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.

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 werantwortlich ist.

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

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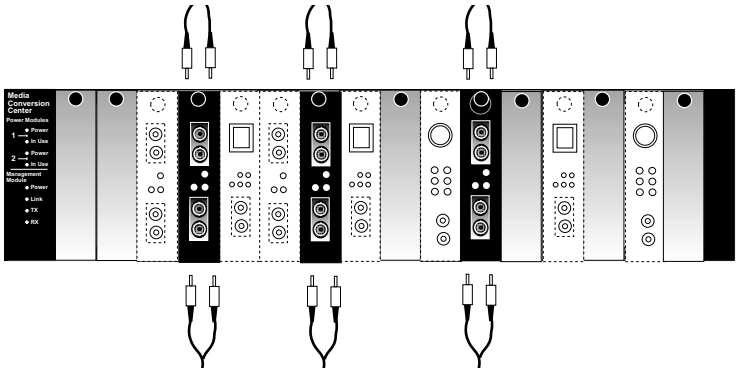
TRANSITION networks

850nm/1300nm Gigabit Fiber

Slide-In-Module Media Converters

C/F-SM-MM-04, C/F-SM-MM-04(LH), C/F-SM-MM-04(LW)

USER'S GUIDE



TRANSITION Networks C/F-SM-MM-04 series media converters, designed to be installed in the TRANSITION Networks E-MCC-1600 Media Converter Chassis, connect 850nm(SX) and 1300nm(LX) fiber in the full-duplex or half-duplex gigabit (1000Mb/s) Ethernet™ environment.

C/F-SM-MM-04

Provides an RX (receive) and TX (transmit) ***SC*** *connector to* ***850 nm multimode*** *fiber-optic cable and an RX (receive) and TX (transmit)* ***SC*** *connector to* ***1300 nm singlemode or 1300 nm multimode*** *fiber-optic cable*

C/F-SM-MM-04(LW) *(long wave)*

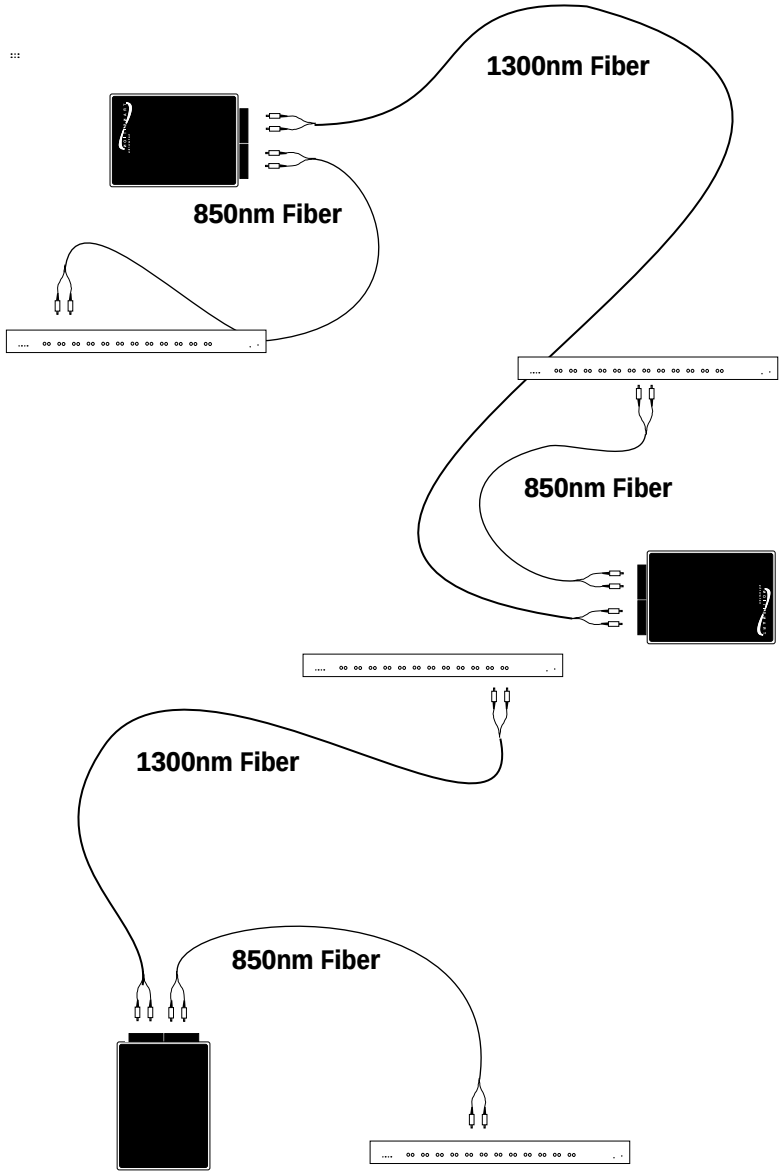
Provides an RX (receive) and TX (transmit) ***SC*** *connector to* ***850 nm multimode*** *fiber-optic cable and an RX (receive) and TX (transmit)* ***SC*** *connector to* ***1550 nm singlemode*** *fiber-optic cable*

C/F-SM-MM-04(LH) *(long haul)*

Provides an RX (receive) and TX (transmit) ***SC*** *connector to* ***850 nm multimode*** *fiber-optic cable and an RX (receive) and TX (transmit)* ***SC*** *connector to* ***1310 nm singlemode*** *fiber-optic cable*

NOTE: In conformance with the IEEE 802.3z standard, the 1300nm singlemode fiber-optic connector also can be used with 1300nm multimode fiber-optic cable.

