



## USER'S GUIDE

### SSETF10xx-200

#### Stand-Alone Media Converter

- **Ethernet™ and Fast Ethernet™**
- **10Base-T / 100Base-TX to 10Base-FL / Base-SX**

TRANSITION Networks SSETF10xx-200 series Ethernet™ and Fast Ethernet™ Media Converters connect 10Base-T or 100Base TX shielded or unshielded twisted-pair copper cable to 10Base-FL or 100Base-SX fiber-optic cable.

Part Number	Port One - Copper 10Base-T/100Base-TX	Port Two - Fiber-Optic 10Base-FL/100Base-SX
SSETF1011-200	RJ-45 100 m (328 ft)*	ST, 850 nm multimode 2 km (1.2 mi)* @ 10 Mb/s 300 m (980 ft)* @ 100 Mb/s
SSETF1013-200	RJ-45 100 m (328 ft)*	SC, 850 nm multimode 2 km (1.2 mi)* @ 10 Mb/s 300 m (980 ft)* @ 100 Mb/s

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

#### Optional Accessories (sold separately)

Part Number	Description
E-MCR-03	12-Slot Media Converter Rack (includes universal internal power supply) 17 x 15 x 5 in. (432 x 381 x 127 mm)
WMBP	Optional Wall Mount Brackets Length: 5.0 in (127 mm) Fits converter length: 4.716 in. (120 mm)
SPS-1872-SA	Optional External Power Supply; 18-72VDC Stand-Alone Wide-Input; Output: 12.6VDC, 1.0 A
SPS-1872-PS	Optional External Power Supply; 18-72VDC Piggy-Back Wide-Input; Output: 12.6VDC, 1.0 A

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## Product Features

### Full-Duplex / Half-Duplex

The SSETF10xx-200 receives and transmits network signals in either full-duplex or half-duplex mode (depending upon the network devices to which the Media Converter is attached).

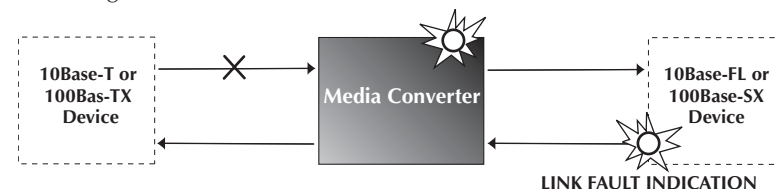
Fast Ethernet™ in **full-duplex** mode allows the maximum cable distances listed on page 1.

Fast Ethernet™ in **half-duplex** mode requires attention to the 512-bit Rule (See page 7).

### LinkAlert

The SSETF10xx-200 series Media Converter **LinkAlert™** feature allows the Media Converter to pass 10Base-T/100Base-TX-side link faults over the link to the 10Base-T/100Base-SX side and to pass 10Base-FL/100Base-SX-side link faults over the link to the 10Base-FL/100Base-TX side.

If the SSETF10xx-200 Media Converter does not detect a good link on the 10Base-T/100Base-TX side, the Media Converter disables all transmission (including active-idle) on the 10Base-FL/100Base-SX side.



### AutoCross\*

The **AutoCross™** feature allows either straight-through (MDI) or crossover (MDI-X) cables to be used when connecting to 10Base-T or to 100Base-TX devices, such as hubs, transceivers, or network interface cards (NICs). AutoCross determines the characteristics of the cable connection and automatically configures the unit to link up, regardless of the cable configuration.

### Auto-Negotiation\*

The SSETF10xx-200 series Media Converter **Auto-Negotiation™** feature allows the Media Converter to be used with 10Base-T, 100Base-TX, 10Base-FL and 100Base-SX ports. Using Auto-Negotiation, the Media Converter brings up the copper and fiber links in the highest speed and mode possible for all the attached network devices.

**NOTE:** The SSETF10xx-200 series Media Converter does NOT support rate conversion between 10Mb/s and 100Mb/s network devices.

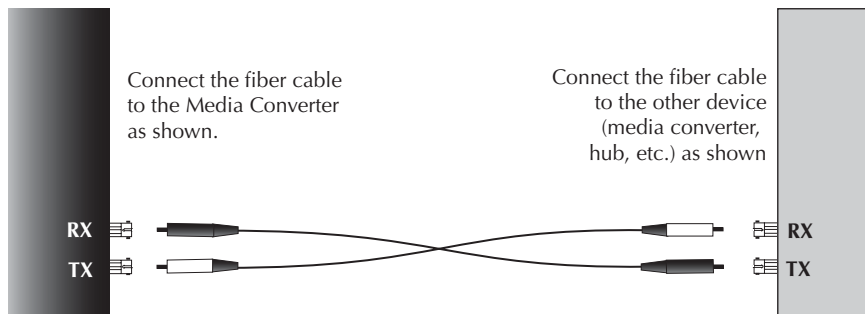
\*Requires no operator intervention.

## INSTALLATION

### Installing the Cable

#### FIBER

1. Locate or build 10Base-FL or 100Base-SX compliant fiber cable with male, two-stranded TX to RX connectors installed at both ends.
2. Connect the fiber cables to SSETF10xx-200 Media Converter 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.



