



User's Guide

CGFEB10xx-1xx

Slide-in-Module Media Converter

- **Copper to Fiber**
- **10/100/1000Base-TX to 1000Base-SX/LX**
- **Optional Tap Port**

Transition Networks CGFEB10xx-1xx series media converters, designed to be installed in a PointSystem™ chassis connect 10Base-TX, 100Base-TX, or 1000Base-TX twisted-pair copper cable to 1000Base-SX or 1000Base-LX fiber cable.

The CGFEB10xx-10x has one copper port and one fiber-optic port. The distances listed are the typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network installation.

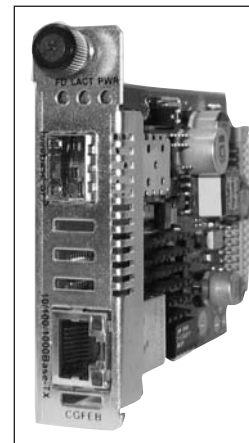
Part Number	Port 1 - Copper 10/100/1000-Base-TX	Port 2 - Duplex Fiber-Optic
CGFEB1013-100	RJ-45 100 m (328 ft)	SC, 1000Base-SX, 850 nm multimode 220 m (720 ft)
CGFEB1014-100	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1310 nm single mode, 10 km (6.2 miles)
CGFEB1015-100	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1310 nm single mode, 25 km (15.5 miles)
CGFEB1017-100	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1550 nm single mode, 65 km (40.4 miles)
CGFEB1024-100	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1300 nm multimode, 2 km (1.2 miles)*
CGFEB1035-100	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1550 nm single mode, 125 km (77.5 miles)

*The CGFEB1024 extends 1000Base-LX beyond 220 meters. Transition Networks cannot guarantee a full 2-km distance on every installation since the distance is largely dependent on the quality of the fiber, cable installation and splicing.

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CGFEB10xx-1xx -- continued

Part Number	Port 1 - Copper 10/100/1000-Base-TX	Port 2 - Single Fiber-Optic 1000Base-SX, single mode
CGFEB1029-100	RJ-45 100 m (328 ft)	SC, 1310 nm TX / 1550 nm RX 20 km (12.4 miles)
CGFEB1029-101	RJ-45, 100 m (328 ft)	SC, 1550 nm TX / 1310 nm RX 20 km (12.4 miles)
Install CGFEB1029-100 and CGFEB1029-101 in the same network where one is the local converter and the other is the remote converter.		
CGFEB1029-102	RJ-45 100 m (328 ft)	SC, 1310 nm TX / 1550 nm RX 40 km (24.9 miles)
CGFEB1029-103	RJ-45 100 m (328 ft)	SC, 1550 nm TX / 1310 nm RX 40 km (24.9 miles)
Install CGFEB1029-102 and CGFEB1029-103 in the same network where one is the local converter and the other is the remote converter.		
CGFEB1029-104	RJ-45 100 m (328 ft)	SC, 1510nm TX / 1590 nm RX 80 km (49.7 miles)
CGFEB1029-105	RJ-45 100 m (328 ft)	SC, 1590 nm TX / 1510 nm RX 80 km (49.7 miles)
Install CGFEB1029-104 and CGFEB1029-105 in the same network where one is the local converter and the other is the remote converter.		


CGFEB1040-1xx
Slide-in-Module Media Converter

- Copper to Fiber
- 10/100/1000Base-TX to 1000Base-SX/LX
- Small Form Fact Pluggable (SFP) Port

Transition Networks CGFEB1040-1xx series media converters, designed to be installed in a PointSystem™ chassis connect 10Base-TX, 100Base-TX, or 1000Base-TX twisted-pair copper cable to 1000Base-SX or 1000Base-LX fiber cable.

The CGFEB1040-10x has one copper port and one SFP port. The distances listed are the typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network installation.

Copper Port 1: 10/100/1000-Base-TX

RJ-45 100 m (328 ft)

The following SFP transceiver modules are compatible with the CFMFF1040-1xx converter and are available from Transition Networks (*sold separately*).

Part Number	Duplex Fiber-Optic Port 2
TN-SFP-SX	LC, 1000Base-SX, 850 nm multimode, 220-550 mm (720-1804 ft)*
TN-SFP-LX1	LC, 1000Base-LX, 1310 nm single mode, 10 km (6.2 miles)*
TN-SFP-LX3	LC, 1000Base-LX, 1310 nm single mode, 30 km (18.8 miles)*
TN-SFP-LX5	LC, 1000Base-LX, 1550 nm single mode, 50 km (31.2 miles)*
TN-SFP-LX8	LC, 1000Base-LX, 1550 nm single mode, 80 km (50.0 miles)*

*Typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network.

