

Fast Ethernet Class B Media Converter



► Integrate fiber into copper based environments that require Class B rated products.

► Can be used with any Point System™ Chassis (*see pgs. 20 & 21*)
► Should be used in the 18-slot Class B Point System™ Chassis if Class B ratings are required.

Features

- Round trip delay of only 40 bit times
—far below the Class II rating of 92 bit times.
- Auto-Negotiation *see next pages*
- AutoCross™ *see next pages*
- Link Pass Through *see next pages*
- Far End Fault (FEF) Detection *see next pages*
- Automatic Link Restoration *see next pages*
- Pause *see next pages*
- Remote Firmware Upgrade *see next pages*

The following converter management features are available in conjunction with the Point System™:

Reporting Features

- Report converter status to management software:
 - TP & Fiber Link status
 - Hardware switch settings
 - Fault
 - TP cable length
- Write operation includes:
 - Power on/off device
 - Full or half-duplex
 - Pause enable/disable
 - LPT enable/disable
 - FEF enable/disable
 - AutoCross™ enable/disable

CFETF10xx-2xx



Ordering Info [Class B]

See next page for complete fiber optic connector specs.

CFETF1011-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1300nm multimode (ST) [2 km/1.2 mi.] Link Budget: 11.0 dB
CFETF1013-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1300nm multimode (SC) [2 km/1.2 mi.] Link Budget: 11.0 dB
CFETF1039-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1300nm multimode (LC) [2 km/1.2 mi.] Link Budget: 11.0 dB
CFETF1018-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm MM (MT-RJ) [2 km/1.2 mi.] Link Budget: 14.5 dB
CFETF1014-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm SM (SC) [20 km/12.4 mi.] Link Budget: 16.0 dB
CFETF1019-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm SM (LC) [20 km/12.4 mi.] Link Budget: 17.3 dB
CFETF1015-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm SM (SC) [40 km/24.9 mi.] Link Budget: 26.0 dB
CFETF1016-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm SM (SC) [60 km/37.3 mi.] Link Budget: 29.0 dB
CFETF1017-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1550nm SM (SC) [80 km/49.7 mi.] Link Budget: 29.0 dB

Single Fiber Products

Recommended use in pairs

CFETF1029-205
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [20 km/12.4 mi.] Link Budget: 19.0 dB
CFETF1029-206
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [20 km/12.4 mi.] Link Budget: 19.0 dB
CFETF1029-207
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [40 km/24.9 mi.] Link Budget: 25.0 dB
CFETF1029-208
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [40 km/24.9 mi.] Link Budget: 25.0 dB
CFETF1029-209
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [60 km/37.3 mi.] Link Budget: 29.0 dB
CFETF1029-210
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [60 km/37.3 mi.] Link Budget: 28.0 dB
CFETF1029-211
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [80 km/49.7 mi.] Link Budget: 33.0 dB
CFETF1029-212
100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [80 km/49.7 mi.] Link Budget: 32.0 dB

Specifications

See next page for complete fiber optic connector specs.

Standards	IEEE Std. 802.3™
Switches	SW1: Auto-Negotiation (UP = ON) SW2: Pause (UP = ON) SW3: Link Pass Through (UP = ON) SW4: Far End Fault (UP = ON)
Internal Jumpers	AutoCross™ Jumper: Enable/disable AutoCross™
Hardware/Software Jumper:	Hardware: Converter mode is determined by 4-position switch settings Software: Converter mode is determined by most recently saved on-board microprocessor settings.
Status LEDs	PWR (Power): On = connection to external power LKF (Fiber Link): On = Fiber Link RXF (Fiber Receive): Blinking = data reception on fiber link RXC (Copper Receive): Blinking = data reception on copper link LKC (Copper Link): On = Copper Link
Dimensions	Width: 0.86" [22 mm] Depth: 5.0" [127 mm] Height: 3.4" [86 mm]
Power Consumption	3.4 watts
Environment	See chassis specifications
Shipping Weight	1 lb. [0.45 kg]
Regulatory Compliance	CISPR/EN55022 Class A & B; FCC Class A & B; CE Mark
Warranty	Lifetime



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CFETF10xx-205 Fiber Optic Connector Specs

