User Guide

SBFTF10xx-1xx

Stand-Alone Media Converters

- **Copper to Fiber**
- **10/100 Bridging (2 Ports)**
- **10/100Base-TX to 100Base-FX**
- Auto-Negotiation
- Auto-MDI/MDIX
- Link Pass Through
- Far-End-Fault (FEF) Detection
- Automatic Link Restoration Extend network distance up to 120km
- Bridging devices will provide conversion and integration solutions for half and full-duplex environments
- 10 Mbps or 100 Mbps on TP port
- Half or full-duplex on all ports including fiber

Contents

Introduction

Transition Networks SBFTF10xx-10x 2-port Ethernet/Fast Ethernet bridging media converter connects 10Base-T Ethernet or 100Base-TX Fast Ethernet twisted-pair copper network devices to network devices on a 100Base-FX Fast Ethernet fiber network.

The SBFTF10xx-105 provides an interface between 10/100Base-TX ports and 100Base-FX ports, allowing users to integrate fiber optic cabling into 10/100Base-TX copper environments. Operating at Layer 2, this converter not only converts copper to fiber, but it also does Rate Conversion, converting 10/100 copper to 100Base fiber.

Ordering Information

SKU	Description
SBFTF1011-105	10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1300nm multimode (ST) [2 km/1.2 mi.] Link Budget: 11.0 dB
SBFTF1013-105	10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1300nm multimode (SC) [2 km/1.2 mi.] Link Budget: 11.0 dB
SBFTF1014-105	10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm single mode (SC) [20 km/12.4 mi.] Link Budget: 16.0 dB
SBFTF1019-105	10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm single mode (LC) [20 km/12.4 mi.] Link Budget: 17.3 dB
SBFTF1029-105	10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm TX/1550nm RX single fiber single mode (SC) [20 km/12.4 mi.]. Link Budget: 19.0 dB
SBFTF1029-106	10/100Base-TX (RJ-45) [100 m/328 ft.]to 100Base-FX 1550nm TX/1310nm RX single fiber single mode (SC) [20 km/12.4 mi.]. Link Budget: 19.0 dB
SBFTF1039-105	10/100Base-TX (RJ-45) 100 m/328 ft.] to 100Base-FX 1300nm multimode (LC) [2 km/1.2 mi.] Link Budget: 11.0 dB
SBFTF1040-105	10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-X SFP Slot (empty)

***Typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network installation.

**SBFTF1029-105/106 pair or -107/108 pair should be installed in the same network where one is the local coverter and the other is the remote converter.

Power Supply Included. To order the corresponding country-specific power supply, add the extension from the following list to the end of the SKU; -NA = North America, -LA = Latin America, -EU = Europe, -UK = United Kingdom, -SA = South Africa, -JP = Japan, -OZ = Australia, -BR = Brazil.

Optional Accessories (*sold separately*)

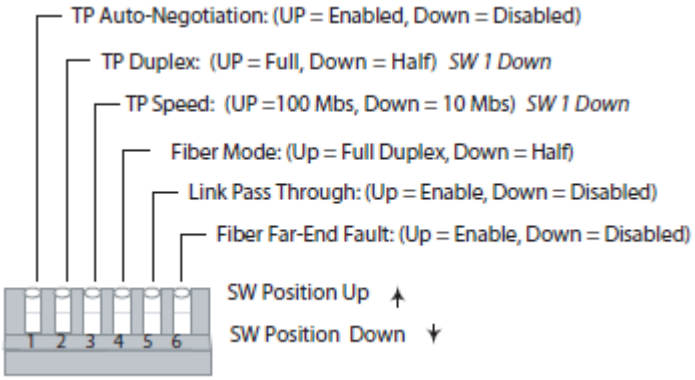
SKU	Description
SPS-2460-SA	Stand-Alone Power Supply
SPS-2460-PS	Piggy-Back Power Supply
E-MCR-05	12-Slot Media Converter Rack with universal internal power supply 17 x 15 x 5 in.
RMS19-SA4-01	4-slot Media Converter Shelf
WMBL	Optional Wall Mount Brackets; Length: 4.7in. (119mm)
WMBV	Optional Vertical Mount Bracket; Length: 5.0 in. (127 mm)
WMBD	Optional DIN Rail Mount Bracket; Length: 5.0 in. (127 mm)
WMBD-F	Optional DIN Rail Mount Bracket (flat); Length: 3.3in. (84 mm)
SFP Modules	See the Transition Networks SFP webpage.

