

Single Mode to Multimode Media Converter



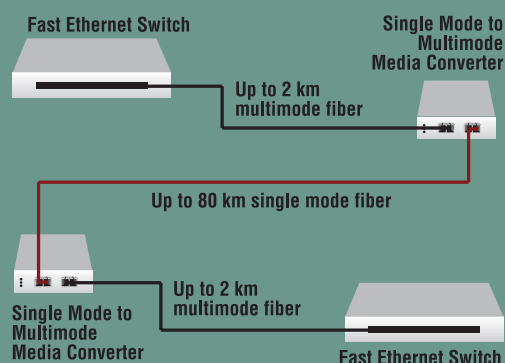
- ▶ Link Pass Through *see next pages*
- ▶ Automatic Link Restoration *see next pages*

▶ Extend Network Distance

Extend distances up to 80 km with these network protocols that use 1300nm wavelength for fiber optic transmission. In fact, distances can be extended in any networking protocol between 100Mbps and 155Mbps.

Save money by purchasing Fast Ethernet devices with lower cost multimode fiber interfaces and use converters to introduce single mode fiber only where you need it.

Extend Network Distance



Specifications

See next pages for complete fiber optic connector specs.

Standards	IEEE Std. 802.3
Status LEDs	PWR: Steady green LED indicates connection to external AC power LKM or Link (Left): Lit for MM Link LKS or Link (Right): Lit for SM Link
Dimensions	Width: 3.0" [76 mm] Depth: 4.7" [119 mm] Height: 1.0" [25 mm]
Power	External AC/DC required; 12V DC. 0.5A; unregulated; standard
Environment	0 – 50° C; 5% – 90% humidity non-condensing; 0 – 10,000 feet altitude
Shipping Weight	2 lbs. [0.90 kg]
Safety Compliance	Wall Mount Power Supply: UL Listed and CSA certified
Regulatory Compliance	CISPR/EN55022 Class A; EN55024; EN61000; FCC Class A; CE Mark
Warranty	Lifetime

F-SM-MM-02 & SFMFF1xxx-20x



Ordering Info

See next pages for complete fiber optic connector specs.

SFMFF1313-200

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
to 1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB

F-SM-MM-02

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
to 1310nm single mode (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB

SFMFF1415-200

1310nm single mode (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB
to 1310nm single mode (SC)
[40 km/24.9 mi.] Link Budget: 26.0 dB

F-SM-MM-02(LH)

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
to 1310nm single mode (SC)
[40 km/24.9 mi.] Link Budget: 26.0 dB

F-SM-MM-02(XL)

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
to 1310nm single mode (SC)
[60 km/37.3 mi.] Link Budget: 29.0 dB

SFMFF1417-200

1310nm single mode (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB
to 1550nm single mode (SC)
[80 km/49.7 mi.] Link Budget: 29.0 dB

F-SM-MM-02(LW)

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
to 1550nm single mode (SC)
[80 km/49.7 mi.] Link Budget: 29.0 dB

Single Fiber Products

Recommended use in pairs

SFMFF1329-200

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
to 1310nm TX/1550nm RX single fiber
single mode (SC)
[20 km/12.4 mi.] Link Budget: 19.0 dB

SFMFF1329-201

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
1550nm TX / 1310nm RX single fiber
single mode (SC)
[20 km/12.4 mi.] Link Budget: 19.0 dB

SFMFF1329-202

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
1310nm TX / 1550nm RX single fiber
single mode (SC)
[40 km/24.9 mi.] Link Budget: 25.0 dB

SFMFF1329-203

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
1550nm TX / 1310nm RX single fiber
single mode (SC)
[40 km/24.9 mi.] Link Budget: 25.0 dB

SFMFF1329-204

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
1310nm TX / 1550nm RX single fiber
single mode (SC)
[60 km/37.3 mi.] Link Budget: 28.0 dB

SFMFF1329-203

1300nm multimode (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB
1550nm TX / 1310nm RX single fiber
single mode (SC)
[60 km/37.3 mi.] Link Budget: 27.0 dB

