

# MEDIA CONVERTER TECHNICAL SPECIFICATIONS

Host Connection	IBM® 317x or 327x Cluster Controller	
Case dimensions	4.75" x 3.0" x 1.0" (119mm x 76mm x 25mm)	
Shipping Weight	2 pounds (0.9 kilograms)	
Environment	Temperature:	0-50°C (32-122°F)
	Humidity	10-90%, non condensing
	Altitude	0-10,000 feet
Warranty	Five years	

**Power Supply Requirements** Replace power supply with only the equivalent input rating (see below) and output rating (regulated 9VDC at 0.5 A).

TN PN	Requirement	Location
3525	240 volts, 50 hertz	United Kingdom
3525	230 volts, 50 hertz	Europe
3518	120 volts, 60 hertz	USA/Canada/Mexico
3514	100 volts, 50-60 hertz	Japan
3525	240 volts, 50 hertz	Australia

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 A

## 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.

## 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.

## Copyright Restrictions

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Minneapolis, MN 55344 USA

# 3270 Copper/Fiber Media Converter

B-CF-01, B-CF-01(SC), B-CF-01(SM)

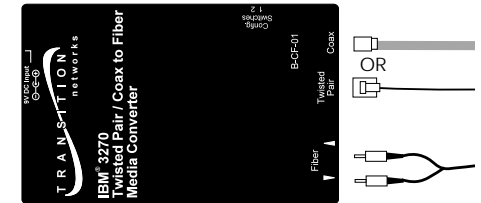
## USER'S GUIDE

The TRANSITION Networks 3270 Twisted Pair/Coax (Copper) to Fiber B-CF-01series media converters, designed to support all IBM® 3270 compliant devices, extends the signal distance of a 317x or 327x Cluster Controller to terminal links.

B-CF-01 series media converters allow twisted-pair copper network extension distances up to 1524 meters (762 meters each connection on two media converters) OR coax copper network extension distances up to 614 meters (307 meters each connection on two media converters) AND fiber network extension distances up to 2 kilometers on multimode fiber and up to 8 kilometers on singlemode fiber.\*

### B-CF-01

Provides an RJ-45 twisted-pair connector to copper cable, a BNC connector to coaxial cable, and a set of RX (receive) and TX (transmit) ST connectors to multimode fiber-optic cable.



### B-CF-01(SC)

Provides an RJ-45 twisted-pair connector to copper cable, a BNC connector to coaxial cable, and an RX (receive) and TX (transmit) SC connector to multimode fiber-optic cable.

### B-CF-01(SM)

Provides an RJ-45 twisted-pair connector to copper cable, a BNC connector to coaxial cable, and an RX (receive) and TX (transmit) SC connector to singlemode fiber-optic cable.

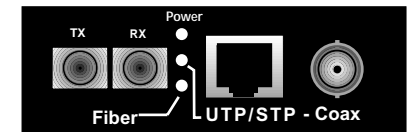
## STATUS LEDs

**Power** Steady green LED indicates connection to external AC power.

**UTP/STP - Coax** Blinking green LED indicates network traffic on unshielded or shielded twisted-pair link OR on the coaxial cable.

**Fiber** Blinking green LED indicates network traffic on fiber link.

\*See note at top of pages 4 & 5.



# Installation NOTES

**All cable connections to the B-CF-01 MUST be AT LEAST 1.8 meters (6 feet) in length.**

To install the B-CF-01 series media converter:

1. Connect host signal to B-CF-01 media converter.

NOTE: Set the configuration switch (located on the side of the media converter) according to site requirements, using the following:

Switch 1	NOT USED
Switch 2	UP = Twisted Pair DOWN = Coax

**Twisted-pair:**

- Locate or build twisted-pair cables (See specifications, page 7) with male RJ-45 plug connectors at both cable ends.

NOTE: Install TRANSITION Networks balun part number: **B-4554** between RJ-45 cable and coax connector.

- Install balun at host coax connector.
- Connect male RJ-45 plug connector at one end of twisted pair cable to balun on host coax connector.
- Connect male RJ-45 plug connector at other end of cable to female RJ-45 connector on B-CF-01 media converter.

**Coax:**

- Locate or build coaxial RG-62 cables (See specifications, page 7) with male BNC connectors at both ends.
- Install one end of cable to female BNC connector on host.
- Install other end of cable to female BNC connector on media converter.

2. Connect B-CF-01 media converter *near host* to B-CF-01 media converter *near terminal device*.

- Locate or build fiber cable that conforms to cable specifications (See page 7) with male fiber connectors at both ends.
- Connect one end of *first* fiber cable to B-CF-01 media converter **TX** connector.