Installation

CAUTION: Wear a grounding device and observe electrostatic discharge precautions when setting the 6-position DIP switch. Failure to observe this caution could result in damage to the media converter.

Set the 6-position DIP Switch

The 6-position switch is located located on the side of the media converter. Use a small flat blade screwdriver to set the recessed switches. See below for the locations of the individual switches.



1. TP Auto-Negotiation
up Enables Auto-Negotiation on the copper port
down Disables Auto-Negotiation on the copper port. Forces the setting of switches 2 and 3

2. TP Duplex
(*Only functions with switch 1 down*)
up Full duplex operation on the copper port
down Falf duplex operation on the copper port
(*Parallel detection only with Auto-Negotiation enabled and linked to nonnegotiating device*)
up Parallel detects in IEEE standard half duplex
down Non-standard full duplex

3. TP Speed
(*Only functions with switch 1 Down*)
up 100 Mb/s operation on the copper port
down 10 Mb/s operation on the copper port

4. Fiber Mode
up Forces full duplex operation on the fiber port
down Forces half duplex operation on the fiber port

5. Link Pass Through (LPT)
up Enabled
down Disabled

6. Far-End Fault (FEF)
up Enabled
down Disabled

Connect the Twisted-Pair Copper Cable

Ensure that the correct cable type is installed to support the highest speed and mode of operation to be selected.

Although Category 3 cable is adequate for the 10Base-T installation, Category 5 cable is strongly recommended, since Category 3 cable can not be used for 100Base-TX installation.

10Base-T / Ethernet Collision Domain

- If half-duplex cable is used, refer to the 5-Segment Rule before installing the 10Base-T twisted-pair copper cable.
- If full-duplex cable is used, the 5-Segment Rule does not apply. The cable lengths are constrained by the cable requirements.

100Base-TX / Fast Ethernet Collision Domain

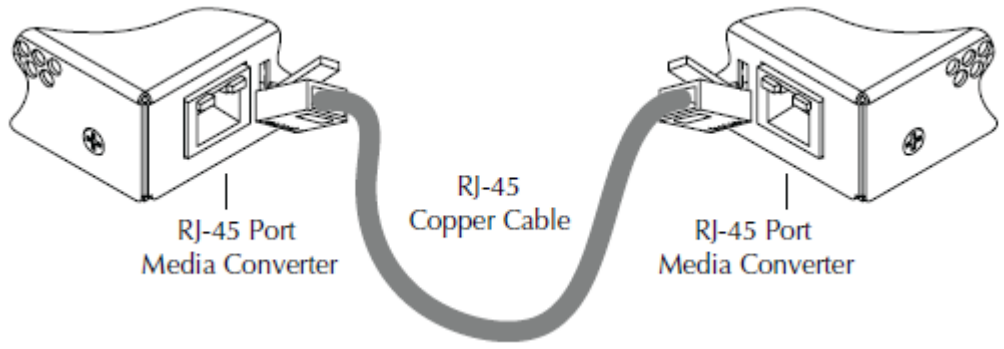
- If half-duplex cable is used, refer to the 512-Bit Rule before installing the 100Base-TX twisted-pair copper cable.
- If full-duplex cable is used, the 512-Bit Rule does not apply. The cable lengths are constrained by the cable requirements.

Note: A Fast Ethernet collision domain can have one class 1 repeater or two class 2 repeaters.

Install the Twisted-Pair Copper Cable

Note: The AutoCross feature allows either MDI (straight-through) or MDI-X (crossover) cable connections to be configured automatically, according to the network conditions.

1. Locate or build IEEE 803.2 compliant 10Base-T or 100Base-TX cable, with RJ-45 connectors installed at both ends.
2. Connect the RJ-45 connector at one end of the cable to the RJ-45 port on the SBFTF10xx-10x media converter.
3. Connect the RJ-45 connector at the other end of the cable to the RJ-45 port on the other device (switch, workstation, etc.).