Note: Third-party Multi-Source Agreement (MSA) compliant Small Form Factor Pluggables (SFPs) can be used in the CFMFF1040-100.

**CGFEB10xx-11x**

The CGFEB10xx-11x series media converter provides one copper port (*port 1*) and one fiber-optic port (*port 2*). In addition, the CGFEB10xx-11x provides an additional fiber tap port (*port 3*) for a monitoring fiber connection.

Port 3 (*1000Base-SX, 850 nm multimode, 220 m*) is used for monitoring the network connection and traffic in any direction. The fiber tap port “clones” the traffic so the network analysis does not impact the actual traffic.

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

Part Number	Port 1 - Copper 10/100/1000-Base-TX	Port 2 - Duplex Fiber-Optic
CGFEB1013-110	RJ-45 100 m (328 ft)	SC, 1000Base-SX, 850 nm multimode 220 m (720 ft)
CGFEB1014-110	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1310 nm single mode, 10 km (6.2 miles)
CGFEB1015-110	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1310 nm single mode, 25 km (15.5 miles)
CGFEB1017-110	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1550 nm single mode, 65 km (40.4 miles)
CGFEB1024-110	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1300 nm multimode, 2 km (1.2 miles)*
CGFEB1035-110	RJ-45 100 m (328 ft)	SC, 1000Base-LX, 1550 nm single mode, 125 km (77.5 miles)

*The CGFEB1024 extends 1000Base-LX beyond 220 m. Transition Networks cannot guarantee a full 2 km distance on every installation since the distance is largely dependent on the quality of the fiber, cable installation and splicing.

CGFEB10xx-11x -- continued

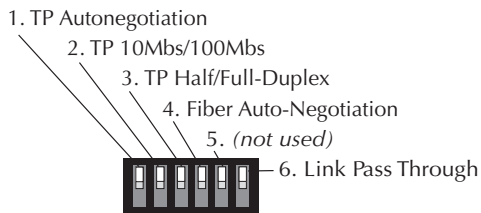
Part Number	Port 1 - Copper 10/100/1000-Base-TX	Port 2 - Single Fiber-Optic 1000Base-SX, single mode
CGFEB1029-110	RJ-45 100 m (328 ft)	SC, 1310 nm TX / 1550 nm RX 20 km (12.4 miles)
CGFEB1029-111	RJ-45, 100 m (328 ft)	SC, 1550 nm TX / 1310 nm RX 20 km (12.4 miles)
Install CGFEB1029-110 and CGFEB1029-111 in the same network where one is the local converter and the other is the remote converter.		
CGFEB1029-112	RJ-45 100 m (328 ft)	SC, 1310 nm TX / 1550 nm RX 40 km (24.9 miles)
CGFEB1029-113	RJ-45 100 m (328 ft)	SC, 1550 nm TX / 1310 nm RX 40 km (24.9 miles)
Install CGFEB1029-112 and CGFEB1029-113 in the same network where one is the local converter and the other is the remote converter.		

Installation

CAUTION: Wear a grounding device and observe electrostatic discharge precautions when setting or installing the media converter. Failure to observe this caution could result in damage to, and subsequent failure of, the media converter slide-in-module.

Six-position switch

The six-position switch is located on the circuit board of the media converter. Use a small, flat-blade screwdriver (or a similar device) to set the switch according to the site the requirements (see the drawing below).



1. Twisted-Pair Auto-Negotiation

- UP Enable Auto-Negotiation for the copper connection .
- DOWN Disable Auto-Negotiation for the copper connection.

Note: Switches 2 and 3 will not function when twisted-pair Auto-Negotiation is enabled (switch 1 = UP). The media converter adopts the speed and mode settings from the device at the other end of the copper link.

2. Twisted-Pair 10Mbps/100Mbps

- UP Set copper connection speed to 100Mbps.
- DOWN Set copper connection speed to 10Mbps.

3. Twisted-Pair Full/Half Duplex

- UP Operate in full-duplex mode .
- DOWN Operate in half-duplex mode of the attached device.