Product SKU	Min TX PWR	Max TX PWR	RX Sensitivity	Max In PWR	Link Budget
CFETF1011-205	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
CFETF1013-205	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
CFETF1014-205	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
CFETF1015-205	-8.0 dBm	-2.0 dBm	-34.0 dBm	-7.0 dBm	26.0 dB
CFETF1016-205	-5.0 dBm	0.0 dBm	-34.0 dBm	-7.0 dBm	29.0 dB
CFETF1017-205	-5.0 dBm	0.0 dBm	-34.0 dBm	-7.0 dBm	29.0 dB
CFETF1018-205	-19.0 dBm	-14.0 dBm	-33.5 dBm	-14.0 dBm	14.5 dB
CFETF1019-205	-15.2 dBm	-8.0 dBm	-32.5 dBm	-3.0 dBm	17.3 dB
CFETF1029-205	-13.0 dBm	-6.0 dBm	-32.0 dBm	-3.0 dBm	19.0 dB
CFETF1029-206	-13.0 dBm	-6.0 dBm	-32.0 dBm	-3.0 dBm	19.0 dB
CFETF1029-207	-8.0 dBm	-3.0 dBm	-33.0 dBm	-3.0 dBm	25.0 dB
CFETF1029-208	-8.0 dBm	-3.0 dBm	-33.0 dBm	-3.0 dBm	25.0 dB
CFETF1029-209	-5.0 dBm	0.0 dBm	-34.0 dBm	-3.0 dBm	29.0 dB
CFETF1029-210	-6.0 dBm	0.0 dBm	-34.0 dBm	-3.0 dBm	28.0 dB
CFETF1029-211	-2.0 dBm	+3.0 dBm	-35.0 dBm	-3.0 dBm	33.0 dB
CFETF1029-212	-3.0 dBm	+2.0 dBm	-35.0 dBm	-3.0 dBm	32.0 dB
CFETF1039-205	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB

► Auto-Negotiation (802.3u)

Auto-Negotiation allows devices to perform automatic configuration to achieve the best possible mode of operation over a link. Devices with this feature will broadcast their speed (10Mbps, 100Mbps, etc.) and duplex (half/full) capabilities to other devices and negotiate the best mode of operation between the two devices.

- No user intervention required to determine best mode of operation
- Optimal link established automatically
- Quick and easy installation

While the inclusion of this feature is beneficial, the ability to disable it is equally beneficial. In the event of a non-negotiating end device trying to connect to a negotiating device, the mode of operation will drop to the least common denominator between the two devices (i.e. 100Mbps, half-duplex). Disabling this feature gives the user the ability to force the connection to the best mode of operation when trying to link with a non-negotiating device. Most Transition converters with Auto-Negotiation will allow you to disable this feature.

► AutoCross™

Automatically detects and configures the twisted pair port on the converter to the correct MDI or MDI-X configuration.

- Eliminates an entire category of troubleshooting
- No need to identify cable type—straight-through or crossover
- No user intervention required to determine correct button / switch settings

If someone tells you media conversion is a commodity product that anyone can bring to market, they probably haven't looked at the extensive product suite offered by Transition Networks. With the industry's most comprehensive offering of full-featured products, Transition's media converters stand out as "the choice" among industry IT professionals. Generally, media converters are low-level OSI model devices with no IP or MAC addresses and therefore are transparent to the network. This "transparency" makes them very inexpensive and easy to use, but also can make troubleshooting the network very difficult. In an effort to overcome this difficulty and to make media converters "visible" to network managers, Transition has designed their full-featured products to include the most advanced features on the market today.



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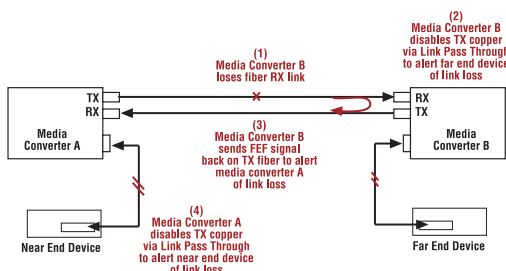


► Far End Fault (802.3u)

Far End Fault (FEF) is a troubleshooting feature that is generally used in conjunction with Link Pass Through to notify both end devices of a loss of link. In the event of a loss of the fiber RX signal 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 a 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 automatically notified of link loss
- Prevents loss of valuable data unknowingly transmitted over invalid link
- Allows for quick diagnosis and resolution of network problems

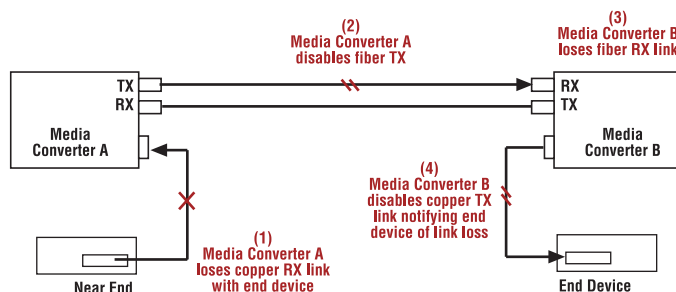
Transition Networks's media converters that include the FEF feature do not need to be used as pictured above as they will work with other network devices that support Far End Fault per IEEE standards.