C/F-SM-MM-04 IN THE NETWORK



NOTE: This product is NOT a repeater. Therefore, maximum distances depend on specific characteristics of the installation. The full distances of BOTH singlemode and multimode fiber MAY NOT be supported *in the same installation*.

TECHNICAL SPECIFICATIONS

Standards	IEEE 802.3u	
Case Dimensions	4.75" x 3.0" x 1.0"	(119mm x 76mm x 25mm)
Shipping Weight	3 pounds	(1.4 kilograms)
Environment	Temperature:	0-40°C (32° to 104° F)
	Humidity	10-90%, non condensing
	Altitude	0-10,000 feet
Warranty	Lifetime	

TRANSITION networks

DECLARATION OF CONFORMITY

Name of Mfg: **Transition Networks**
6475 City West Parkway, Minneapolis MN 55344 USA

Model: **C/F-SM-MM-04 Series Media Converters**

Part Number(s): **C/F-SM-MM-04, C/F-SM-MM-04(LH), C/F-SM-MM-04(LW)**

Regulation: **EMC Directive 89/336/EEC**

Purpose: To declare that the ***C/F-SM-MM-04*** to which this declaration refers is in conformity with the following standards.

EMC-CISPR 22: 1985 Class A; EN 55022: 1988 Class A; EN 50082-1:1992; EN 60950 A4:1997; IEC 801.2, IEC 801.3, and IEC 801.4; IEC 950

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

January 1, 1997
Date

CABLE SPECIFICATIONS

The physical characteristics of the media cable must meet or exceed IEEE 802.3 specifications.

Gigabit Fiber Specifications

Bit error rate:	$\leq 10^{-12}$

1300 NANOMETER (LX)

Fiber Optic Cable Recommended:	9 µm singlemode fiber	
Fiber Optic Cable Recommended:	62.5 / 125 µm multimode fiber	
Optional:	50 / 125 µm multimode fiber	
C/F-SM-MM-04		
Wavelength	1300 nm	
Fiber-optic Transmitter Power:	min: -13.0 dBm	max: -3.0 dBm
Fiber-optic Receiver Sensitivity:	min: -20.0 dBm	max: -3.0 dBm
(singlemode)		
Minimum* Cable Distance:	2 meters	
Typical Maximum* Cable Distance:	10 kilometers	
(multimode)		
Minimum* Cable Distance:	2 meters	
Typical Maximum* Cable Distance:	550 meters**	
C/F-SM-MM-04(LH) *(long haul)*	*(singlemode)*	
Wavelength	1310 nm	
Fiber-optic Transmitter Power:	min: -5.0 dBm	max: -0.0 dBm
Fiber-optic Receiver Sensitivity:	min: -20.0 dBm	max: -3.0 dBm
Optical Budget	15.0 dB	
Spectral Width	5.9 nm FWHM	
Minimum Attenuation	3 dB	
Typical Maximum* Cable Distance:	27 kilometers	
C/F-SM-MM-04(LW) *(long wave)*	*(singlemode)*	
Wavelength	1550 nm	
Fiber-optic Transmitter Power:	min: -3.0 dBm	max: -2.0 dBm
Fiber-optic Receiver Sensitivity:	min: -23.0 dBm	max: -3.0 dBm
Optical Budget	20.0 dB	
Spectral Width	2.3 nm FWHM	
Minimum Attenuation	5 dB	
Typical Maximum* Cable Distance:	27 kilometers	

850 NANOMETER (SX)

Fiber Optic Cable Recommended:	62.5 / 125 µm multimode fiber	
Optional:	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
Minimum Cable Distance :	2 meters	
Typical Maximum* Cable Distance:	220 meters for 160/500MHz•Km 270 meters for 200/500MHz•Km	

*Actual distance dependent upon physical characteristics of network installation.

**Patchcord per IEEE 802.3 1998 edition specification may be required for 1300nm multimode cable.

INSTALLATION

Install Slide-In-Module in E-MCC-1600 Chassis

- Remove Media Converter Slide-in-Module protective plate from selected installation slot by removing two (2) screw that secures plate to front of E-MCC-1600.
- Carefully slide Media Converter Slide-in-Module into installation slot, aligning Media Converter Slide-in-Module with installation guides. NOTE: Ensure that the Media Converter Slide-in-Module is firmly seated against backplane.
- Secure Slide-in-Module by installing panel fastener screw attached to Slide-in-Module.

Install Cable

NOTE: Be sure to connect correct speed fiber cable at each connector.

- Locate or build 802.3 compliant fiber cable with male two-stranded TX to RX connectors ***appropriate to the media converter*** installed at both ends.
- Connect male **TX** and **RX** cable connectors at one end of cable to **TX** and **RX** female connectors, respectively, on media converter.
- Connect male **TX** and **RX** cable connectors at other end of cable to **RX** and **TX** connectors of 802.3 compliant fiber device.

OPERATION

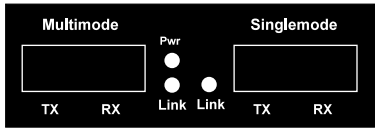
After installation, the media converter should function without operator intervention.

Status LEDs

Use the status LEDs to monitor media converter operation in the network.

P(o)w(e)r Illuminated green LED indicates connection to external AC power.

Link Steady green LED indicates that fiber link is connected properly.



FAULT ISOLATION and CORRECTION

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

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 multimode 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 device.
- Power-cycle the media converter.
- Refer to Tech Tips available at: http://www.transition.com
- Contact Technical Support at (800) 260-1312/ (800) LAN-WANS.

YES

- Proceed to step 3.

3. Is the singlemode 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 device.
- Power-cycle the media converter.
- Refer to Tech Tips available at: http://www.transition.com

YES

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