4. Fiber Auto-Negotiation

- UP Enable Auto-Negotiation for the fiber connection .
- DOWN Disable Auto-Negotiation for the fiber connection.

5. (not used)

6. Link Pass-Through

- UP Enable Link Pass-Through.
- DOWN Disable Link Pass-Through.

Installation -- continued

AutoCross™ jumper

The AutoCross feature allows either straight-through (MDI) or crossover (MDI-X) cables to be used when connecting to 10Base-T, 100Base-TX, or 1000Base-T devices, such as hubs, transceivers, or network interface cards (NICs). AutoCross determines the characteristics of the cable connection and automatically configures the unit to link up, regardless of the cable configuration.

The AutoCross jumper is located on the media converter's circuit board (labeled E and D—see the figures to the right).

Note: Use small needle-nose pliers to set the jumper.

Enabled Either straight-through or crossover cable can be used for all twisted-pair copper links.



Disabled Straight-through or crossover twisted-pair cable, depending on installed site devices, MUST be installed at EACH twisted-pair copper link.



Note: Factory default is “enable.” Transition Networks recommends leaving the device in the “enable” mode.

Hardware/software jumper

The hardware/software jumper is located on the circuit board (labeled H and S—see figure to the right.)

Note: Use small needle-nose pliers to set the jumper.

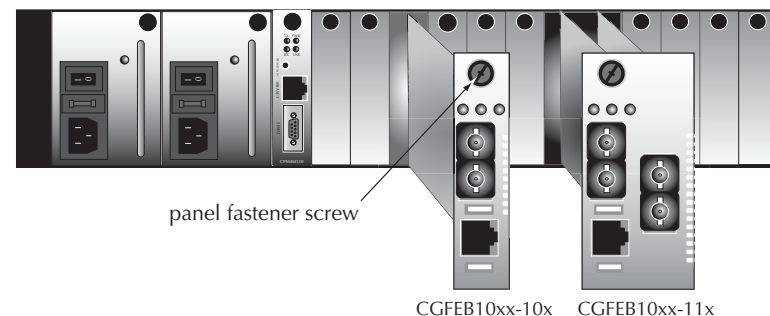
Hardware The media converter mode is determined by the 6-position switch settings.



Software The media converter mode is determined by the most-recently saved, on-board microprocessor settings.



Install the slide-in-module



Installation -- continued

Install the slide-in-module -- continued

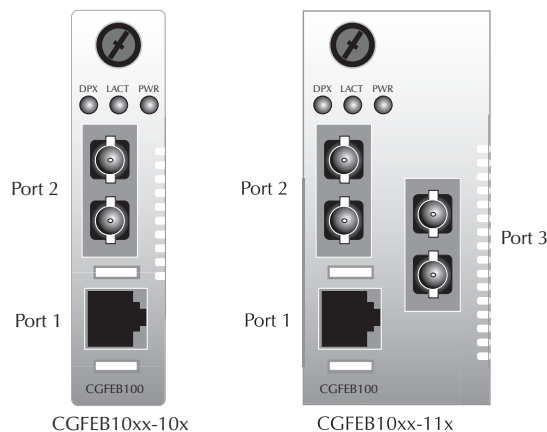
- 1a. CGFEB10xx-10x:
Remove one (1) protective plate from one (1) installation slot on the PointSystem™ chassis by removing the screw that secures the protective plate to the chassis.
- 1b. CGFEB10xx-11x:
Remove two (2) protective plates from two (2) adjacent installation slots by removing the screw that secures each protective plate to the PointSystem™ chassis.
2. Carefully slide the slide-in-module into the installation slot(s), aligning the module with the installation guides.
3. Ensure that the module is firmly seated inside the chassis.
4. Push in and rotate the attached panel fastener screw clockwise to secure the module to the chassis.

Port Locations

The drawings below illustrate the locations of Port 1, Port 2 and Port 3.

The CGFEB10xx-10x models include Port 1 and Port 2.

The CGFEB10xx-11x models include Port 1, Port 2, and Port 3.



