

10/100 Bridging 10/100BASE-TX to 100BASE-FX

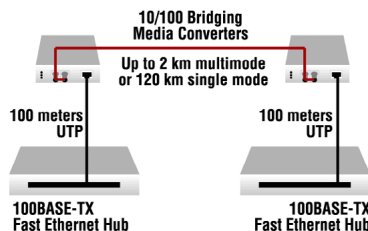
Stand-Alone Media Converters

SBFTF10xx-10x



Convert 10/100BASE-TX to 100BASE-FX

Extend Network Distance



Extend network distance up to 120 KM

Bridging media converters will provide conversion and integration solutions for half-duplex and full-duplex environments.

Features

- ▶ Auto-Negotiation *see next pages*
- ▶ AutoCross™ *see next pages*
- ▶ Link Pass Through *see next pages*
- ▶ 10Mbps or 100Mbps on all TP ports
- ▶ Half or full-duplex on all ports including fiber
- ▶ Far End Fault (FEF) Detection *next pages*
- ▶ Each port fully manageable
- ▶ LED indications for all operation modes
- ▶ Automatic Link Restoration *next pages*
- ▶ Source Address Change (SAC) *next pages*

Specifications

Standards	IEEE Std. 802.3™
Data Rate	10Mbps; 100Mbps
Filtering Addresses	4K MAC addresses
Filtering & Forwarding Rate	14,880pps for Ethernet; 148,800pps for Fast Ethernet
RAM Buffers	256KB
Fiber Optic Connector Specs	
SBFTF1011-100 & SBFTF1013-100 & SBFTF1039-100 & SBFTF1018-100	Min TX PWR: -19.0 dBm Max TX PWR: -14.0 dBm RX Sensitivity: -30.0 dBm Max In PWR: -14.0 dBm Link Budget: 11.0 dB
SBFTF1014-100	Min TX PWR: -15.0 dBm Max TX PWR: -8.0 dBm RX Sensitivity: -31.0 dBm Max In PWR: -8.0 dBm Link Budget: 16.0 dB
SBFTF1019-100	Min TX PWR: -15.2 dBm Max TX PWR: -8.0 dBm RX Sensitivity: -32.5 dBm Max In PWR: -3.0 dBm Link Budget: 17.3 dB
SBFTF1015-100	Min TX PWR: -8.0 dBm Max TX PWR: -2.0 dBm RX Sensitivity: -34.0 dBm Max In PWR: -7.0 dBm Link Budget: 26.0 dB
SBFTF1016-100 & SBFTF1017-100	Min TX PWR: -5.0 dBm Max TX PWR: 0.0 dBm RX Sensitivity: -34.0 dBm Max In PWR: -7.0 dBm Link Budget: 29.0 dB
SBFTF1035-100	Min TX PWR: 0.0 dBm Max TX PWR: 5.0 dBm RX Sensitivity: -36.0 dBm Max In PWR: -3.0 dBm Link Budget: 36.0 dB
Single Fiber Products	
SBFTF1029-100 & SBFTF1029-101	Min TX PWR: -13.0 dBm Max TX PWR: -6.0 dBm RX Sensitivity: -32.0 dBm Max In PWR: -3.0 dBm Link Budget: 19.0 dB
SBFTF1029-102 & SBFTF1029-103	Min TX PWR: -8.0 dBm Max TX PWR: -3.0 dBm RX Sensitivity: -33.0 dBm Max In PWR: -3.0 dBm Link Budget: 25.0 dB

