TRANSITION NETWORKS

J/POE-CF-01 User's Guide

- **Stand-Alone Media Converter**
- **Power Over Ethernet (POE)**
- **10/100Base-TX to 100Base-FX**

The J/POE-CF-01 Power over Ethernet (POE) is a two port 10/100Base-TX to 100Base-FX media converter capable of providing power to Data Terminal Equipment (DTE) Power Devices (PD) via the Media Dependent Interface (MDI) twisted pair cable. The J/POE-CF-01 emulates Power Sourcing Equipment (PSE) and provides power via the 10/100Base-TX interface for a remote PD device that complies with the IEEE802.3af™ standard.

Part Number	Port One - *Copper* 10/100Base-TX	Port Two - Duplex Fiber-Optic 100Base-FX
J/POE-CF-01	RJ-45 100 m *(328 ft.)**	ST, 1300 nm multimode 2 km *(1.2 miles)*
J/POE-CF-01 (SC)	RJ-45 100 m *(328 ft.)**	SC, 1300 nm multimode 2 km *(1.2 miles)*
J/POE-CF-01 (SM)	RJ-45 100 m *(328 ft.)**	SC, 1310 nm single mode 20 km *(12.4 miles)*

*Cable distances are the typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network installation.

Optional Accessories *(sold separately)*

Part Number	Description
WMBL	Wall Mount Brackets Length: 4.0 in. *(102 mm)*, Fits converter length: 4.7 in. *(119 mm)*
WMBD	DIN Rail Mount Bracket; Length: 5.0 in. *(127 mm)*
WMBV	Vertical Wall Mount Plate; Length: 5.0 in. *(127 mm)*

Installation

CAUTION: All installation and service must be performed by qualified service personnel. Read and follow all warning notices and instructions marked on the product or included in the manual.

Product features

AutoCross *(always enabled)*

The AutoCross™ feature allows either straight-through (MDI) or crossover (MDI-X) cables to be used when connecting to 100Base-TX devices, such as wireless access point, VoIP phone, network camera, etc. AutoCross determines the characteristics of the cable connection and automatically configures the unit to link up, regardless of the cable configuration devices.

Automatic Link Restoration *(always enabled)*

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

- Without a device reset, the converters will automatically re-establish the link when connected to switches after a link loss.
- With Auto-Negotiation enabled, automatic link restoration allows using Auto-Negotiation with Link Loss Notification.
- With Link Pass-Through enabled in both directions, automatic link restoration allows using Link Loss Notification in both directions.

Auto-Negotiation *(always enabled)*

The Auto-Negotiation feature allows the media converter to bring up the copper links to the highest speed and mode possible for all the attached network devices.

Installation -- continued

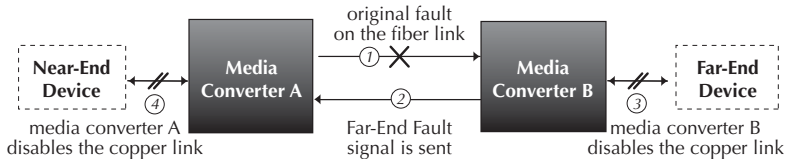
Product features -- continued

Far-End Fault *(always enabled)*

A troubleshooting feature generally used in conjunction with Link Pass Through to notify both end devices of a link loss. If the fiber RX signal is lost 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 the 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 are notified automatically of the link loss
- Prevents loss of valuable data transmitted unknowingly over invalid link
- Allows quick diagnosis and resolution of network problem

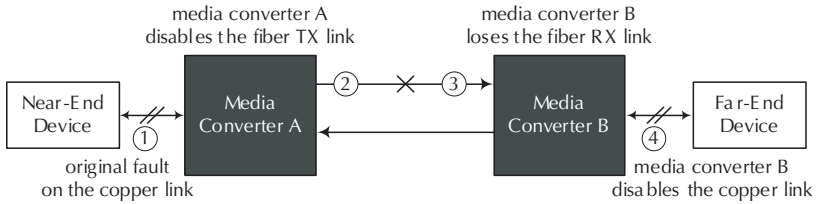
Transition Networks' media converters that include the FEF feature will work with other network devices that support Far End Fault per IEEE standards.



Link Pass-Through *(always enabled)*

The Link Pass-Through 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 on one media port, the media converter will automatically disable the TX (*transmit)* signal of the other media port, thus, "passing through" the link loss.

The far-end device is automatically notified of the link loss, which prevents the loss of valuable data unknowingly transmitted over an invalid link. See diagram below.