# CABLE SPECIFICATIONS

The physical characteristics of the cable must meet or exceed the following:

## FIBER CABLE

### MULTIMODE

Fiber Optic Cable Recommended:	62.5 / 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:	850nm	
Bit error rate:	≤10 <sup>-9</sup>	
Maximum Cable Distance:	2 kilometers	

### SINGLEMODE

Fiber Optic Cable Recommended:	9 μm singlemode fiber	
Fiber Optic Transmitter Power:	min: -27.0 dBm	max: -17.0 dBm
Fiber Optic Receiver Sensitivity:	min: -32.5 dBm	max: -13.0 dBm
Wavelength:	1300nm	
Bit error rate:	≤10 <sup>-9</sup>	
Maximum Cable Distance:	8 kilometers	

## TWISTED PAIR CABLE AND CONNECTOR

Category 3 wire or better is required; category 5 wire is recommended. Either shielded twisted pair (STP) or unshielded twisted pair (UTP) can be used. **DO NOT USE FLAT OR SILVER SATIN WIRE.**

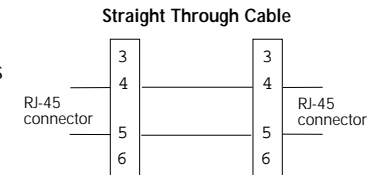
### Category 3:

Gauge	24 to 22 AWG
Attenuation	28 dB/1000' @ 10 MHz
Differential Characteristic Impedance	100 Ω ±10% @ 10 MHz

### Category 5:

Gauge	24 to 22 AWG
Attenuation	20 dB/1000' @ 10 MHz
Differential Characteristic Impedance	100 Ω ±10% @ 10 MHz
Minimum UTP/STP Cable Distance:	1.8 meters (6 feet)
Maximum UTP/STP Cable Distance:	762 meters (2500 feet)

NOTE: The active pair in a twisted-pair copper 3270-compliant network are pins 4 & 5. Use only dedicated wire pairs (such as blue/white & white/blue, orange/white & white/orange) for the active pins.



## RG-62 Cable

### Cable Characteristics:

Cable type:	Coaxial RG-62
Impedance:	93 Ω @ 10 MHz
Mutual Capacitance:	13 pF/ft ±20% @ 10 MHz
Maximum Cable Distance:	307 meters (1000 feet)
Minimum Distance/Connection:	1.8 meters (6 feet)

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## TROUBLESHOOTING SUGGESTIONS

If a Media Converter fails, ask the following questions:

1. Is the **Power** LED on the media converter illuminated?

**NO**

- Is the power adapter the proper voltage and cycle frequency for the 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: (800) 260-1312/(800) LAN-WANS.

**YES**

- Proceed to step 2.

2. Is the **UTP/STP - Coax** LED illuminated?

**NO**

*Twisted-pair*

- Check twisted-pair cables for proper connection.
- Check RJ-45 connector for correct twisted-pair cable configuration.
- Check configuration switch for correct (twisted-pair) setting .
- Contact Technical Support: (800) 260-1312/(800) LAN-WANS.

*Coax*

- Check coax cables for proper connection.
- Check configuration switch for correct (coax) setting .
- Contact Technical Support: (800) 260-1312/(800) LAN-WANS.

**YES**

- Proceed to step 3.

3. Is the **Fiber** 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 other device.
- Contact Technical Support: (800) 260-1312/(800) LAN-WANS.

**YES**

- Contact Technical Support: (800) 260-1312/(800) LAN-WANS.

**B-CF-01**

- Connect other end of *that* fiber cable to *second* B-CF-01 media converter **RX** connector.
  - Connect one end of *second* fiber cable to B-CF-01 media converter **RX** connector.
  - Connect other end of *that* fiber cable to B-CF-01 media converter **TX** connector.
3. Connect B-CF-01 media converter *near terminal device* to terminal device.