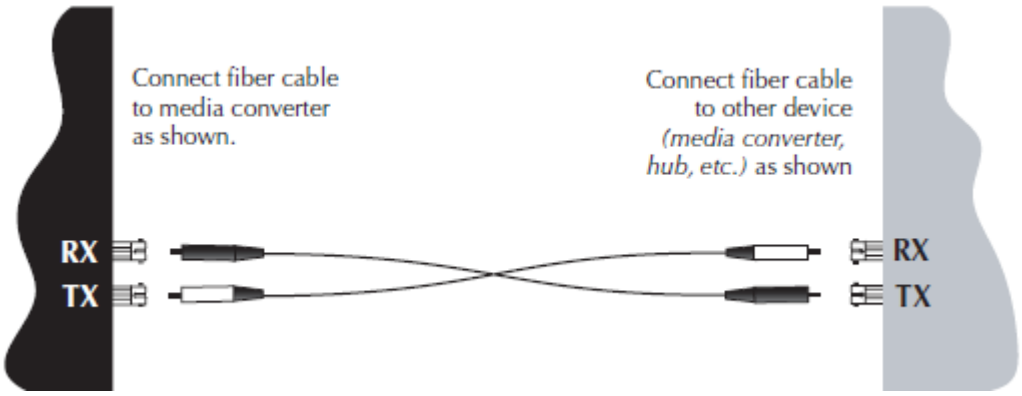
Connect the Fiber Cable

100Base-FX / Fast Ethernet Collision Domain

- If half-duplex mode is used, refer to the 512-Bit Rule before installing the 100Base-FX fiber cable.
- If full-duplex mode is used, the 512-Bit Rule does not apply. The cable lengths are constrained by the cable requirements.

Install the Fiber Cable

1. Locate an IEEE 803.2 compliant 100Base-FX fiber cable with male, two-stranded TX to RX connectors installed at both ends.
2. Connect the fiber cables to the SBFTF10xx-10x as described:
    - Connect the male TX cable connector to the female TX port.
    - Connect the male RX cable connector to the female RX port.
3. Connect the fiber cables to the other device (another media converter, hub, etc.) as described:
    - Connect the male TX cable connector to the female RX port.
    - Connect the male RX cable connector to the female TX port.



Power the Media Converter

Note: The external power supply provided with this product is UL listed by its manufacturer.

AC

1. Connect the barrel connector on the power adapter to the media converter's power port (located on the back of the media converter).
2. Connect the power adapter plug to AC power.
3. Verify that the media converter is powered by observing the Pwr LED is lit.

DC

See the Transition Networks external power supply user guide for powering the media converter.

Product Features

Rate Conversion

The media converter allows connection of 10Mb/s terminal devices on a 10Base-T legacy Ethernet copper network to 100Mb/s terminal devices on a 100Base-TX Fast Ethernet copper network and/or to 100Mb/s terminal devices on a 100Base-FX Fast Ethernet fiber network.

Auto-Negotiation

The Auto-Negotiation feature allows the SBFTF10xx-10x media converter to automatically configure itself to achieve the best possible mode of operation over a link. The media converter broadcasts its speed (10 Mb/s or 100 Mb/s) and duplex capabilities (full or half) to the other devices and negotiates the best mode of operation. Auto-Negotiation allows quick and easy installation because the optimal link is established automatically.

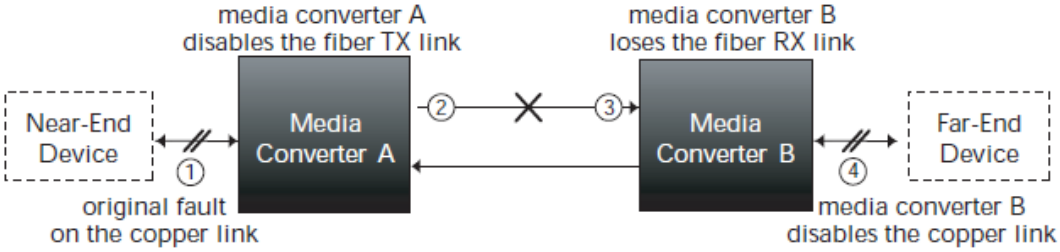
In a scenario where the media converter is linked to a non-negotiating device, the user may want to disable Auto-Negotiation. In this instance, the mode of operation will drop to the least common denominator between the two devices (e.g.: 10 Mb/s, half-duplex). Disabling this feature lets you force the connection to the desired speed and duplex mode of operation.

