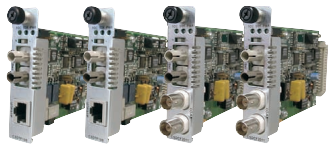
REMOTE MGMT | LOOP BACK | REMOTE FIRMWARE UPGRADE

T1/E1 Copper to Fiber with Remote Management

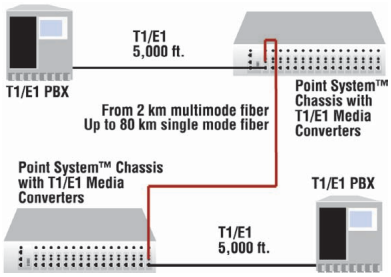
Point System™ Slide-In-Module Media Converters

CSDTFx0xx-1xx



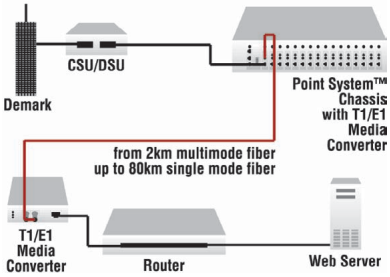
Convert Copper to Fiber

Provide Campus Interconnects



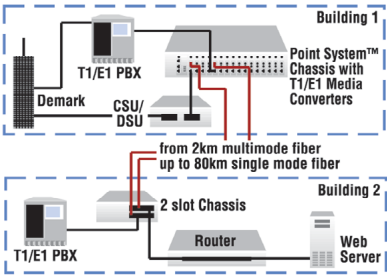
With the exception of Ethernet, T1/E1 is one of the most common campus/ metropolitan area networking interconnects. A copper to fiber conversion on the premise side of the T1/E1 makes it easier to integrate voice traffic, frame relay or IP type traffic on your fiber network.

Remote Management



Stand-alone can be managed remotely when used with a managed chassis.

Extend T1 Networks



Extend T1 to other buildings in a campus or MAN from 2 km to 80 km for voice or data applications.

The Remotely Managed T1/E1 copper to fiber media converter will provide a solution for users who desire to extend their T1 or E1 circuits over fiber and remotely manage them "in-band" from admin locations.

Features

- Remote in-band management *(next pages)*
- Local or Remote Loopbacks on copper or fiber in software mode *(see next pages)*
- Loopback switch facilitates local installation
- Converts the copper ports on T1/E1 devices, such as a PBX or T1/E1 Router, to multimode or single mode fiber
- Switch selectable RJ-48 connectors for T1 or E1
- Jitter attenuators optimize Bit Error Rate (BER) performance
- Network debug procedures make BER testing more convenient
- Built-in troubleshooting with the addition of a selectable TAOS (Transmit All Ones) switch on the fiber and copper interfaces allows the network engineer to test all T1/E1 equipment on that network segment and ensure the network link
- Dry Relay Contacts enable the media converter to be tied into a separate alarm circuit commonly found in a T1/E1 twisted pair environment. Contacts will be activated on loss of power or loss of fiber link.
- Remote Firmware Upgrade *next pages*
- LED provides Alarm Indication Signal (AIS)
- Can be used with fractional T1/E1 circuits
- Can be used with any Point System™ Chassis

Point System™ Management Features

- Report local or remote converter status
  - Copper & Fiber Link status
  - Hardware switch settings: LBO, AIS Copper, AIS Fiber, HW/SW
  - AIS detected Copper & Fiber
  - Model Number
  - Copper & Fiber Connector
- Local or remote command operations include:
  - Loopback Copper & Fiber
  - AIS transmitted on Fiber on loss of Copper link
  - AIS Transmitted on Copper on loss of Fiber link
  - Boot-load firmware

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Ordering Information: T1/E1 Point System™ Media Converters

Product Number	Port One	Port Two
CSDTF1011-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	850nm multimode (ST) [2 km / 1.2 miles]
CSDTF1013-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	850nm multimode (SC) [2 km / 1.2 miles]
CSDTF1018-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1300nm multimode (MT-RJ) [2 km / 1.2 miles]
CSDTF1027-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1300nm multimode (ST) [5 km / 3.1 miles]
CSDTF1012-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1310nm single mode (ST) [8 km / 5 miles]
CSDTF1022-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1310nm single mode (ST) [15 km / 9.3 miles]
CSDTF1014-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1310nm single mode (SC) [20 km/12.4 miles]
CSDTF1015-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1310nm single mode (SC) [40 km/24.9 miles]
CSDTF1016-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1310nm single mode (SC) [60 km/37.3 miles]
CSDTF1017-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1550nm single mode (SC) [80 km/49.7 miles]
Single Fiber Products *Note: Recommended use in pairs (see next page)*		
CSDTF1029-105	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1310nm TX / 1550nm RX single fiber single mode (SC) [20 km/12.4 miles]
CSDTF1029-106	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1550nm TX / 1310nm RX single fiber single mode (SC) [20 km/12.4 miles]
CSDTF1029-107	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1310nm TX / 1550nm RX single fiber single mode (SC) [40 km/24.9 miles]
CSDTF1029-108	Twisted Pair (RJ-48) [1.5 km/0.9 miles]	1550nm TX / 1310nm RX single fiber single mode (SC) [40 km/24.9 miles]

