wavelength for receive.

Strand 1 TX

Strand 2 RX

TX/RX Strand 1

Spare Fiber Strand 2

Strand 1 TX

Strand 2 RX

Datasheet

Single-Wavelength Single-Fiber

These types of modules employ a single bi-directional wavelength for both transmit and receive, by using splitting-combining technology. A wide range of protocols are supported by this group of modules, including Ethernet, Fast Ethernet, T1, E1, E3, Gigabit Ethernet, FDDI, ESCON, ATM, SONET, OC-3, OC12, DS3, and Fibre Channel. When used in a Fiber Driver one-slot chassis, single-wavelength single-fiber modules should be mounted in the NC316BU-1HP/AC or NC316BU-1HP/DC chassis.

Both sides of a link use identical units. To minimize reflection, single-wavelength single-fiber converters use Angled Polished Connectors (APCs). Customer's fiber cables connected to single-wavelength single-fiber modules must also use matching APCs. APCs provide a better contact between fibers and minimize the reflection between them.

Dual-Wavelength Single-Fiber

These types of Single Fiber modules combine transmit and receive signals onto one fiber strand using two wavelengths. This design avoids the budget losses incurred by the single-wavelength single-fiber technology, and minimizes any possibility of reflections in the system without the use of APC connectors. The units on both ends of a link are different. The first module uses one wavelength to transmit and a second wavelength to receive, while the other module flips that relationship. For this reason these units are sold in pairs. A wide range of protocols are supported by this group of modules, including Ethernet, Fast Ethernet, Gigabit Ethernet, and Fibre Channel.

For additional information including pricing and availability, contact your MRV Communications sales representative today.

Physical Specifications: Single Fiber Modules

Operating Temperature Range:	0°C to 50°C (32°F to 122°F)
Storage Temperature:	-10°C to 60°C (14°F to 140°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

SINGLE FIBER
(SC-APC Connector Required)

Part Number	Function	Protocol	Connectors* Port/Link	Wavelength Input/Output (nm)	Minimum Loss Budget (dB)	Range** Approx. (km)
EM316GCSF/S2	Gigabit Ethernet Copper to SF SM S2	Gigabit Ethernet	RJ-45/SC-APC	N/A / 1550	9	0 - 35
EM316GCSF/S3	Gigabit Ethernet Copper to SF SM S3	Gigabit Ethernet	RJ-45/SC-APC	N/A / 1550	12	10 - 50
EM316GCSF/S4	Gigabit Ethernet Copper to SF SM S4	Gigabit Ethernet	RJ-45/SC-APC	N/A / 1550	15	35 - 60
EM316GSF/S2	Gigabit Ethernet SX to Single Fiber SM 2	Gigabit Ethernet	DSC/SC-APC	850/1550	9	0 - 35
EM316GSF/S3	Gigabit Ethernet SX to Single Fiber SM 3	Gigabit Ethernet	DSC/SC-APC	850/1550	12	10 - 50
EM316GSF/S4	Gigabit Ethernet SX to Single Fiber SM 4	Gigabit Ethernet	DSC/SC-APC	850/1550	15	15-60
EM316FSF/S2	Fast Ethernet Copper to SF SM S2	Fast Ethernet	RJ-45/SC-APC	N/A / 1310	18	0 - 35
EM316FSF/S3	Fast Ethernet Copper to SF SM S3	Fast Ethernet	RJ-45/SC-APC	N/A / 1550	18	25 - 70
EM316FSF/S4	Fast Ethernet Copper to SF SM S4	Fast Ethernet	RJ-45/SC-APC	N/A / 1550	24	35-100
EM316FMSF/S2	Fast Ethernet MM to SF SM S2	Fast Ethernet	DSC/SC-APC	1310/1310	18	0 - 35
EM316FMSF/S3	Fast Ethernet MM to SF SM S3	Fast Ethernet	DSC/SC-APC	1310/1550	18	25 - 70
EM316FMSF/S4	Fast Ethernet MM to SF SM S4	Fast Ethernet	DSC/SC-APC	1310/1550	24	35-100

Ordering Info

* Default connectors listed, other connectors are optional   ** Distances are approximate and assume 9µ SM and 62.5µ MM
Other products are available. Contact your local sales office for configuration and ordering information.