Port 1: 10/100/1000Base-T

Port 2: 1000Base-SX or 1000Base-LX

Port 3: 1000Base-SX (fiber tap)

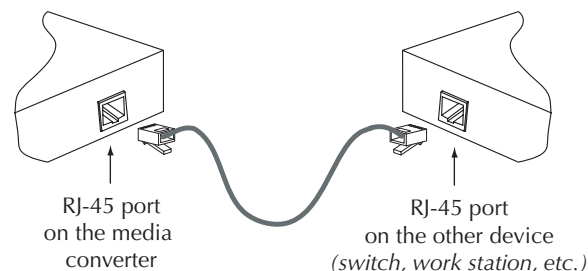
Installation -- continued

Install the cable

Port 1: 10/100/1000Base-TX Copper Port

1. Locate or build 10, 100, or 1000Base-TX compliant copper cables with male, RJ-45 connectors installed at both ends.
2. Connect the RJ-45 connector at one end of the cable to the media converter's 10/100/1000Base-TX RJ-45port (*port 1*).
3. Connect the RJ-45 connector at the other end of the cable to the 10, 100, or 1000Base-TX RJ-45 port on the other device (*switch, workstation, etc.*).

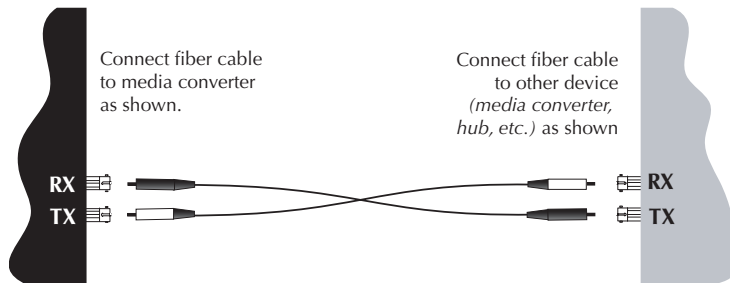
Note: The AutoCross feature, when enabled, allows the use of either straight-through or crossover configuration cables.



Installation -- continued

Port 2: 1000Base-SX/LX Fiber Port

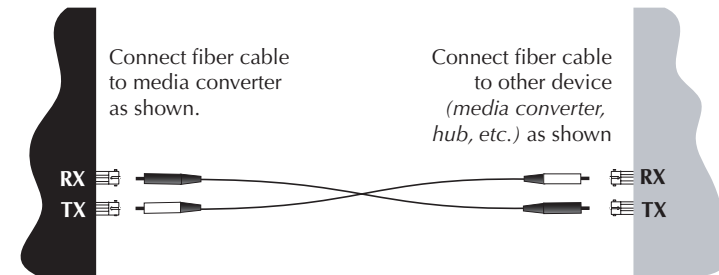
1. Locate or build 1000Base-SX/LX compliant fiber cable with male, two-stranded TX to RX connectors installed at both ends.
2. Connect the fiber cables to the media converter's 1000Base-SX/LX fiber port (*port 2*) as described:
 - Connect the male TX cable connector to the female TX connector.
 - Connect the male RX cable connector to the female RX connector.
3. Connect the fiber cables to the 1000Base-SX/LX fiber port on the other device (*another media converter, hub, etc.*) as described:
 - Connect the male TX cable connector to the female RX connector.
 - Connect the male RX cable connector to the female TX connector.



Installation -- continued

Port 3: 1000Base-SX tap port (*CGFEB10xx-11x models only*)

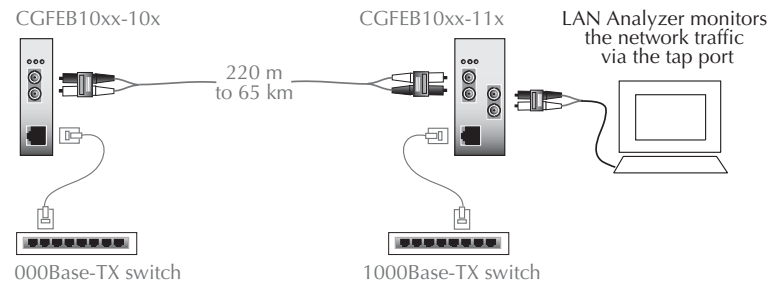
1. Locate or build 1000Base-SX compliant fiber cable with male, two-stranded TX to RX connectors installed at both ends.
2. Connect the fiber cables to the media converter's 1000Base-SX tap port (*port 3*) as described:
 - Connect the male TX cable connector to the female TX connector.
 - Connect the male RX cable connector to the female RX connector.
3. Connect the fiber cables to the 1000Base-SX fiber port on the other device (*another media converter, hub, etc.*) as described:
 - Connect the male TX cable connector to the female RX connector.
 - Connect the male RX cable connector to the female TX connector.