**Twisted-pair:**

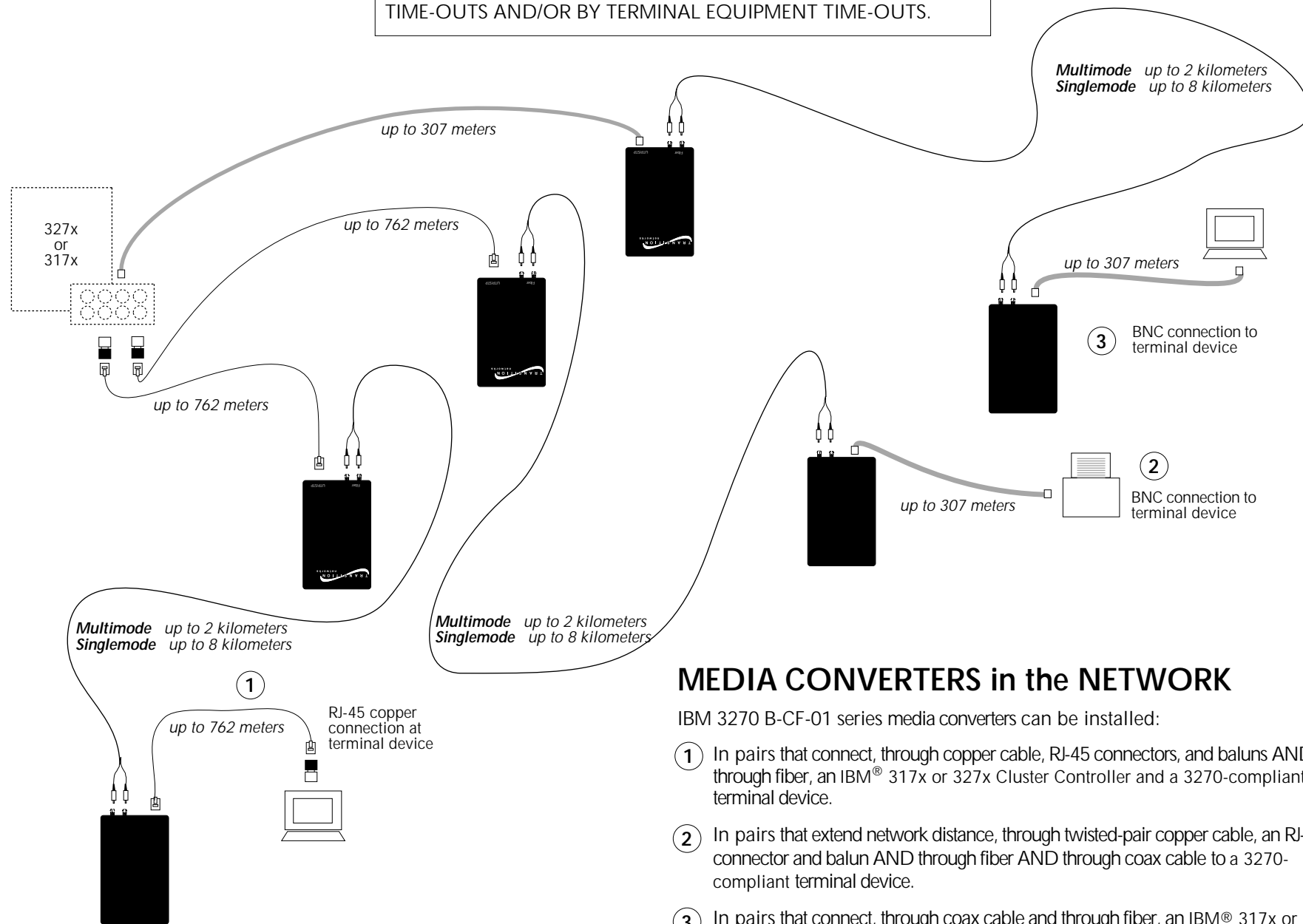
NOTE: Install TRANSITION Networks balun part number: **B-4554** between RJ-45 cable and terminal device coax connector.

- Install balun at terminal device coax connector.
- Connect male RJ-45 plug connector on one end of cable to female RJ-45 connector marked "UTP/STP" on media converter.
- Connect male RJ-45 plug connector at other end of cable to balun on terminal device.

**Coaxial:**

- Connect male coax connector on one end of cable to female connector marked "Coax" on media converter.
  - Connect male coax connector at other end of cable to female coax connector on terminal device.
4. Connect B-CF-01 media converter(s) to power.
- Locate correct power supply adapter for site installation. (See back page.)
  - Connect media converter power connector at end of power supply adapter cord to B-CF-01 media converter power receptacle.
  - Connect 2-prong or 3-prong external power connector on other end of power supply adapter cord to external AC power.

NOTE: DEVICES INSTALLED AT MAXIMUM DISTANCES MAY NOT FUNCTION RELIABLY DUE TO LIMITATIONS IMPOSED BY HOST TIME-OUTS AND/OR BY TERMINAL EQUIPMENT TIME-OUTS.



## MEDIA CONVERTERS in the NETWORK

IBM 3270 B-CF-01 series media converters can be installed:

- ① In pairs that connect, through copper cable, RJ-45 connectors, and baluns AND through fiber, an IBM® 317x or 327x Cluster Controller and a 3270-compliant terminal device.
- ② In pairs that extend network distance, through twisted-pair copper cable, an RJ-45 connector and balun AND through fiber AND through coax cable to a 3270-compliant terminal device.
- ③ In pairs that connect, through coax cable and through fiber, an IBM® 317x or 327x Cluster Controller and a 3270-compliant terminal device.