SINGLE FIBER
(SC-APC Connector Required)

Part Number	Function	Protocol	Connectors* Port/Link	Wavelength Input/Output (nm)	Minimum Loss Budget (dB)	Range** Approx. (km)
EM316O3CSF/S2	SONET OC3 Coax to Single Fiber SM S2	SONET OC-3	BNC/SC-APC	N/A / 1310	18	0 - 35
EM316O3CSF/S3	SONET OC3 Coax to Single Fiber SM S3	SONET OC-3	BNC/SC-APC	N/A /1 550	18	25 - 70
EM316O3CSF/S4	SONET OC3 Coax to Single Fiber SM S4	SONET OC-3	BNC/SC-APC	N/A /1 550	24	35-100
EM316ASF/S2	ATM MM to Single Fiber SM S2	ATM OC-3	DSC/SC-APC	1310/1310	18	0 - 35
EM316ASF/S3	ATM MM to Single Fiber SM S3	ATM OC-3	DSC/SC-APC	1310/1550	18	25 - 70
EM316ASF/S4	ATM MM to Single Fiber SM 4	ATM OC-3	DSC/SC-APC	N/A /1 550	24	35-100
EM316FDSF/S2	FDDI MM to Single Fiber SM S2	FDDI	DSC/SC-APC	1310/1310	18	0 - 35
EM316FDSF/S3	FDDI MM to Single Fiber SM S3	FDDI	DSC/SC-APC	1310/1550	18	25 - 70
EM316FDSF/S4	FDDI MM to Single Fiber SM S4	FDDI	DSC/SC-APC	1310/1550	24	35-100
EM316O3SF/S2	SONET OC3 MM to Single Fiber SM S2	SONET OC-3	DSC/SC-APC	1310/1310	18	0 - 35
EM316O3SF/S3	SONET OC3 MM to Single Fiber SM S3	SONET OC-3	DSC/SC-APC	1310/1550	18	25 - 70
EM316O3SF/S4	SONET OC3 MM to Single Fiber SM S4	SONET OC-3	DSC/SC-APC	1310/1550	24	35-100
EM316DS3SF/S2	DS3 Coax to OC3 Single Fiber SM S2	DS3	BNC/SC-APC	N/A / 1310	18	0 - 35
EM316DS3SF/S3	DS3 Coax to OC3 Single Fiber SM S3	DS3	BNC/SC-APC	N/A / 1550	18	25 - 70
EM316DS3SF/S4	DS3 Coax to OC3 Single Fiber SM S4	DS3	BNC/SC-APC	N/A / 1550	24	35-100
EM316O12SF/S2	SONET OC12 MM to Single Fiber SM S2	OC-12	DSC/SC-APC	1310/1310	13	0 - 25
EM316O12SF/S3	SONET OC12 MM to Single Fiber SM S3	OC-12	DSC/SC-APC	1310/1550	13	25 - 50
EM316O12SF/S4	SONET OC12 MM to Single Fiber SM S4	OC-12	DSC/SC-APC	1310/1550	20	40-80
EM316SSF/S2	ESCON MM to Single Fiber SM S2	ESCON	DSC/SC-APC	1310/1310	18	0 - 35
EM316SSF/S3	ESCON MM to Single Fiber SM S3	ESCON	DSC/SC-APC	1310/1550	18	25 - 70
EM316SSF/S4	ESCON MM to Single Fiber SM S4	ESCON	DSC/SC-APC	1310/1550	24	35-100
EM316E3SF/S2	E3 Coax to Single Fiber SM S2	E3	BNC/SC-APC	N/A / 1310	18	0 - 35
EM316E3SF/S3	E3 Coax to Single Fiber SM S3	E3	BNC/SC-APC	N/A / 1550	18	25 - 70
EM316E3SF/S4	E3 Coax to Single Fiber SM S4	E3	BNC/SC-APC	N/A / 1550	24	35-100
EM316FCSF/S2	Fibre Channel MM to Single Fiber SM S2	Fibre Channel	DSC/SC-APC	850/1550	9	0 - 35
EM316FCSF/S3	Fibre Channel MM to Single Fiber SM S3	Fibre Channel	DSC/SC-APC	850/1550	12	10 - 50
EM316FCSF/S4	Fibre Channel MM to Single Fiber SM S4	Fibre Channel	DSC/SC-APC	850/1550	15	15-60
EM316GSF/S2	Gigabit Ethernet SX to Single Fiber SM S2	Gigabit Ethernet	DSC/SC-APC	850/1550	9	0-35
EM316GSF/S3	Gigabit Ethernet SX to Single Fiber SM S3	Gigabit Ethernet	DSC/SC-APC	850/1550	12	10 - 50
EM316GSF/S4	Gigabit Ethernet SX to Single Fiber SM S4	Gigabit Ethernet	DSC/SC-APC	850/1550	15	15 - 60
EM316GCSF/S2	Gigabit Ethernet Copper to SF SM S2	Gigabit Ethernet	RJ-45/SC-APC	UTP/1550	9	0-35
EM316GCSF/S3	Gigabit Ethernet Copper to SF SM S3	Gigabit Ethernet	RJ-45/SC-APC	UTP/1550	12	10 - 50
EM316GCSF/S4	Gigabit Ethernet Copper to SF SM S4	Gigabit Ethernet	RJ-45/SC-APC	UTP/1550	15	15 - 60