Installation -- continued

CGFEB10xx-11x in the network

The diagram below illustrates how the fiber tap port of the CGFEB10xx-11x is used to link to a LAN analyzer in order to monitor the fiber traffic.



Powering the slide-in-module

The slide-in-module is powered through the Transition Networks *PointSystem™* chassis.

Operation

Status LEDs

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

Fiber status LEDs

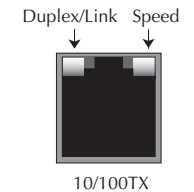
The status LEDs for the 1000Base-SX/LX fiber connection (*labeled DPX, LACT and PWR*) are located next to the fiber port (*Port 2*).



PWR	Power	ON = Connection to external AC power.
LACT	Link activity	ON = A link has been established for the fiber connection. Flashing = The fiber connection is transmitting or receiving data.
DPX	Duplex	ON = Full-duplex mode for the fiber connection. OFF = Half-duplex mode for the fiber connection.

Copper status LEDs

The status LEDs for the copper connection are integrated into the RJ-45 port. These LEDs are not labeled on the media converter. Refer to the drawing to the right for their locations.



Duplex/Link:

Yellow	A link in half-duplex mode has been established for the copper connection.
Flashing Yellow	The copper connection is transmitting/receiving data in half-duplex mode.
Green	A link in full-duplex mode has been established for the copper connection.
Flashing Green	The copper connection is transmitting/receiving data in full-duplex mode.

Speed:

OFF	10 Mb/s operation.
Yellow	100 Mb/s operation.
Green	1000 Mb/s operation.

Operation -- continued

Product features

Auto-Negotiation

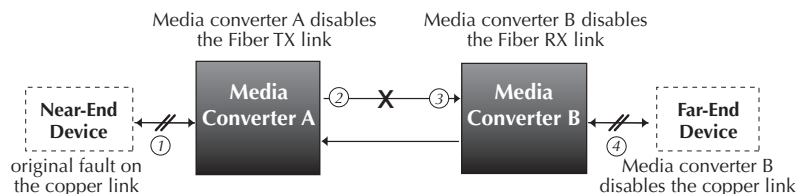
The Auto-Negotiation feature allows the CGFEB10xx-1xx media converter to automatically configure itself to achieve the best possible mode of operation over a link. The media converter broadcasts its speed (*10 Mb/s, 100 Mb/s, or 1000 Mb/s*) and duplex capabilities (*full or half*) to the other devices and negotiates the best mode of operation. Auto-Negotiation allows quick and easy installation because the optimal link is established automatically. No user intervention is required to determine the best mode of operation.

A scenario where the media converter is linked to a non-negotiating device is a case where the user may want to disable Auto-Negotiation. In this instance, the mode of operation will drop to the least common denominator between the two devices (*e.g. 100 Mb/s, half-duplex*). Disabling this feature gives the user the ability to force the connection to the best mode of operation.

Note: The CGFEB10xx-1xx and SGFEB10xx-1xx also support 1000 Mb/s fiber Auto-Negotiation.

Link Pass-Through

The Link Pass-Through feature 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 (1), the media converter will automatically disable the TX (*transmit*) signal (2), thus, “passing through” the link loss (3). The far-end device is automatically notified of the link loss (4), which prevents the loss of valuable data unknowingly transmitted over an invalid link.



Full-Duplex Network

In a full-duplex network, maximum cable lengths are determined by the type of cables that are used. See cable specifications for the different CGFEB10xx-1xx models.

The 512-Bit Rule does not apply in a full-duplex network.

Operation -- continued

Product features—continued

Half-Duplex network (512-Bit Rule)

In a half-duplex network, the maximum cable lengths are determined by the round trip delay limitations of each Fast Ethernet collision domain. (*A collision domain is the longest path between any two terminal devices, e.g. a terminal, switch, or router.*)

The 512-Bit Rule determines the maximum length of cable permitted by calculating the round-trip delay in bit-times (BT) of a particular collision domain. If the result is less than or equal to 512 BT, the path is good.

For more information on the 512-Bit Rule, see the white paper titled “Collision Domains” on the Transition Networks website at: www.transition.com.

Pause

The pause feature is used to temporarily suspend data transmission in order to relieve buffer congestion. If a media converter needs some time to clear network congestion, it will send a pause signal to the media converter at the other end, which will wait a predetermined amount of time before re-transmitting the data. This feature reduces data bottlenecks, allows for a more efficient use of the network devices, and prevents the loss of valuable data.