AutoCross

When the AutoCross feature is activated, it allows either straight-through (MDI) or crossover (MDI-X) copper cables to be used when connecting to 10Base-T or 100Base-TX devices. AutoCross determines the characteristics of the connection and automatically configures the unit to link up, regardless if the copper cable is MDI or MDI-X configuration.

Link Pass-Through

The Link Pass-Through feature allows the media converter to monitor both the fiber and copper RX (receive) ports for loss of signal. In the event of a loss of an RX signal (1), the media converter will automatically disable the TX (transmit) signal (2), thus, “passing through” the link loss (3). The far-end device is automatically notified of the link loss (4), which prevents the loss of valuable data unknowingly transmitted over an invalid link.



Far-end Fault

When a fault occurs on an incoming fiber link (1), the media converter transmits a Far-End Fault signal on the outgoing fiber link (2). In addition, the Far-End Fault signal also activates Link Pass-Through, which, in turn, disables the link on the copper portion of the network (3) and (4).

Distance Extension

The SBFTF10xx-10x media converter segments 10Base-T copper Ethernet and/or 100Base-TX copper Fast Ethernet and 100Base-FX fiber Fast Ethernet collision domains.

In a half-duplex Ethernet or Fast Ethernet environment, the SBFTF10xx-10x media converter extends network distances by segmenting collision domains so that the 5-Segment Rule or the 512-Bit Rule applies separately to each collision domain.

In a full-duplex Ethernet or Fast Ethernet environment, the SBFTF10xx-10x media converter extends network distances to the physical cable limitations imposed by the selected copper and fiber cables.

Automatic Link Restoration

This feature will restore the dropped link automatically, upon correcting the fault condition.

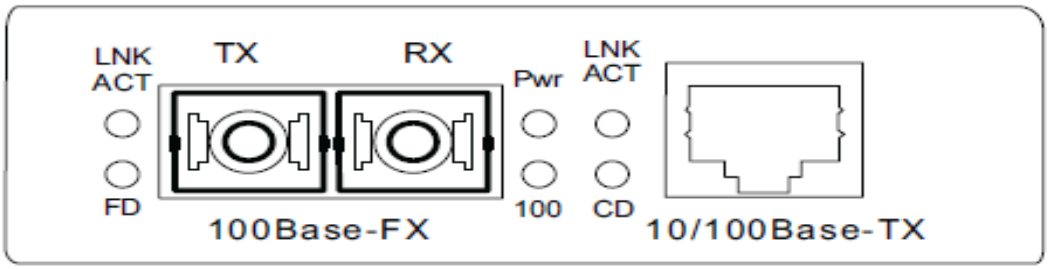
Congestion Reduction

The SBFTF10xx-10x media converter does not forward collision signals or error packets from one collision domain to another, improving baseline network performance. In addition, the media converter filters packets destined for local devices, also reducing network congestion.

Operation

Status LEDs

Use the status LEDs to monitor the SGETF10xx-1xx media converter operation in the network.



LED	Description
Pwr Power	ON = Power applied OFF = Not powered
Fiber LEDs	
LNK ACT Link/Activity	ON Solid = Link established FLashing = RX Data
FD (Duplex)	ON = Full Duplex OFF = Half Duplex
Copper LEDs	
LNK ACT Link/Activity	ON Solid = Link established FLashing = RX Data
CD (Duplex)	ON = Full Duplex OFF = Half Duplex
100 (Speed)	ON = 100 Mbs OFF = 10 Mbx

Half-Duplex Network

512-Bit Rule – 100Base-TX or 100Base-FX

Use the 512-Bit Rule to calculate the 100Base-TX or 100Base-FX half-duplex collision domain.
In a half-duplex network, the maximum cable lengths are determined by the round trip delay limitations of each Fast Ethernet collision domain. *(A collision domain is the longest path between any two terminal devices, e.g., a terminal, switch, or router.)*
The 512-Bit Rule determines the maximum length of cable permitted by calculating the round-trip delay in bit-times (BT) of a particular collision domain. If the result is less than or equal to 512 BT, the path is good. **Note:** The 512-Bit Rule applies separately to each collision domain.