#### COPPER

1. Locate or build 10Base-T or 100Base-TX compliant copper cables with male, 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 SSETF10xx-200 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.).



## INSTALLATION -- Continued

### Power the Media Converter

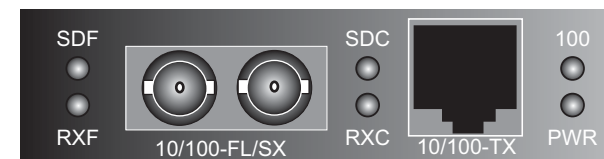
1. Install the power adapter cord to the back of the Media Converter.
2. Connect the power adapter plug to AC power.
3. Verify that the Media Converter is powered by observing the illuminated LED power indicator light.

## OPERATION

### Using Status LEDs

Use the status LEDs to monitor the SSETF10xx-200 Media Converter operation in the network.

<b>100</b>	<i>Speed</i>	Dark LED indicates 10 Mb/s operation. Slow blinking LED indicates speed is not yet selected. Fast blinking LED indicates 100 Mb/s.
<b>PWR</b>	<i>Power</i>	Steady LED indicates connection to the external AC power.
<b>RXF</b>	<i>Fiber Receive</i>	Flashing LED indicates reception of the data on the fiber link.
<b>LKF</b>	<i>Fiber Link</i>	Steady LED indicates fiber link connection. Dark LED indicates a lack of power OR a downed link.
<b>RXC</b>	<i>Copper Receive</i>	Flashing LED indicates data reception on the copper link.
<b>LKC</b>	<i>Copper Link</i>	Steady LED indicates copper link connection. Dark LED indicates a lack of power OR a downed link.



## CABLE SPECIFICATIONS

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

### Fiber Cable

Bit Error Rate:	<10 <sup>-9</sup>
Multimode fiber (recommended):	62.5/125 μm
Multimode fiber (optional):	100/140, 85/140, 50/125 μm
Wavelength:	850 nm multimode
Attenuation:	<3.75 dB/km @ 850 nm

#### SSETF1011-200, SSETF1013-200

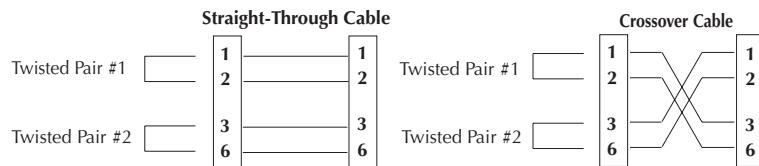
Fiber Transmitter Power:	min: -16.0 dBm	max: -10.0 dBm
Fiber Receiver Sensitivity (10Base-T):	min: -32.5 dBm	max: -7.2 dBm
Fiber Receiver Sensitivity (100Base-TX):	min: -24.0 dBm	max: -7.2 dBm
Link Budget:	13.5 dB	

### Copper Cable

#### Category 5:

Gauge:	24 to 22 AWG
Attenuation:	22.0 dB /100m @ 100 MHz
Maximum Cable Distance:	100 meters

- Straight-Through OR Crossover cable may 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 .
- RJ-45 Pin-out: Pin 1 = TD+, Pin 2 = TD-, Pin 3 = RD+, Pin 6 = RD-
- 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

<b>Standards:</b>	IEEE 802.3™
<b>Data Rate:</b>	10 Mb/s, 100 Mb/s
<b>Dimensions:</b>	3.4" x 0.86" x 5.0" (86 mm x 22 mm x 127 mm)
<b>Weight:</b>	8 oz (227 g) (approximate)
<b>Power Supply DC Output:</b>	12VDC, 500 mA (minimum) minimum output regulation: 5% Connector: 2.1mm barrel, center pin positive
<b>Environment:</b>	Operating Temperature: 0° to 50°C (32° to 122°F) Storage Temperature: -20° to 85°C (-4° to 185°F) Humidity: 10-90%, non condensing Altitude: 0-10,000 feet
<b>Warranty:</b>	Lifetime

## HALF-DUPLEX NETWORK

### 512-Bit Rule

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.

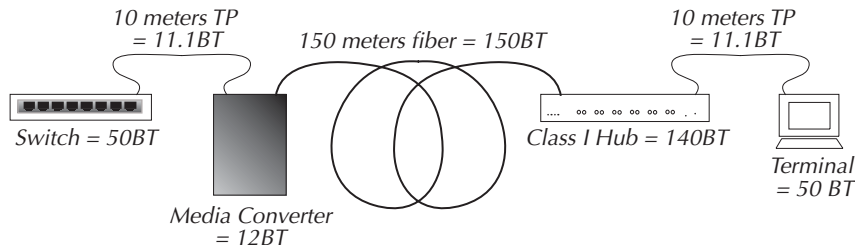
To calculate the round-trip delay for a collision domain:

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.
4. Determine the bit-time values for each device (see table to the right).
3. Add the bit-time values for each length of cable and the bit-times for each device.

