

# MEDIA CONVERTER TECHNICAL SPECIFICATIONS

<b>Standards</b>	IEEE 802.3u	
<b>Case dimensions</b>	4.7" x 3.0" x 1.0"	(119mm x 76mm x 25mm)
<b>Environment</b>	Temperature:	0-40°C (32° to 104° F)
	Humidity	10-90%, non condensing
	Altitude	0-10,000 feet
<b>Warranty</b>	Five years	

**Power Supply Requirements** Replace power supply with only the equivalent input rating (see below) and output rating (regulated 12VDC @1.5 A).

<u>TN PN</u>	<u>Requirement</u>	<u>Location</u>
3507	240 volts, 50 hertz	United Kingdom
3342	230 volts, 50 hertz	Europe
3340	120 volts, 60 hertz	USA/Canada/Mexico
3346	100 volts, 50-60 hertz	Japan
3511	240 volts, 50 hertz	Australia
3537	(with power cord: 3522)	South Africa

NOTE: This product also can be powered by the Transition Networks E-MCR series media converter rack.



**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 öffentliches Telekommunikationsnetz in den EG-Mitgliedstaaten verstösst gegen die jeweiligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

## Compliance Information

UL Listed  
C-UL Listed (Canada)  
CISPR/EN55022 Class B

## FCC Regulations

This equipment has been tested and found to comply with the limits for a class 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 B limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications.

## Copyright Restrictions

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## Trademark Notice

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33031.C



Minneapolis, MN 55344 USA

# 100BASE-TX/100BASE-FX Media Converters

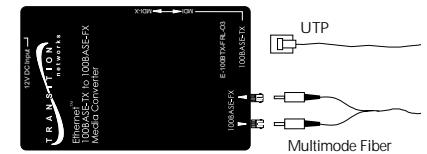
## E-100BTX-FRL-03, E-100BTX-FRL-03(SC), E-100BTX-FRL-03(SM)

# USER'S GUIDE

The TRANSITION Networks Ethernet™ 100BASE-TX to 100BASE-FX media converters connect 100BASE-TX unshielded twisted pair cable to 100BASE-FX *multimode* OR *singlemode* fiber-optic cable. Media converter models are selected according to the fiber mode and fiber connector required at the site. *Multimode* fiber-optic cable can use either an ST connector (E-100BTX-FRL-03) or an SC connector (E-100BTX-FRL-03(SC)). *Singlemode* fiber (E-100BTX-FRL-03(SM)) uses only an SC connector. All media converters function in half-duplex mode or, when connected to devices capable of full-duplex connectivity, in full-duplex mode. An MDI/MDI-X switch allows *straight-through* twisted-pair cable to be used for *crossover* 100BASE-TX connections.

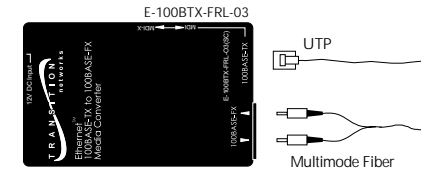
### E-100BTX-FRL-03

Provides an RJ-45 twisted pair 100BASE-TX connector and a set of RX (receive) and TX (transmit) ST 100BASE-FX connectors to *multimode* fiber-optic cable.



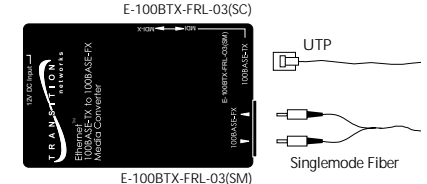
### E-100BTX-FRL-03(SC)

Provides an RJ-45 twisted pair 100BASE-TX connector and an RX (receive) and TX (transmit) SC 100BASE-FX connector to *multimode* fiber-optic cable.



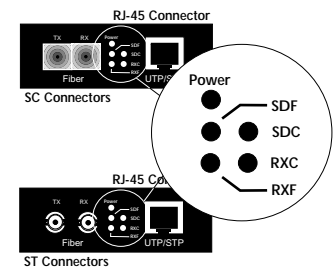
### E-100BTX-FRL-03(SM)

Provides an RJ-45 twisted pair 100BASE-TX connector and an RX (receive) and TX (transmit) SC 100BASE-FX connector to *singlemode* fiber-optic cable.



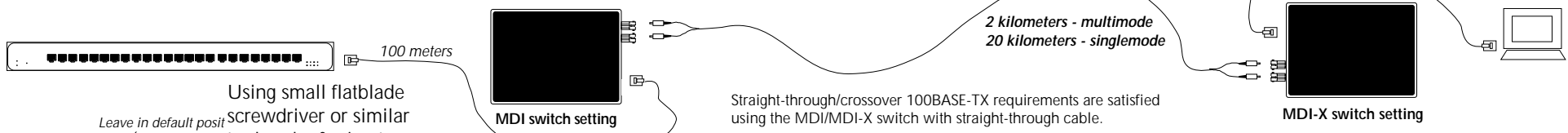
Status LEDs on the connector side of the media converters provide the following information:

- Power** Illuminated green LED indicates connection to external AC power.
- SDF** Signal Detect/Fiber: Steady green LED indicates fiber port is connected to device.
- SDC** Signal Detect/Copper: Steady green LED indicates RJ-45 port is connected to device.
- RXC** Receive/Copper: Flashing green LED indicates packets are seen on RJ-45 port.
- RXF** Receive/Fiber: Flashing green LED indicates packets are seen on fiber port.