Switches	SW1 (TP): Auto-Negotiation On/Off SW2 (TP): 10Mbps or 100Mbps with Auto-Negotiation Off SW3 (TP): Half or Full-duplex with Auto-Negotiation Off SW4 (Fiber): Half or Full-duplex SW5: AutoCross™ On/Off SW6: Link Pass Through On/Off
Status LEDs	PWR (Power): On = connection to external power FD (Fiber Duplex): On = Full-duplex; Off = Half-duplex LACT (Fiber Link/Activity): On = Link; Blinking = Activity Duplex/Link (Copper): On (Yellow) = Half-duplex Link; Blinking (Yellow) = Half-duplex Activity; On (Green) = Full-duplex Link; Blinking (Green) = Full-duplex Activity Speed (Copper): Yellow = 10 Mbps; Green = 100 Mbps
Dimensions	Width: 3.25" [82 mm] Depth: 4.8" [122 mm] Height: 1.0" [25 mm]
Power	External AC/DC; 12VDC, 0.8A min
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
Regulatory Compliance	FCC Class A, VCCI Class 1, CISPR22/EN55022 Class A, EN55024, EN61000, CE Mark
Warranty	Lifetime

Ordering Info

Product Number	Port One	Port Two
SBFTF1011-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1300nm multimode (ST) [2 km / 1.2 miles]
SBFTF1013-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1300nm multimode (SC) [2 km / 1.2 miles]
SBFTF1039-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1300nm multimode (LC) [2 km / 1.2 miles]
SBFTF1018-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1300nm multimode (MT-RJ) [2 km / 1.2 miles]
SBFTF1014-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1310nm single mode (SC) [20 km/12.4 miles]
SBFTF1019-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1310nm single mode (LC) [20 km/12.4 miles]
SBFTF1015-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1310nm single mode (SC) [40 km/24.9 miles]
SBFTF1016-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1310nm single mode (SC) [60 km/37.3 miles]
SBFTF1017-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1550nm single mode (SC) [80 km/49.7 miles]
SBFTF1035-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1550nm single mode (SC) [120 km/74.6 miles]
Single Fiber Products <i>Note: Recommended use in pairs (see next pages)</i>		
SBFTF1029-100	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [20 km/12.4 miles]
SBFTF1029-101	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [20 km/12.4 miles]
SBFTF1029-102	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [40 km/24.9 miles]
SBFTF1029-103	10/100BASE-TX (RJ-45) [100 m / 328 ft.]	100BASE-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [40 km/24.9 miles]

Optional Accessories (sold separately)

Product Number	Description
SPS-1872-PS	Wide Input (18 – 72VDC) Piggy Back Power Supply
SPS-1872-DPS	Wide Input (18 – 72VDC) Piggy Back Power Supply
SPS-1872-SA	Wide Input (18 – 72VDC) Stand-Alone Power Supply
E-MCR-04	12-slot Media Converter Rack
WM8D	DIN Rail Mount Bracket 5.0" [127 mm]
WM8D-F	DIN Rail Mount Bracket (flat) 3.3" [84 mm]
WMBL	Wall Mount Bracket 4.0" [102 mm]
WMBV	Vertical Wall Mount Bracket 5.0" [127 mm]

ADVANCED PRODUCT FEATURES

► Auto-Negotiation (802.3u)

Auto-Negotiation allows devices to perform automatic configuration to achieve the best possible mode of operation over a link. Devices with this feature will broadcast their speed (10Mbps, 100Mbps, etc.) and duplex (half/full) capabilities to other devices and negotiate the best mode of operation between the two devices.

- No user intervention required to determine best mode of operation
- Optimal link established automatically
- Quick and easy installation

While the inclusion of this feature is beneficial, the ability to disable it is equally beneficial. In the event of a non-negotiating end device trying to connect to a negotiating device, the mode of operation will drop to the least common denominator between the two devices (i.e. 100Mbps, half-duplex). Disabling this feature gives the user the ability to force the connection to the best mode of operation when trying to link with a non-negotiating device. Most Transition converters with Auto-Negotiation will allow you to disable this feature.

► AutoCross™

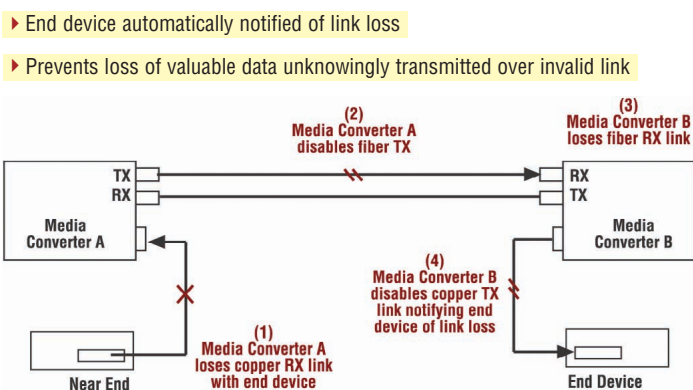
Automatically detects and configures the twisted pair port on the converter to the correct MDI or MDI-X configuration.