In Hardware mode, the pause feature can be set to the following:

- Disable (*i.e., no pause*)
- Enable (*i.e., symmetrical pause*)

In Software mode, the pause feature can be set to one of four settings:

- Disable (*i.e., no pause*)
- Symmetrical pause
- Asymmetric TX (*transmit*) pause
- Asymmetric RX (*receive*) pause

Note: Enable the pause feature if it is present on ALL network devices attached to the media converter(s). Otherwise, disable the pause feature.

SNMP

See the on-line documentation that comes with Transition Networks FocalPoint™ software for applicable commands and usage.

Use SNMP at an attached terminal or at a remote location to monitor the media converter by monitoring:

- Copper and fiber link status
- Copper and fiber port duplex
- Copper port speed

Also, use SNMP to enter network commands that:

- Set copper full/half-duplex
- Set copper connection speed (*10Mbps / 100Mbps / 1000Mbps*)
- Enable/Disable Link Pass-Through
- Enable/Disable Auto-Negotiation
- Select transmit (TX) or receive (RX) on the optional tap port

Diagnostic Monitoring Interface (DMI)

The following DMI port screen and explanation table contains brief definitions of the DMI support offered on Transition Networks SFP optical interfaces. For further information, please see the help option on the CPSMM-xxx SNMP agent or Focal Point, Transition Networks' GUI.

DMI RX Power 210 μ W -6.778 dBm	DMI RX Power Alarm <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Low Warn <input type="checkbox"/> High Warn <input type="checkbox"/> Low Alarm <input type="checkbox"/> High Alarm
DMI Temp 30.1 $^{\circ}$ C 86.2 $^{\circ}$ F	DMI Temp Alarm <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Low Warn <input type="checkbox"/> High Warn <input type="checkbox"/> Low Alarm <input type="checkbox"/> High Alarm
DMI Bias Current 20 μ A	DMI Bias Alarm <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Low Warn <input type="checkbox"/> High Warn <input type="checkbox"/> Low Alarm <input type="checkbox"/> High Alarm
DMI TX Power 0 μ W 0.000 dBm	DMI TX Power Alarm <input type="checkbox"/> Normal <input type="checkbox"/> Low Warn <input type="checkbox"/> High Warn <input checked="" type="checkbox"/> Low Alarm <input type="checkbox"/> High Alarm
Rx Power Intrusion Threshold 1000 μ W 0.000 dBm	<input checked="" type="checkbox"/> Intrusion Detected

Variable Name	Description
DMI Rx Power	Measured Receive optical power in microwatts and in decibels relative to 1mW.
DMI Rx Power Alarm	Alarm status of measured Receive optical power.
DMI Temp	Internally measured temperature of transceiver in degrees C and degrees F.
DMI Temp Alarm	Alarm status for internally measured temperature of transceiver.
DMI Bias Current	Measured transmit bias current in microamperes.
DMI Bias Alarm	Alarm status for measured transmit bias current for the interface.
DMI Tx Power	Measured transmit power, in microwatts and in decibels relative to 1mW..
DMI Tx Power Alarm	Alarm status of measured transmit power.
Rx Power Intrusion Threshold	Instructs the converter to stop passing traffic when the receive power drops below the new threshold. This feature is sometimes referred to as 'Intrusion Detection,' since tapping into a fiber to intercept traffic leads to a reduction in receive power. This value can be entered in microwatts or in decibels relative to 1mW. Note: This feature is not available on all devices.