SFMFF1429-200

1310nm single mode (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB
1310nm TX / 1550nm RX single fiber
single mode (SC)
[20 km/12.4 mi.] Link Budget: 19.0 dB

SFMFF1429-201

1310nm single mode (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB
to 1550nm TX / 1310nm RX single fiber
single mode (SC)
[20 km/12.4 mi.] Link Budget: 19.0 dB

SFMFF1429-202

1310nm single mode (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB
to 1310nm TX / 1550nm RX single fiber
single mode (SC)
[40 km/24.9 mi.] Link Budget: 25.0 dB

SFMFF1429-203

1310nm single mode (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB
to 1550nm TX / 1310nm RX single fiber
single mode (SC)
[40 km/24.9 mi.] Link Budget: 25.0 dB

Optional Accessories

(sold separately)

F-SM-MM-02:

SPS-1872-CC
Wide Input (18 – 72VDC) Piggy Back
Power Supply

WMBD-FS

DIN Rail Bracket (flat, small) 3.1" [79 mm]

SFMFF1x29-20x:

SPS-1872-PS
Wide Input (18 – 72VDC) Piggy Back
Power Supply

WMBD-F

DIN Rail Bracket (flat) 3.3" [84 mm]

F-SM-MM-02 or SFMFF1x29-20x:

SPS-1872-SA
Wide Input (18 – 72VDC) Stand-Alone
Power Supply

E-MCR-04

12-slot Media Converter Rack

WMBD

DIN Rail Bracket 5.0" [127 mm]

WMBD-L

Wall Mount Bracket 4.0" [102 mm]

WMBV

Vertical Wall Mount Bracket 5.0" [127 mm]

F-SM-MM-02 & SFMFF1xxx-20x Fiber Optic Connector Specs

Product SKU	Min TX PWR	Max TX PWR	RX Sensitivity	Max In PWR	Link Budget
F-SM-MM-02 MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
F-SM-MM-02 SM	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
F-SM-MM-02(LH) MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
F-SM-MM-02(LH) SM	-8.0 dBm	-2.0 dBm	-34.0 dBm	-7.0 dBm	26.0 dB
F-SM-MM-02(LW) MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
F-SM-MM-02(LW) SM	-5.0 dBm	0.0 dBm	-34.0 dBm	-7.0 dBm	29.0 dB
F-SM-MM-02(XL) MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
F-SM-MM-02(XL) SM	-5.0 dBm	0.0 dBm	-34.0 dBm	-7.0 dBm	29.0 dB
SFMFF1313-200	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SFMFF1329-200 MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SFMFF1329-200 SM	-13.0 dBm	-6.0 dBm	-32.0 dBm	-3.0 dBm	19.0 dB
SFMFF1329-201 MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SFMFF1329-201 SM	-13.0 dBm	-6.0 dBm	-32.0 dBm	-3.0 dBm	19.0 dB
SFMFF1329-202 MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SFMFF1329-202 SM	-8.0 dBm	-3.0 dBm	-33.0 dBm	-3.0 dBm	25.0 dB
SFMFF1329-203 MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SFMFF1329-203 SM	-8.0 dBm	-3.0 dBm	-33.0 dBm	-3.0 dBm	25.0 dB
SFMFF1329-204 MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SFMFF1329-204 SM	-5.0 dBm	0.0 dBm	-33.0 dBm	-3.0 dBm	28.0 dB
SFMFF1329-205 MM	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SFMFF1329-205 SM	-6.0 dBm	0.0 dBm	-33.0 dBm	-3.0 dBm	27.0 dB