- Eliminates an entire category of troubleshooting
- No need to identify cable type—straight-through or crossover
- No user intervention required to determine correct button / switch settings

► Link Pass Through

Link Pass Through is a troubleshooting feature that allows the media converter to monitor both the fiber and copper RX ports for loss of signal. In the event of a loss of RX signal on one media port, the converter will automatically disable the TX signal of the other media port, thus "passing through" the link loss.

(see diagram below)



If someone tells you media conversion is a commodity product that anyone can bring to market, they probably haven't looked at the extensive product suite offered by Transition Networks. With the industry's most comprehensive offering of full-featured products, Transition's media converters stand out as "the choice" among industry IT professionals.

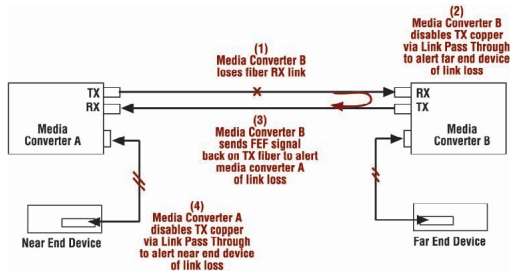
Generally, media converters are low-level OSI model devices with no IP or MAC addresses and therefore are transparent to the network. This "transparency" makes them very inexpensive and easy to use, but also can make troubleshooting the network very difficult. In an effort to overcome this difficulty and to make media converters "visible" to network managers, Transition has designed their full-featured products to include the most advanced features on the market today.

ADVANCED PRODUCT FEATURES

► Far End Fault (802.3u)

Far End Fault (FEF) is a troubleshooting feature that is generally used in conjunction with Link Pass Through to notify both end devices of a loss of link. In the event of a loss of the fiber RX signal on the far end converter the converter will automatically generate a Far End Fault signal and send it on its TX fiber port to notify the near end converter of a fiber link loss. Link Pass Through will then disable the copper links on both ends; alerting both end devices of network trouble (see diagram below).

- Both end devices automatically notified of link loss
- Prevents loss of valuable data unknowingly transmitted over invalid link
- Allows for quick diagnosis and resolution of network problems



Transition Networks's media converters that include the FEF feature do not need to be used as pictured above as they will work with other network devices that support Far End Fault per IEEE standards.

► Automatic Link Restoration

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

- No need to reset devices

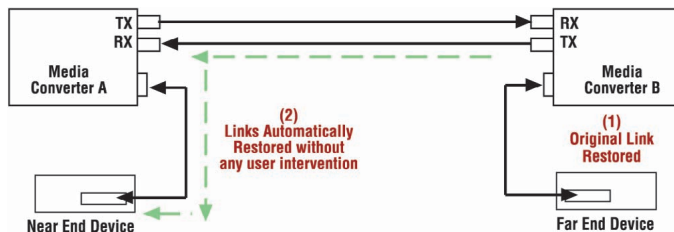
Transition Networks's converters will automatically re-establish link when connected to switches if link was lost. With other manufacturers' converters the user must reset the converter to re-establish the link.

- 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.



► Source Address Change

Select bridging media converters are capable of detecting and reporting changes in the MAC (Ethernet hardware) address of the attached equipment. This feature is very useful when administrators intend that only a particular physical device be attached to a particular port.

When the MAC address of a connected device changes (new device is inserted) the administrator receives the trap with the notification of a change.

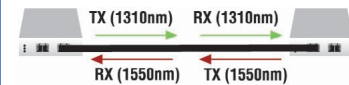
► Single Fiber

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



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