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
<b>SSETF10xx-200</b>	<b>12 BT</b>

**NOTE:** The 512-Bit Rule applies separately to each collision domain.

The example below illustrates a collision domain bound by a router on one end and a terminal on the other.



Since the total of the bit-times in this example is less than 512 (see chart below), the path is good.

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

Router	=	50.0 BT
10 m TP cable (10m x 1.11 BT/m)	=	11.1 BT
<b>SSETF101xx-200</b>	=	<b>12.0 BT</b>
150 m fiber cable (150 m x 1.0 BT/m)	=	150.0 BT
Class I hub	=	140.0 BT
10 m TP cable (10m x 1.11 BT/m)	=	11.1 BT
Terminal	=	50.0 BT
<b>Total</b>	=	<b>424.2 BT</b>

## FAULT ISOLATION and CORRECTION

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 P(o)W(e)R LED on the Media Converter illuminated?

**NO**

- Is the power adapter the proper type of voltage and cycle frequency for AC outlet?
- Is the power adapter properly installed in the Media Converter and in the outlet?
- Does the grounded AC outlet provide power?
- Contact Technical Support: US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

**YES**

- Proceed to step 2.

### 2. Is the LKC LED illuminated?

**NO**

- Check the twisted pair cables for proper connection.
- Contact Technical Support: US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

**YES**

- Proceed to step 3.

### 3. Is the LKF LED illuminated?

**NO**

- Check the fiber cables for proper connection.
- Verify that the TX and RX cables on the Media Converter are connected to the RX and TX ports, respectively, on the other device.
- Contact Technical Support: US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

**YES**

- Proceed to step 4.

### 4. Is the 100 LED illuminated?

**NO**

- The Media Converter has selected 10 Mb/s operation. If this is not the correct speed, disconnect and reconnect the 10/100Base-TX cable to restart the initialization process.
- Proceed to step 5.

#### **YES - SLOWLY FLASHING**

- The Media Converter is selecting between 10 Mb/s and 100 Mb/s speed or one or both of the links is down. If persistent, disconnect and reconnect either cable to restart the initialization process.
- Proceed to step 5.

**YES**

- The Media Converter has selected 100 Mb/s operation. If this is not the correct speed, disconnect and reconnect the 10/100Base-TX cable to restart the initialization process.
- Proceed to step 5.

## CONTACT US

### Technical Support

Technical support is available 7:00 AM - 6:00 PM CST (GMT -6:00)

US and Canada: **1-800-260-1312**

International: **00-1-952-941-7600**

### Transition NOW

Chat live via the Web with TRANSITION Networks Technical Support.

Log onto **www.transition.com** and click the **TRANSITION NOW** link.

### Web-Based Seminars

TRANSITION Networks provides seminars via live web-based training.

Log onto **www.transition.com** and click the **Learning Center** link.

### E-Mail

Ask a question anytime by sending an e-mail to our technical support staff.

**techsupport@transition.com**

### Address

TRANSITION Networks

6475 City West Parkway

Minneapolis, MN 55344, USA

telephone: 952-941-7600

toll free: 800-526-9267

fax: 952-941-2322

### 5. Is the RXC LED flashing?

#### NO

- If there is no activity on the 10Base-T/100Base-TX port, proceed to step 6.
- If there is activity on the 10Base-T/100Base-TX port, disconnect and reconnect the 10Base-T/100Base-TX cable to restart the initialization process.
- Restart the workstation to restart the initialization process.
- Contact Technical Support: US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

#### YES

- Proceed to step 6.

### 6. Is the RXF LED flashing?

#### NO

- If there is no activity on the 10Base-FL/100Base-SX port, continue below
- If there is activity on the 10Base-FL/100Base-SX port, disconnect and reconnect the 10Base-FL/100Base-SX cable to restart the initialization process.
- Verify that TX and RX cables on Media Converter are connected to RX and TX ports, respectively, on other device.
- Restart the workstation to restart the initialization process.
- Contact Technical Support: US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

#### YES

- Contact Technical Support: US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

TRANSITION networks		DECLARATION OF CONFORMITY
Name of Mfg:	<b>Transition Networks</b> 6475 City West Parkway, Minneapolis MN 55344 USA	
Model:	<b>SSETF10xx-200 Series Media Converters</b>	
Part Number(s):	<b>SSETF1011-200, SSETF1013-200</b>	
Regulation:	<b>EMC Directive 89/336/EEC</b>	
Purpose:	To declare that the <b>SSETF10xx-200</b> to which this declaration refers is in conformity with the following standards. EN55022:1994; EN 55024:1998; FCCPart 15 Class A & B; EN 60950 A4: 1997; UL 1950	
<i>I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).</i>		
<i>Stephen Anderson</i> Stephen Anderson, Vice-President of Engineering		April 16, 2002 Date

## COMPLIANCE INFORMATION

### UL Listed

C-UL Listed (Canada)

CISPR22/EN55022 Class A & B + EN55024

CE Mark

### FCC Regulations

This equipment has been tested and found to comply with the limits for a Class A & B 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 & B 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 weichen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

#### Attention !

Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.



**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.**

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