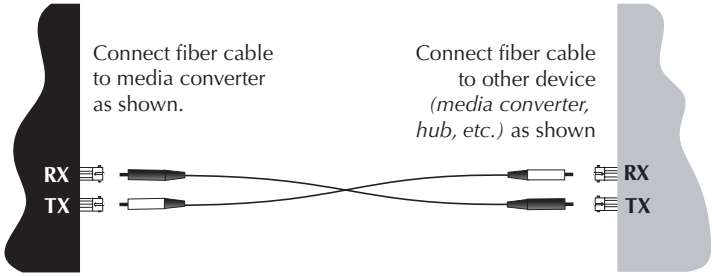


Installation -- continued

CAUTION: Associated Ethernet wiring shall be limited to inside the building.

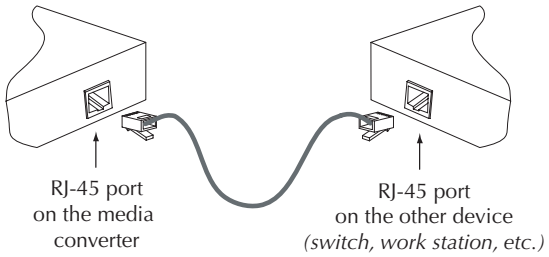
Install the fiber cable

1. Locate or build 100Base-FX fiber cable with male, two-stranded TX to RX connectors installed at both ends. See Figure below.
2. Connect the fiber cables to the SFEPE10xx-1xx 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.



Install the copper cable

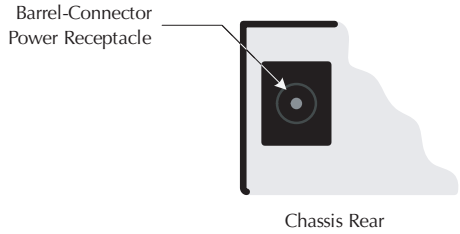
1. Locate or build 100Base-TX copper cables with male, RJ-45 connectors installed at both ends. See Figure below.
2. Connect the RJ-45 connector at one end of the cable to the RJ-45 port on the media converter.
3. Connect the RJ-45 connector at the other end of the cable to the RJ-45 port on the other device *(wireless access point, VoIP phone, network camera, etc.)*.



Installation -- continued

Connecting power

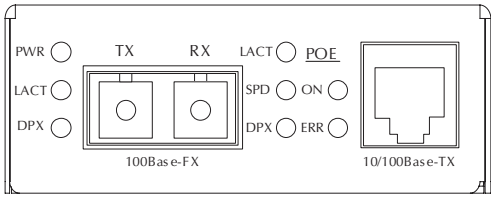
1. Connect the barrel connector, on the external power adapter, to the power port on the converter *(on the back of the converter)*.
2. Connect the power adapter plug to AC power .
3. Verify that the converter is powered by observing the illuminated LED power indicator LED on the front panel



Operation

Status LEDs

The J/POE-CF-01 media converter front panel is shown below.



LED	Description
PWR	Green: Power ON
Fiber LACT	Green: ON = Link, Blinking = activity
Fiber DPX	Green: ON = Full, OFF = Half, Blinking = collision
TP* LACT	Green: ON = Link, Blinking = activity
TP SPD	Green: ON = 100Mb/s, OFF = 10Mb/s
TP DPX	Green: ON = Full, OFF = Half, Blinking = collision
TP ON (PSE)	Green: ON = Enabled, OFF = Disable
TP ERR (PSE)	Yellow: OFF = no problems detected Faults: • Yellow: ON solid = main power is over or under voltage • Blink: 1 times per sec - no signature detected • Blink: 2 times per sec - overload while applying power • Blink: 3 times per sec - short circuit detected • Blink: 4 times per sec - multiple problems detected ** TP means twisted pair*

Cable Specifications

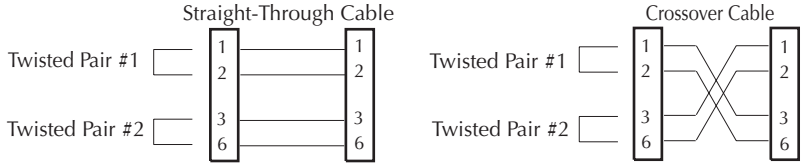
The physical characteristics must meet or exceed IEEE 802.3™ specifications.

Copper cable

Category 5: *(Minimum Requirement)*

Gauge	24 to 22 AWG
Attenuation	22.0 dB /100m @ 100 MHz

- Straight-through OR crossover twisted-pair 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.



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	
J/POE-CF-01	1300 nm 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	
J/POE-CF-01 (SC)	1300 nm 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	
J/POE-CF-01 (SM)	1310 nm 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	

The fiber optic transmitters on this device meet Class I Laser safety requirements per IEC-825/CDRH standards and comply with 21 CFR1040.10 and 21CFR1040.11.