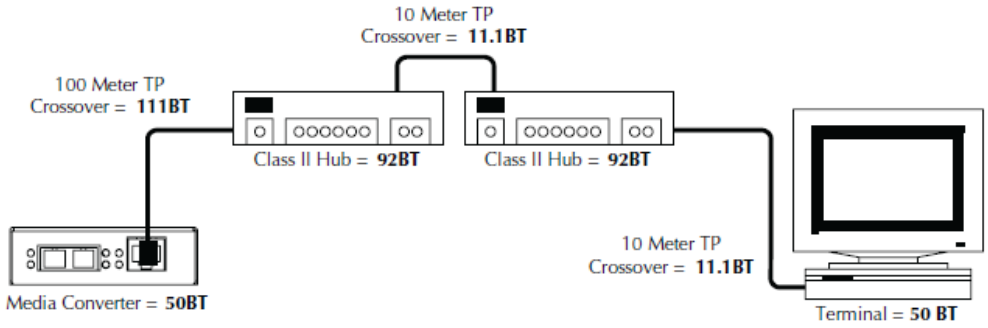
To calculate the round-trip delay for a collision domain:

1. Find the collision domain, i.e., the longest path between any two terminal devices *(e.g., terminal, switch, and/or router).*
2. Calculate the round-trip delay in bit-times for each length of cable.
3. Determine the bit-time values for each device *(see below).*

Class I hub	140 BT
Class II hub	92 BT
Terminal/router	50 BT
1 meter TP cable	1.11 BT
1 meter fiber cable	1 BT
Fast Ethernet switch	50 BT
SBFTF10xx-10x	50 BT

4. Add the bit-time values for each length of cable and the bit-times for each device.

100Base-TX twisted-pair example
In the example below, the SBFTF10xx-10x 2-Port bridging media converter acts as a switch. In this case, the collision domain bound by the media converter on one end and a terminal on the other end.
Since the total of the bit-times in this example is less than 512 (see table below), the path is good.



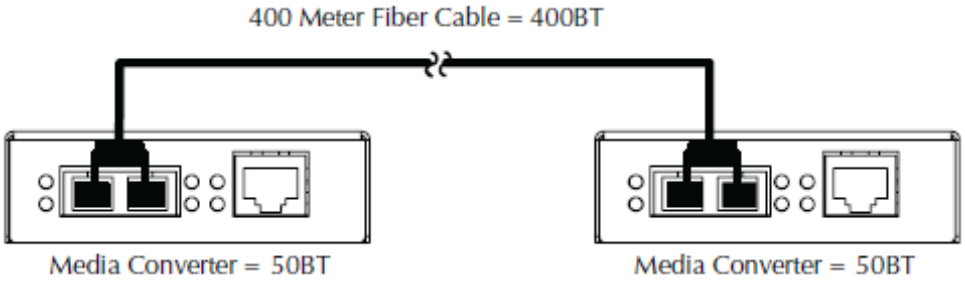
Sum of the bit-times for the example collision domain:

Media converter		= 50.0 BT
100 m TP cable	(100m x 1.11 BT/m)	= 111.0 BT
Two Class II hubs	(2 x 92)	= 184.0 BT
Two 10 m TP cables	(2 x 10m x 1.11 BT/m)	= 22.2 BT
Terminal		= 50.0 BT
Total		= 417.2 BT

100Base-TX fiber Example

The drawing below illustrates a collision domain where two media converters are connected via fiber cable.

Since the total of the bit-times in this example is less than 512 (50BT + 400BT + 50BT = 500BT) the path is good.



5-Segment Rule – 10Base-T

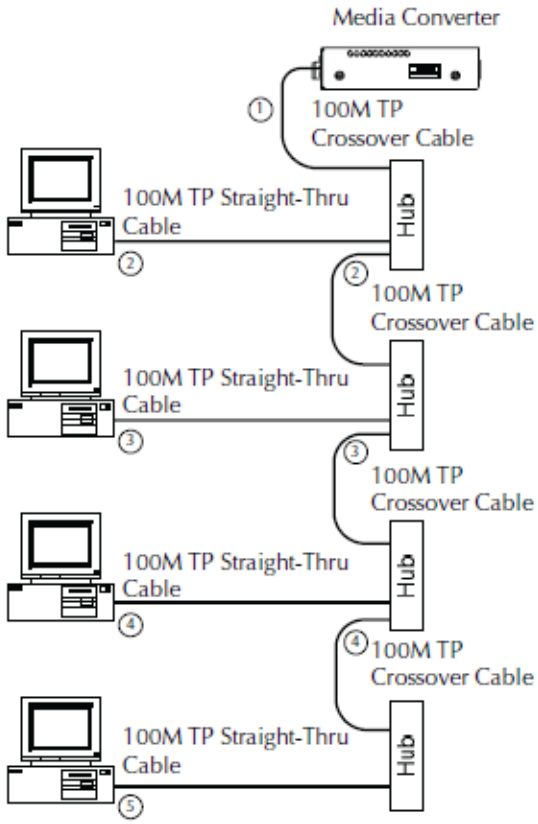
Use the 5-Segment Rule to calculate the 10Base-T half-duplex collision domain. The 5-Segment Rule states that a transmission path of a collision domain can consist of not more than 5 segments. A "collision domain" and a "segment" are defined as follows:

A *collision domain* is the longest path in a 10Base-T network between any two terminal devices, e.g., a terminal, switch, or router. The SBFTF10xx-10x media converter is also a terminal device.

A *segment* is a cable connection between any two network interfaces within a collision domain.

10Base-T Twisted-pair Example

The example below illustrates below applying the 5-Segment Rule. The cable between each network device *(media converter, Hub, or Terminal)* is numbered as a "segment". Note that the longest transmission path *(from the media converter at the top to the terminal at the bottom)* is 5 segments. Therefore, the network in the example below complies with the 5-Segment Rule. **Note:** The 5-Segment Rule must be applied separately to each 10Base-T collision domain.



Cable Specifications

The physical characteristics must meet or exceed the IEEE 802.3™ specifications.

Fiber Cable

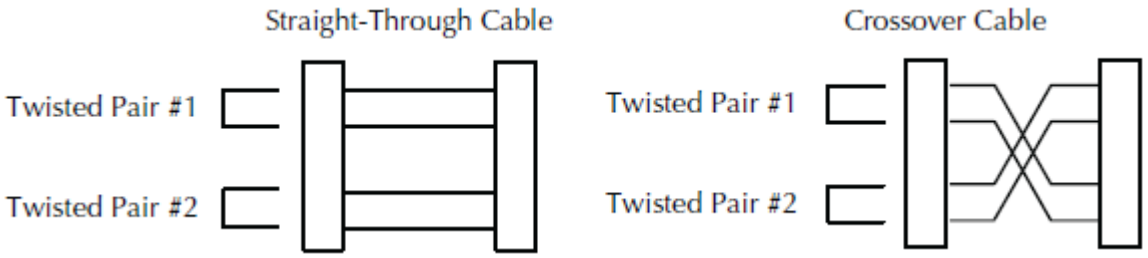
Bit Error Rate:	<10-9	
Single mode fiber *(recommended)*:	9 µm	
Multimode fiber *(recommended):*	62.5/125 µm	
Multimode fiber *(optional):*	100/140, 85/140, 50/125 µm	
SBFTF1011-105, SBFTF1013-105	multimode	
Fiber Optic Transmitter Power:	min: -19.0 dBm	max: -14.0 dBm
Fiber Optic Receiver Sensitivity:	min: -30.0 dBm	max: -14.0 dBm
Link Budget:	11.0 dB	
SBFTF1014-105 single mode		
Fiber-optic Transmitter Power:	min: -15.0 dBm	max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -31.0 dBm	max: -8.0 dBm
Link Budget:	16.0 dB	
SBFTF1015-105	single mode	
Fiber-optic Transmitter Power:	min: -5.0 dBm	max: -2.0 dBm
Fiber-optic Receiver Sensitivity:	min: -34.0 dBm	max: -7.0 dBm
Link Budget:	29.0 dB	
SBFTF1016-105 single mode		
Fiber-optic Transmitter Power:	min: -4.0dBm	max: -2.0 dBm
Fiber-optic Receiver Sensitivity:	min: -36.0 dBm	max: -3.0 dBm
Link Budget:	32.0 dB	
SBFTF1017-105	single mode	
Fiber-optic Transmitter Power:	min: -5.0 dBm	max: -0.0 dBm
Fiber-optic Receiver Sensitivity:	min: -34.0dBm	max: -7.0 dBm
Link Budget:	29.0 dB	
SBFTF1019-105	single mode	
Fiber-optic Transmitter Power:	min: -15.2 dBm	max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -32.5 dBm	max: -3.0 dBm
Link Budget: 17.3 dB		
SBFTF1029-105, SBFTF1029-106	single mode	
Fiber-optic Transmitter Power:	min: -14.0 dBm	max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -33.0 dBm	max: -3.0 dBm
Link Budget:	19.0 dB	
SBFTF1029-107, SBFTF1029-108	single mode	
Fiber-optic Transmitter Power:	min: -8.0 dBm	max: -3.0 dBm
Fiber-optic Receiver Sensitivity:	min: -33.0 dBm	max: -3.0 dBm
Link Budget:	25.0 dB	