Product Number	Port One	Port Two
CSDTF3011-115	(2) Coax (BNC) [100 m / 328 ft.]	850nm multimode (ST) [2 km / 1.2 miles]
CSDTF3013-115	(2) Coax (BNC) [100 m / 328 ft.]	850nm multimode (SC) [2 km / 1.2 miles]
CSDTF3018-115	(2) Coax (BNC) [100 m / 328 ft.]	1300nm multimode (MT-RJ) [2 km / 1.2 miles]
CSDTF3027-115	(2) Coax (BNC) [100 m / 328 ft.]	1300nm multimode (ST) [5 km / 3.1 miles]
CSDTF3012-115	(2) Coax (BNC) [100 m / 328 ft.]	1310nm single mode (ST) [8 km / 5 miles]
CSDTF3022-115	(2) Coax (BNC) [100 m / 328 ft.]	1310nm single mode (ST) [15 km / 9.3 miles]
CSDTF3014-115	(2) Coax (BNC) [100 m / 328 ft.]	1310nm single mode (SC) [20 km/12.4 miles]
CSDTF3015-115	(2) Coax (BNC) [100 m / 328 ft.]	1310nm single mode (SC) [40 km/24.9 miles]
CSDTF3016-115	(2) Coax (BNC) [100 m / 328 ft.]	1310nm single mode (SC) [60 km/37.3 miles]
CSDTF3017-115	(2) Coax (BNC) [100 m / 328 ft.]	1550nm single mode (SC) [80 km/49.7 miles]
Single Fiber Products *Note: Recommended use in pairs (see next page)*		
CSDTF3029-115	(2) Coax (BNC) [100 m / 328 ft.]	1310nm TX / 1550nm RX single fiber single mode (SC) [20 km/12.4 miles]
CSDTF3029-116	(2) Coax (BNC) [100 m / 328 ft.]	1550nm TX / 1310nm RX single fiber single mode (SC) [20 km/12.4 miles]
CSDTF3029-117	(2) Coax (BNC) [100 m / 328 ft.]	1310nm TX / 1550nm RX single fiber single mode (SC) [40 km/24.9 miles]
CSDTF3029-118	(2) Coax (BNC) [100 m / 328 ft.]	1550nm TX / 1310nm RX single fiber single mode (SC) [40 km/24.9 miles]

Switch Settings

Long Haul (SW1-3 unused)		
SW1-1	SW1-2	
Down	Down	0 db output pulse
Up	Down	-7.5db output pulse
Down	Up	-15db output pulse
Up	Up	-22.5db output pulse

Short Haul (SW1-4 unused)			
SW1-1	SW1-2	SW1-3	
Up	Up	Down	DSX-1, 0-133 ft.
Down	Down	Up	DSX-1, 133 - 266 ft.
Up	Down	Up	DSX-1, 266 - 399 ft.
Down	Up	Up	DSX-1, 399 - 533 ft.
Up	Up	Up	DSX-1, 533 - 655 ft.
Up	Up	Down	ANSI, T1.403
Down	Up	Down	DSX-1, 6.0 V