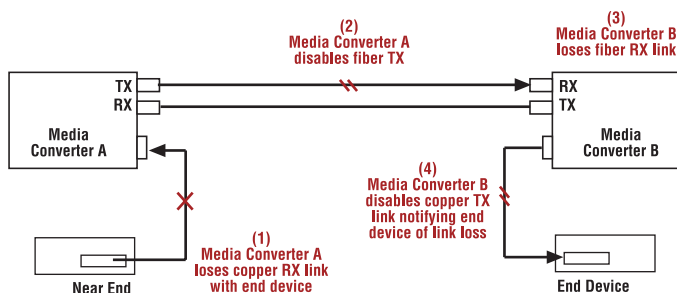
Product SKU	Min TX PWR	Max TX PWR	RX Sensitivity	Max In PWR	Link Budget
SFMFF1415-200 SM	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
SFMFF1415-200 SMLH	-8.0 dBm	-2.0 dBm	-34.0 dBm	-7.0 dBm	26.0 dB
SFMFF1417-200 MM	-5.0 dBm	0.0 dBm	-34.0 dBm	-7.0 dBm	29.0 dB
SFMFF1417-200 SM	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
SFMFF1429-200 MM	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
SFMFF1429-200 SM	-13.0 dBm	-6.0 dBm	-32.0 dBm	-6.0 dBm	19.0 dB
SFMFF1429-201 MM	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
SFMFF1429-201 SM	-13.0 dBm	-6.0 dBm	-32.0 dBm	-3.0 dBm	19.0 dB
SFMFF1429-202 MM	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
SFMFF1429-202 SM	-8.0 dBm	-3.0 dBm	-33.0 dBm	-3.0 dBm	25.0 dB
SFMFF1429-203 MM	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
SFMFF1429-203 SM	-8.0 dBm	-3.0 dBm	-33.0 dBm	-3.0 dBm	25.0 dB



► Link Pass Through

Link Pass Through is a troubleshooting feature that prevents media converters from isolating link failures and it allows end devices to be notified in the event of a loss of link. Link Pass Through provides the media converter with the ability to monitor both the fiber and the copper RX ports for a loss of signal. If a loss of RX signal occurs on one media port, the converter will automatically disable the TX signal on the other port. By shutting down the fiber TX port, the link failure is “passed through” to the remote converter and device (see diagram below).

- End device automatically notified of link loss
- Prevents loss of valuable data unknowingly transmitted over an invalid link





► Automatic Link Restoration

Transition Networks's converters will automatically re-establish link in all network conditions.

► No need to reset devices

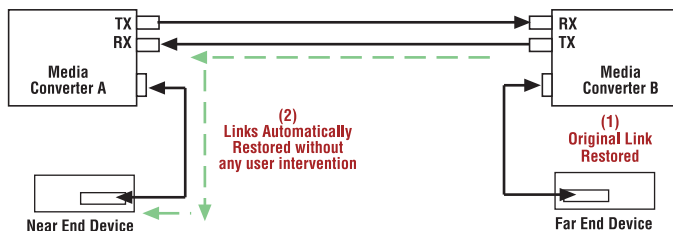
Transition Networks's converters will automatically re-establish link when connected to switches if link was lost. With other manufacturers' converters the user must reset the converter to re-establish the link.

► Auto-Negotiation Enabled

Automatic Link Restoration allows the users to continue using Auto-Negotiation with Link Loss Notification features. With other manufacturers' converters the user must disable Auto-Negotiation and hard set the link.

► Link Pass Through Activated in both directions

Automatic Link Restoration on Transition Networks's products allows users to continue using Link Loss Notification feature activated in both directions. Many competitive solutions allow for Link Loss Notification activation only in one direction. If Link Loss feature is activated in both directions, competitive products are put in a "deadly embrace" and they cannot restore the link without resetting the converters.



► Single Fiber

Single fiber technology offers a 50% savings in fiber utilization. It is an attractive solution to maximize the usage of a limited number of fiber runs.

In a traditional optical link, a fiber pair consists of two uni-directional strands. The single fiber technology multiplexes two optical wavelengths of 1310nm and 1550nm into a single strand fiber. In a single fiber media converter each wavelength is responsible for either the transmit or receive function. Consequently, the bi-directional transmission is achieved by using a single strand. The converters in a single fiber scenario "match" each other's wavelengths. Converter A transmits at the wavelength of 1310nm and receives at 1550nm while the other converter transmits at 1550nm and receives at 1310nm. Therefore, converters are usually used in pairs.

Single fiber technology is available on all Transition Networks Media Converters in maximum distance ranges from 20 to 80km.