SBFTF1035-105	single mode	
Fiber-optic Transmitter Power:	min: 0.0 dBm	max: 5.0 dBm
Fiber-optic Receiver Sensitivity:	min: -36.0 dBm	max: -3.0 dBm
Link Budget: 36dB		
SBFTF1039-105	multimode	
Fiber-optic Transmitter Power:	min: -19.0 dBm	max: -14.0 dBm
Fiber-optic Receiver Sensitivity:	min: -30.0 dBm	max: -14.0 dBm
Link Budget:	11db	

Copper cable maximum cable distance: 100 meters

Category 3: *(Minimum requirement for 10 Mb/s operation)*	
Gauge	24 to 22 AWG
Attenuation	11.5 dB/100m @ 5-10 MHz
Category 5: *(Minimum requirement for 100 Mb/s operation)*	
Gauge	24 to 22 AWG
Attenuation	22.0 dB /100m @ 100 MHz

- Straight-through (MDI) or crossover (MDI-X) twisted-pair cable must be used.
- Shielded twisted-pair (STP) or unshielded twisted-pair (UTP) may be used.
- Pins 1&2 and 3&6 are the two active pairs in an Ethernet network .
- Use only dedicated wire pairs for the active pins *(e.g., blue/white & white/blue, orange/white & white/orange, etc.)*
- Do not use flat or silver satin wire.



Technical Specifications

For use with Transition Networks Model SBFTF10xx-10x or equivalent.

Data Rate	10 Mbps; 100 Mbps, Layer 2
Dimensions	Width: 3.25” [82.55 mm] x Depth: 4.8” [121.92 mm] x Height: 1" [25 mm]
Weight	2 lbs. [0.90 kg]
Power Consumption	3 watts
Power Supply	12 VDC, 0.8 Amp *(N. America, Europe, Japan, UK)* 12 VDC, 1.25 Amp *(Latin Am., Australia, N.Z., S. Africa)* *(external power supply provided with this product is UL listed by the manufacturer.)*
MTBF	Greater than 41,660 hours *(MIL-HDBD-217F)* Greater than 114,580 hours *(Bellcore7 V5.0)*
Packet Size:	Unicast MAC address: 1K Maximum packet size: - 2048 bytes untagged bytes - 2044 bytes tagged bytes
Filtering & Forwarding	14,880 pps for Ethernet; Rate 148,800 pps for Fast Ethernet
Environment	Tmra*: 0 to 50°C *(32 to 122°F) (Manufacturer’s rated ambient temperature)*
Storage Temp	-15 to 65°C *(-15 to 149°F)*
Humidity	5 to 95%, non condensing
Warranty	Lifetime
Compliance Safety:	Wall Mount Power Supply: UL Listed; FCC Class A, VCCI Class 1, CISPR22/EN55022 Class A, EN55024, EN61000, CE Mark

For current information on the SBFTF10xx-10x see the online user guide at https://www.transition.com.

WARNING: Visible and invisible laser radiation when open. Do not stare into the beam or view the beam directly with optical instruments. Failure to observe this warning could result in an eye injury or blindness.

WARNING: Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

*MTBF is estimated using the predictability method. This method is based on MIL-217F and Bellcore standards at 40°C ambient temperature, typical enclosure heat rise of 10°C, and nominal operating conditions and parameters. Installation and configuration specific MTBF estimates are available upon request. Contact Technical Support.

CAUTION: Copper based media ports, e.g., Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are intended to be connected to intrabuilding (inside plant) link segments that are not subject to lightening transients or power faults. Copper based media ports, e.g., Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are NOT to be connected to inter-building (outside plant) link segments that are subject to lightening transients or power faults.

Failure to observe this caution could result in damage to equipment.

Troubleshooting

If the media converter fails, isolate and correct the fault by determining the answers to the following questions and then taking the indicated action:

1. Is the PWR *(power)* LED lit?

   NO

   • Is the power cord properly installed in the media converter and at the external power source?