DUAL WAVELENGTH SINGLE FIBER
(Sold in pairs only)

Part Number	Function	Protocol	Connectors* Port / Link	Wavelength Input / Output (nm)	Minimum Loss Budget (dB)	Range** Approx. (km)
EM316WEC/S2 EM316WET/S2	Ethernet UTP to Single Fiber SM	Ethernet	RJ-45/SC	N/A / 1310, 1550	22 (@1310 nm)	10 - 45
EM316WEC/S3 EM316WET/S3	Ethernet UTP to Single Fiber SM	Ethernet	RJ-45/SC	N/A / 1310, 1550	24 (@1310 nm)	30 - 50
EM316WEC/S4 EM316WET/S4	Ethernet UTP to Single Fiber SM	Ethernet	RJ-45/SC	N/A / 1520, 1560	28	40-100
EM316WFC/S2 EM316WFT/S2	Fast Ethernet UTP to Single Fiber SM	Fast Ethernet	RJ-45/SC	N/A / 1310, 1550	14 (@1310 nm)	0 - 30
EM316WFC/S3 EM316WFT/S3	Fast Ethernet UTP to Single Fiber SM	Fast Ethernet	RJ-45/SC	N/A / 1310, 1550	22 (@1310 nm)	20 - 50
EM316WFC/S4 EM316WFT/S4	Fast Ethernet UTP to Single Fiber SM	Fast Ethernet	RJ-45/SC	N/A / 1520, 1560	28	40 - 100

* Default connectors listed, other connectors are optional   ** Distances are approximate and assume 9µ SM and 62.5µ MM
Other products are available. Contact your local sales office for configuration and ordering information.

DUAL WAVELENGTH SINGLE FIBER
(Sold in pairs only)

Part Number	Function	Protocol	Connectors* Port / Link	Wavelength Input / Output (nm)	Minimum Loss Budget (dB)	Range** Approx. (km)
EM316WGCC/S2 EM316WGCT/S2	Gigabit Ethernet UTP to Single Fiber SM	Gigabit Ethernet	RJ-45/SC	N/A / 1310, 1510	12 (@1310 nm)	0 - 25
EM316WGCC/S3 EM316WGCT/S3	Gigabit Ethernet UTP to Single Fiber SM	Gigabit Ethernet	RJ-45/SC	N/A / 1520, 1560	12	25 - 50
EM316WGCC/S4 EM316WGCT/S4	Gigabit Ethernet UTP to Single Fiber SM	Gigabit Ethernet	RJ-45/SC	N/A / 1520, 1560	16	45 - 65
EM316WGC/S2 EM316WGT/S2	Gigabit Ethernet MM SX to Single Fiber SM	Gigabit Ethernet	DSC/SC	850 / 1310, 1550	12 (@1310 nm)	0 - 25
EM316WGC/S3 EM316WGT/S3	Gigabit Ethernet MM SX to Single Fiber SM	Gigabit Ethernet	DSC/SC	850 / 1520, 1560	12	25 - 50
EM316WGC/S4 EM316WGT/S4	Gigabit Ethernet MM SX to Single Fiber SM	Gigabit Ethernet	DSC/SC	850 / 1520, 1560	16	45 - 65
EM316WFCC/S2 EM316WFCT/S2	Fibre Channel MM to Single Fiber SM	Fibre Channel	DSC/SC	850 / 1310, 1550	12 (@1310 nm)	0 - 25
EM316WFCC/S3 EM316WFCT/S3	Fibre Channel MM to Single Fiber SM	Fibre Channel	DSC/SC	850 / 1520, 1560	12	25 - 50
EM316WFCC/S4 EM316WFCT/S4	Fibre Channel MM to Single Fiber SM	Fibre Channel	DSC/SC	850 / 1520, 1560	16	45 - 65

Ordering Info

* Default connectors listed, other connectors are optional   ** Distances are approximate and assume 9μ SM and 62.5μ MM
Other products are available. Contact your local sales office for configuration and ordering information.

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.

The Power to Manage Your Fiber