Cable Specifications

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

Fiber cable

Bit Error Rate:	<10 ⁻⁹
Single mode fiber (<i>recommended</i>):	9 μ m
Multimode fiber (<i>recommended</i>):	62.5/125 μ m
Multimode fiber (<i>optional</i>):	100/140, 85/140, 50/125 μ m
CGFEB1013-100, CGFEB1013-110	850 nm multimode
Fiber Optic Transmitter Power:	min: -10.0 dBm max: -4.0 dBm
Fiber Optic Receiver Sensitivity:	min: -17.0 dBm max: 0.0 dBm
Link Budget:	7.5 dB
CGFEB1014-100, CGFEB1014-110	1310 nm single mode
Fiber Optic Transmitter Power:	min: -13.0 dBm max: -3.0 dBm
Fiber Optic Receiver Sensitivity:	min: -20.0 dBm max: -3.0 dBm
Link Budget:	7.0 dB
CGFEB1015-100, CGFEB1015-110	1310 nm single mode
Fiber Optic Transmitter Power:	min: -5.0 dBm max: -0.0 dBm
Fiber Optic Receiver Sensitivity:	min: -20.0 dBm max: -3.0 dBm
Link Budget:	15.0 dB
CGFEB1017-100, CGFEB1017-110	1550 nm single mode
Fiber Optic Transmitter Power:	min: -3.0 dBm max: 2.0 dBm
Fiber Optic Receiver Sensitivity:	min: -23.0 dBm max: -3.0 dBm
Link Budget:	20.0 dB
CGFEB1029-100, CGFEB1029-110	1310 TX/1550 RX nm single mode
Fiber Optic Transmitter Power:	min: -8.0 dBm max: -3.0 dBm
Fiber Optic Receiver Sensitivity:	min: -21.0 dBm max: -3.0 dBm
Link Budget:	13.0 dB
CGFEB1029-101, CGFEB1029-111	1550 TX/1310 RX nm single mode
Fiber Optic Transmitter Power:	min: -8.0 dBm max: -3.0 dBm
Fiber Optic Receiver Sensitivity:	min: -21.0 dBm max: -3.0 dBm
Link Budget:	13.0 dB
CGFEB1029-102, CGFEB1029-112	1310 TX/1550 RX nm single mode
Fiber Optic Transmitter Power:	min: -3.0 dBm max: +2.0 dBm
Fiber Optic Receiver Sensitivity:	min: -23.0 dBm max: -8.0 dBm
Link Budget:	20.0 dB
CGFEB1029-103, CGFEB1029-113	1550 TX/1310 RX nm single mode
Fiber Optic Transmitter Power:	min: -3.0 dBm max: +2.0 dBm
Fiber Optic Receiver Sensitivity:	min: -23.0 dBm max: -8.0 dBm
Link Budget:	20.0 dB

Cable Specification -- continued

Fiber cable -- continued

CGFEB1029-104,	1510 TX/1590 RX nm single mode
Fiber Optic Transmitter Power:	min: -2.0 dBm max: +3.0 dBm
Fiber Optic Receiver Sensitivity:	min: -26.0 dBm max: -3.0 dBm
Link Budget:	24.0 dB
CGFEB1029-105	1590 TX/1510 RX nm single mode
Fiber Optic Transmitter Power:	min: -2.0 dBm max: +3.0 dBm
Fiber Optic Receiver Sensitivity:	min: -26.0 dBm max: -3.0 dBm
Link Budget:	24.0 dB
CGFEB1035-100, CGFEB1035-110	1550 nm single mode
Fiber-optic Transmitter Power:	min: 0.0 dBm max: +5.0 dBm
Fiber-optic Receiver Sensitivity:	min: -32.0 dBm max: -8.0 dBm
Link Budget:	32.0 dB
CGFEB1024-100, CGFEB1024-110	1300 nm multimode **
Fiber Optic Transmitter Power:	min: -10.0 dBm max: -4.0 dBm
Fiber Optic Receiver Sensitivity:	min: -17.0 dBm max: -3.0 dBm
Link Budget:	7.0 dB

**Fiber cable for CGFEB1024-100 and CGFEB1024-110 must be 62.5/125 μ m.

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.

Copper cable

Category 5 (minimum requirement)

Gauge:	24 to 22 AWG
Attenuation:	22.0 dB /100 m @ 100 MHz
Maximum Cable Distance:	100 meters

- Straight-through OR crossover twisted-pair cable may be used.
- Shielded (STP) OR unshielded (UTP) twisted-pair cable may be used.
- All pin pairs (1&2, 3&6, 4&5, 7&8) are active pins in a Gigabit Ethernet network.
- 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.

Technical Specifications

For use with Transition Networks Model CGFEB10xx-1xx.