► Link Pass Through

Link Pass Through is a troubleshooting feature that prevents media converters from isolating link failures and it allows end devices to be notified in the event of a loss of link. Link Pass Through provides the media converter with the ability to monitor both the fiber and the copper RX ports for a loss of signal. If a loss of RX signal occurs on one media port, the converter will automatically disable the TX signal on the other port. By shutting down the fiber TX port, the link failure is "passed through" to the remote converter and device (see diagram below).

- End device automatically notified of link loss
- Prevents loss of valuable data unknowingly transmitted over an invalid link



► Pause (IEEE 802.3xy)

PAUSE signaling is an IEEE feature that temporarily suspends data transmission between two devices in the event that one of the devices becomes overwhelmed. In the event that a device needs some time to clear network congestion, it will send out a PAUSE signal to the other end device, which will then wait a pre-determined amount of time before re-transmitting the data. Transition's converters will pass PAUSE signaling unhindered; ensuring that the message is delivered to the end device.

- PAUSE enabled devices allowed to work properly
- Prevents loss of valuable data transmission
- Reduces bottlenecks and allows for efficient use of network devices

PAUSE signaling is not standardized over fiber media. Transition's media converters will communicate this signaling over fiber between the converters to pass this signaling on to the other end device.

► Remote Firmware Upgrade

New product features are continuously being added to Transition Networks's products. These improvements are also available for many products already installed in the field. Management modules and many media converters can be updated remotely via firmware upgrade. The remote upgrade feature eliminates the need to ship the products back to the manufacturer. The firmware upgrades can be performed by a user either locally via a Console port or remotely via TFTP.

The upgrades do not require the reconfiguration of the SNMP management or converter feature settings.



► Automatic Link Restoration

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

► No need to reset devices

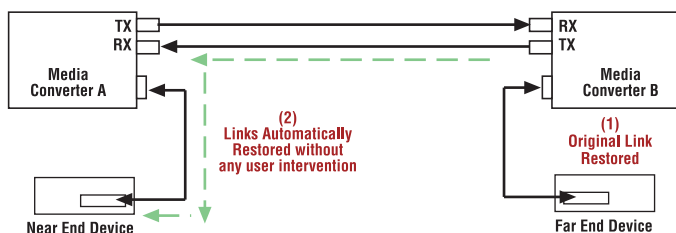
Transition Networks's converters will automatically re-establish link when connected to switches if link was lost. With other manufacturers' converters the user must reset the converter to re-establish the link.

► Auto-Negotiation Enabled

Automatic Link Restoration allows the users to continue using Auto-Negotiation with Link Loss Notification features. With other manufacturers' converters the user must disable Auto-Negotiation and hard set the link.

► Link Pass Through Activated in both directions

Automatic Link Restoration on Transition Networks's products allows users to continue using Link Loss Notification feature activated in both directions. Many competitive solutions allow for Link Loss Notification activation only in one direction. If Link Loss feature is activated in both directions, competitive products are put in a "deadly embrace" and they cannot restore the link without resetting the converters.



► Single Fiber

Single fiber technology offers a 50% savings in fiber utilization. It is an attractive solution to maximize the usage of a limited number of fiber runs.

In a traditional optical link, a fiber pair consists of two uni-directional strands. The single fiber technology multiplexes two optical wavelengths of 1310nm and 1550nm into a single strand fiber. In a single fiber media converter each wavelength is responsible for either the transmit or receive function. Consequently, the bi-directional transmission is achieved by using a single strand. The converters in a single fiber scenario "match" each other's wavelengths. Converter A transmits at the wavelength of 1310nm and receives at 1550nm while the other converter transmits at 1550nm and receives at 1310nm. Therefore, converters are usually used in pairs.

Single fiber technology is available on all Transition Networks Media Converters in maximum distance ranges from 20 to 80km.