   • Does the external power source active?

   • Contact Technical Support; see Contact Us below.

   YES

   • Proceed to step 2.

2. Is the CD LNK *(copper link)* LED lit?

   NO

   • Check the copper cables for proper connection and pin assignment.

   • Contact Technical Support; see Contact Us below.

   YES

   • Proceed to step 3.

3. Is the FD LNK *(fiber-pair link)* LED lit?

   NO

   • Check the fiber cables for proper connection.

   • Verify that the TX and RX cables are connected to the RX and TX ports, respectively on the 100Base-FX device.

   • Contact Technical Support; see Contact Us below.

   YES

   • Proceed to step 4.

4. Is the 100 *(twisted-pair speed)* LED lit?

   NO

   • Check the copper cables for proper connection.

   • Off = The media converter has selected 10Mb/s operation.

   • If the speed is not correct, disconnect and reconnect the twisted pair cable to restart the initialization process.

   • Contact Technical Support; see Contact Us below.

   YES

   • On = The media converter has selected 100Mb/s operation.

   • If the speed is not correct, disconnect and reconnect the twisted pair cable to restart the initialization process.

5. Is the Link in the proper position?

NO

- The link may "flap" *(go from "link up" to "link down")* when the link is lost *(if the media converter has the Link Pass-Through function enabled and is in forced 10/100 Mb mode).*

• Contact Tech Support; see Contact Us below.

YES

• Contact Tech Support; see Contact Us below.

Contact Us

Technical Support: Technical support is available 24-hours a day

US and Canada: 1-800-260-1312

International: 00-1-952-941-7600

Main Office

tel: +1.952.941.7600 | toll free: 1.800.526.9267 | fax: 952.941.2322

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Minnetonka, MN 55343, U.S.A.

Web: https://www.transition.com

Compliance Information

Declaration of Conformity

TRANSITION NETWORKS

Declaration of Conformity

Name of Mfg: Transition Networks
10900 Red Circle Drive, Minnetonka MN 55343 U.S.A.

Model Number(s): SBFTF1011-105, SBFTF1013-105, SBFTF1014-105, SBFTF1015-105, SBFTF1016-105, SBFTF1017-105, SBFTF1019-105, SBFTF1035-105, SBFTF1039-105, SBFTF1040-105, SBFTF1029-105, SBFTF1029-106, SBFTF1029-107, SBFTF1029-108

Purpose: To declare that the SBFTF10xx-10x Series Media Converters to which this declaration refers are in compliance with the following directive(s) and standard(s):

EMC Directive 2004/108/EC; EN 55022:2006+A1:2007 Class A; EN55024:1998+A1:2001+A2:2003; EN61000-3-2; EN61000-3-3; CFR Title 47 Part 15 Subpart B Class A; Low Voltage Directive: 2006/95/EC; CFR Title 21 Section 1040.10 Class I

I, the undersigned, hereby declare that the model number(s) listed in this declaration of conformity are in compliance with the directive(s) and standard(s) herein.

Stephen Anderson, Vice-President of Engineering

August, 2011
Date

CE Mark

FCC regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

Canadian regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European regulations

Warning

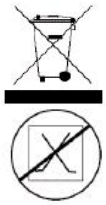
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Achtung !

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fäll is der Benutzer für Gegenmaßnahmen verantwortlich.

Attention !

Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilsateur de prende les measures spécifiques appropriées.



In accordance with European Union Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003, Transition Networks will accept post usage returns of this product for proper disposal. The contact information for this activity can be found in the 'Contact Us' portion of this document.

CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentlickes Telekommunikationsnetz in den EGMitgliedstaaten verstösst gegen die jeweligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

Record of Revisions

Rev	Date	Notes
A	6/5/08	Initial release.
B	12/5/08	Switch positions 2 and 3 swapped: Speed and Duplex. Added part # SBFTF1040-105
C	4/16/09	Switch position FEF and LPT SW5 and SW6 reversed.
D	9/30/09	Added part number SBFTF1029-109. Removed VCCI statement from compliance section.
E	10/14/10	Corrected the link budgets on SBFTF1015, 16, 17-105.
F	8/17/11	Revised Declaration of Conformity.
G	10/14/16	Revised for FW Rev. B. Changed format and specifications.