Technical Specifications

For use with Transition Networks Model J/POE-CF-01or equivalent

Standards	IEEE 802.3™, IEEE 802.3af	
Data Rate	10/100 Mb/s	
Packet Size *(Max)*	1522 bytes	
Mac Address	2K	
Dimensions	3.25" x 1" x 4.8" *(82 mm x 25.4mm x 120mm)*	
Weight	0.8 lbs. *(362 g)* approximately	
Power Consumption	20 watts *(maximum)*	
Power Supply	48VDC, 0.67A external wall-mount adapter	
Output Voltage	0.35A @ 48VDC, 16.8W	
Environment	Tmra*:	0 to 40°C *(32 to 104°F)*
	Storage Temp:	-25 to 85°C *(-13 to 185°F)*
	Humidity:	5 to 95%, non-condensing
	Altitude:	0 to 10,000 feet
MTBF	49,981 MIL217F2 Hours 132,144 Bellcore Hours	
Warranty	Lifetime	

*Manufacturer's rated ambient temperature.

Note: The information in this user's guide is subject to change. For the most up-to-date information on the J/POE-CF-01 media converter, view the user's guide on-line at: www.transition.com.

Product is certified by the manufacturer to comply with DHHS Rule 21/CFR, Subchapter J applicable at the date of manufacture.

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.

WARNING: If the media converter is an IEEE802.3-2005 Powered Device (PD) capable of receiving power via the Media Dependent Interface (MDI) leads, the power source, connector, and cabling attached to the barrel power connector must meet the isolation requirement specified in IEEE802.3-2005. Failure to observe this warning could result in an electrical shock.

Technical Specifications -- continued

IMPORTANT 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 intra-building (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.

MTBF is estimated using the predictability method. This method is based on MIL-217F at 25°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.

Troubleshooting

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

1. Is the media converter power LED ON?
   NO:
   - Is the barrel connector fully inserted into the media converter?
   - Is the adapter plugged into an AC outlet; if not, plug it into the outlet.
   - Is the AC outlet active; if not, check the outlet's circuit beaker?
   - Contact Technical Support: 1.800.466.4526, then press "2."

   YES
   - Proceed to step 2.

2. Is the POE LED ON?
   NO
   - Is there an active *(connected to anther device)* RJ-45 cable inserted into the media converter's TX port; if not, insert the cable accordingly.
     Is the power turned ON to the other device?
   - Contact Technical Support: 1.800.466.4526, then press "2."

   YES
   - Go to step 3.

Troubleshooting -- continued

3. Is the TX LACT LED ON

NO

- Check the twisted pair cables for proper installation in the device at both ends.
- Disconnect and reconnect the twisted pair cable to restart the initialization process.
- Restart the attached device to restart the initialization process..
- Contact Tech Support: 1-800-260-1312.

YES

- Go to step 4.

4. Is the FL LINK LED ON?

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.
- Disconnect and reconnect the fiber cable to restart the initialization process.
- Restart the attached device to restart the initialization process.
- Contact Tech Support: 1-800-260-1312.

YES

- Proceed to step 5.

5. Is data being passed through the device?

NO

- Ensure the Powered Device (PD) IEEE 802.3af compliant.
- Ensure the load to the Powered Device (PD) is less than 0.4 amps.
- Is a data source connected; if not, connect a data source to the media converter.
- Is the data source active; if not, start sending data source.
- Are the FX and TX LACT LEDs flashing?
- Contact Technical Support: 1.800.466.4526, then press "2."

YES

- Contact Technical Support: 1.800.466.4526, then press "2."

Contact Us

Technical support

Technical support is available 24 hours a day.
U.S.A. 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, U.S.A.
telephone: 952-941-7600
toll free: 800-526-9267
fax: 952-941-2322

Declaration of Conformity

Name of Mfg:	Transition Networks 6475 City West Parkway, Minneapolis MN 55344 U.S.A.
Model:	J/POE-CF-01 Series Media Converters
Part Number(s):	J/POE-CF-01, J/POE-CF-01(SC), J/POE-CF-01(SM)
Regulation:	EMC Directive 89/336/EEC

Purpose: To declare that the J/POE-CF-01 to which this declaration refers is in conformity with the following standards.

CISPR22:1993; EN55022:1994+A1:1995+A2:1997 Class A; FCC Part 15 Subpart B; UL1950; 21 CFR Subpart J

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Stephen Anderson, Vice-President of Engineering — April 17, 2006 (Date)

Compliance Information

CISPR22/EN55022 Class A
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 ist 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 EG-Mitgliedstaaten 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.

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