# Straight Through/Crossover Cable Requirements and Pin Specifications

E-100BTX-FRL-03, E-100BTX-FRL-03(SC), E-100BTX-FRL-03(SM)



Using small flatblade screwdriver or similar tool and referring to label at front of media converter, set MDI/MDI-X switch position for site installation.

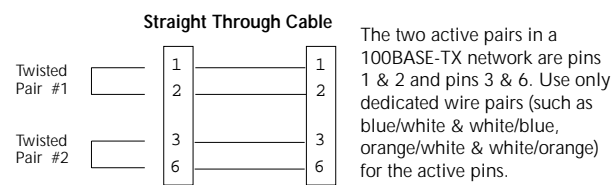
Leave in default position  
← toward network

**100BASE-TX cable connections between a hub and the media converter require the MDI/MDI-X switch to be set to MDI.**

**100BASE-TX cable connections between the media converter and a terminal, transceiver or NIC require the switch to be set to MDI-X.**

Straight-through/crossover 100BASE-TX requirements are satisfied using the MDI/MDI-X switch with straight-through cable.

## 100BASE-TX Cable



## Installation Notes

- **DO NOT CONNECT MEDIA CONVERTERS BETWEEN HUBS.**
- **When connecting to 10Mb/s-100Mb/s device, MANUALLY SET 10Mb/s-100Mb/s SWITCH to 100Mb/s.**
- **KEEP TWISTED PAIR RUNS AS SHORT AS POSSIBLE.**
- **Be certain that the 100BASE-TX MDI/MDI-X switch is set correctly for site installation.**
- Connect the power supply cable to the media converter BEFORE connecting to the outlet.
- Install unit with PSU provided. (Output 12 VDC regulated, 350 mA).
- Install no more than two (2) media converters in series.

## Troubleshooting the Media Converter

1. Is the power LED on the media converter illuminated?
  - NO**
    - Is the power adapter the proper type of voltage and cycle frequency for your AC outlet?  
NOTE: Refer to the "Power Supply Requirements" on the back page.
    - Is the power adapter properly installed in the media converter and in the outlet?
    - Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.
  - YES**
    - Proceed to step 2.
2. Is the 100BASE-TX Link LED illuminated?
  - NO**
    - Check UTP cables for proper connection and pin assignment. (See above.)
    - Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.
  - YES**
    - Proceed to step 3.
3. Is the fiber Link LED illuminated?
  - NO**
    - Check fiber cables for proper connection.
    - Verify that TX and RX cables on media converter are connected to RX and TX ports, respectively, on the other 100BASE-FX device.
    - Refer to Tech Tips available at: <http://www.transition.com>
    - Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.
  - YES**
    - Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.

## ETHERNET CABLE SPECIFICATIONS

The physical characteristics of the media cable must meet or exceed IEEE 802.3u 100BASE-TX and 100BASE-FX specifications.

### 100BASE-TX CABLE SPECIFICATIONS

Category 5 wire or better is required. Either shielded twisted pair (STP) or unshielded twisted pair (UTP) can be used. **DO NOT USE FLAT OR SILVER SATIN WIRE.**

#### CATEGORY 5:

Gauge	24 to 22 AWG
Attenuation	20 dB/1000' @ 10 MHz
Impedance	100 Ω ±10% @ 10 MHz
Maximum Cable Distance:	100 meters (330 feet)

### 100BASE-FX CABLE SPECIFICATIONS

#### SINGLEMODE

Fiber-optic Cable Recommended:	9 μm singlemode fiber
Fiber-optic Transmitter Power:	min: -15.0 dBm    max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -32.5 dBm    max: -8.0 dBm
Wavelength:	1300nm
Bit error rate:	≤10 <sup>-9</sup>
Maximum Cable Distance:	20 kilometers

#### MULTIMODE

Fiber-optic Cable Recommended:	62.5 / 125 μm multimode fiber
Optional:	100 / 140 μm multimode fiber 85 / 125 μm multimode fiber 50 / 125 μm multimode fiber

Fiber-optic Transmitter Power:	min: -19.0 dBm    max: -14.0 dBm
Fiber-optic Receiver Sensitivity:	min: -32.5 dBm    max: -14.0 dBm
Wavelength:	1300nm
Bit error rate:	≤10 <sup>-9</sup>
Maximum Cable Distance:	2 kilometers