Specifications

Standards	ITU-T, ANSI, AT&T, ETSI
Fiber Optic Connector Specs	
CSDTFx011-1x5 & CSDTFx013-1x5	Min TX PWR: -19.0 dBm Max TX PWR: -14.0 dBm RX Sensitivity: -32.5 dBm Max In PWR: -14.0 dBm Link Budget: 13.5 dB
CSDTFx018-1x5	Min TX PWR: -19.0 dBm Max TX PWR: -14.0 dBm RX Sensitivity: -30.0 dBm Max In PWR: -14.0 dBm Link Budget: 11.0 dB
CSDTFx027-1x5	Min TX PWR: -19.0 dBm Max TX PWR: -15.0 dBm RX Sensitivity: -32.5 dBm Max In PWR: -14.0 dBm Link Budget: 13.5 dB
CSDTFx012-1x5	Min TX PWR: -28.0 dBm Max TX PWR: -10.0 dBm RX Sensitivity: -38.0 dBm Max In PWR: -14.0 dBm Link Budget: 10.0 dB
CSDTFx022-1x5	Min TX PWR: -20.0 dBm Max TX PWR: -5.0 dBm RX Sensitivity: -35.0 dBm Max In PWR: -14.0 dBm Link Budget: 15.0 dB
CSDTFx014-1x5	Min TX PWR: -15.0 dBm Max TX PWR: -8.0 dBm RX Sensitivity: -31.0 dBm Max In PWR: -8.0 dBm Link Budget: 16.0 dB
CSDTFx015-1x5	Min TX PWR: -8.0 dBm Max TX PWR: -2.0 dBm RX Sensitivity: -38.0 dBm Max In PWR: -8.0 dBm Link Budget: 30.0 dB
CSDTFx016-1x5 & CSDTFx017-1x5	Min TX PWR: -5.0 dBm Max TX PWR: 0.0 dBm RX Sensitivity: -34.0 dBm Max In PWR: -7.0 dBm Link Budget: 29.0 dB
Single Fiber Products	
CSDTFx029-1x5 & CSDTFx029-1x6	Min TX PWR: -13.0 dBm Max TX PWR: -6.0 dBm RX Sensitivity: -32.0 dBm Max In PWR: -3.0 dBm Link Budget: 19.0 dB
CSDTFx029-1x7 & CSDTFx029-1x8	Min TX PWR: -8.0 dBm Max TX PWR: -3.0 dBm RX Sensitivity: -33.0 dBm Max In PWR: -3.0 dBm Link Budget: 25.0 dB
Switches	SW1: 1, 2, 3: Line Build out for short haul/DB in Long Haul (see table) Short Haul mode: SW1: Pos 4 not used SW2 - 1: Transmit all ones into copper on loss of fiber link (Up = Disabled) SW2 - 2: Transmit all ones (AIS) into fiber on loss of copper link (Up = Disabled) SW2 - 3: Long Haul/Short Haul (Up = Short Haul) SW2 - 4: T1/E1 selection (Up = T1)
3-position 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): Steady green LED indicates connection to external AC power SDC (Signal Detect/Copper): On indicates twisted pair link is up SDF (Signal Detect/Fiber): On indicates fiber link is up
Dimensions	Width: 0.86" [22 mm] Depth: 5.0" [127 mm] Height: 3.4" [86 mm]
Power Consumption	6.0 watts
Environment	See chassis specifications
Shipping Weight	1 lb. [0.45 kg]
Compliance	CISPR/EN55022 Class A; FCC Class A; CE Mark
Warranty	Lifetime

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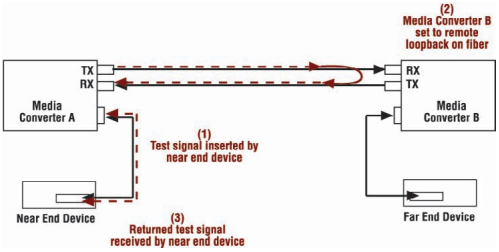
ADVANCED PRODUCT FEATURES

Loopback

Select Transition Networks products are equipped with Loopback. This feature puts a converter in a special mode that enables the device to loop back the signal from the RX port to the TX port on either media for testing and troubleshooting purposes. Test signals from a tester (Firebird, etc.) can then be inserted into the link and looped back as received by a device to test a particular segment of the link (i.e. copper or fiber). Loopback can be either local or remote depending on the location of the converter in the link.

- Allows network diagnostics from local or remote location
- Quickly pinpoints problem areas of end to end link by testing a particular segment



Some converters have separate copper and fiber loopback functions that can be enabled separately, while others will loopback both copper and fiber at the same time when enabled. Please refer to the specific product page for details.

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.

Remote Management

All chassis-based converters from Transition Networks® can be managed through SNMP. Now, select stand-alone products can also be managed through SNMP when used in conjunction with a chassis based converter. While chassis based products are generally placed in the telecommunications room, stand-alone converters are generally placed in remote locations away from network administrators. Remote in-band management over fiber allows administrators access to the remote device to check status and enable/disable features or the device itself.

- Visibility of remote converters for network administrators
- Allows for centralized management of media converters

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.

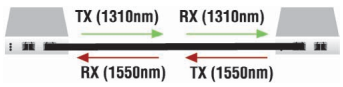
Generally, media converters are low-level OSI model devices with no IP or MAC addresses and therefore are transparent to the network. This "transparency" makes them very inexpensive and easy to use, but also can make troubleshooting the network very difficult. In an effort to overcome this difficulty 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.

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



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

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