Standards:	IEEE 802.3™, IEEE 802.1p™
CGFEB10xx-10x:	
Case Dimensions:	5.0" x 3.4" x 0.87" (182 x 86 x 22 mm)
Weight:	4.5 oz (128 g)
Power Consumption:	7.28 watts
CGFEB10xx-11x:	
Case Dimensions:	5.0" x 3.4" x 1.75" (182 x 86 x 43 mm)
Weight:	7.5 oz (213 g)
Power Consumption:	7.84 watts
Data Rate (<i>copper</i>):	10, 100, 1000 Mb/s
Data Rate (<i>fiber</i>):	1000 Mb/s (<i>operates in full-duplex only</i>)
Latency:	64 256 1024 1518 (<i>frame size</i>)
1000Base-T:	3.2 4.8 10.9 14.8 micro seconds
1000Base-SX/LX:	3.2 4.8 10.9 14.8 micro seconds
Packet Size:	Unicast MAC address: 4K bytes Maximum packet size: 1536 bytes Memory: 256K bytes (2 Mbit)
MTBF:	474,000 hours (MIL217F2V5.0) (MIL-HDBK-217F) 1,317,000 hours (Bellcore7 V5.0)
Environment:	Tmra*: 0°C to 50°C (32°F to 122°F)
Storage Temp:	-40°C to 85°C (-40°F to 185°F)
Humidity:	5% to 95%, non-condensing
Altitude:	0 to 10,000 feet
Warranty:	Lifetime

* Manufacturer's rated ambient temperature: Tmra range for the CGFEB10xx-20x depends on the Transition Networks PointSystem™ chassis in which this slide-in-module will be installed.

The information in this user's guide is subject to change. For the most up-to-date information, see 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.

CAUTION: Visible and invisible laser radiation when open. Do not stare into the beam or view directly with optical instruments.

CAUTION: Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Troubleshooting

1. Is the Power LED illuminated?
NO
 - Is the media converter inserted properly into the chassis?
 - Is the power cord properly installed in the chassis and in the grounded AC outlet?
 - Does the grounded AC outlet provide power?
 - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.
 YES
 - Proceed to step 2.

2. Is the Duplex LED illuminated yellow OR green?
NO
 - Check the copper cables for proper connection.
 - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.
 YES - Yellow
 - The media converter has selected half-duplex mode. If this is not the correct mode, disconnect and reconnect the copper cable to restart the initialization process.
 - Proceed to step 3.
 YES - Green
 - The media converter has selected full-duplex mode. If this is not the correct mode, disconnect and reconnect the copper cable to restart the initialization process.
 - Proceed to step 3.

3. Is the LACT LED illuminated?
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.
 - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.
 YES
 - Proceed to step 4.

4. Is the DPX LED illuminated?
YES
 - The converter has selected full-duplex mode for the fiber link. If this is not the correct mode, disconnect and reconnect the fiber cable to restart the initialization process.
 - Proceed to step 5.
 NO
 - The converter has selected half-duplex mode for the fiber link. If this is not the correct mode, disconnect and reconnect the fiber cable to restart the initialization process.
 - Proceed to step 5.

Troubleshooting -- continued

5. Is the Speed LED illuminated?
NO
 - The media converter has selected 10 Mb/s operation. If this is not the correct speed, disconnect and reconnect the copper cable to restart the initialization process.
 - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.
 YES - Flashing Yellow
 - The media converter has selected 100 Mb/s speed. If this is not the correct speed, disconnect and reconnect the copper cable to restart the initialization process.
 - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.
 YES - Flashing Green
 - The media converter has selected 1000 Mb/s operation. If this is not the correct speed, disconnect and reconnect the copper cable to restart the initialization process.
 - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

Contact Us

Technical Support

Technical support is available 24 hours a day.

US 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: CGFEB10xx-1xx Series Media Converters

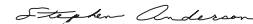
Part Number(s): CGFEB1013-100, CGFEB1014-100, CGFEB1015-100, CGFEB1017-100,
CGFEB1024-100, CGFEB1029-100, CGFEB1035-100, CGFEB1040-100,
CGFEB1029-101, CGFEB1029-102, CGFEB1029-103, CGFEB1029-104,
CGFEB1029-105, CGFEB1013-110, CGFEB1014-110, CGFEB1015-110,
CGFEB1017-110, CGFEB1024-110, CGFEB1029-110, CGFEB1029-111,
CGFEB1029-112, CGFEB1029-113, CGFEB1035-110

Regulation: EMC Directive 89/336/EEC

Purpose: To declare that the CGFEB10xx-1xx to which this declaration refers is in conformity with the following standards.

CISPR 22: 1993; EN 55022:1994 A1:1995 A2:1997 Class A; EN 55024:1998; FCC Part 15 Subpart B; 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

January 3, 2006

Date

Compliance Information

CISPR22/EN55022 Class A + EN55024

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 classe 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 Fall ist der Benutzer für Gegenmaßnahmen verantwortlich.

Attention !

Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures 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 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.

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