Allied Telesis ™

AT-CM70S
Converteon™ Series Line Card

AT-CM70S
4 x T1/E1 + 10/100TX over SFP-based fiber line card

Overview
The AT-CM70S T1/E1 media converter line card is designed to increase the capacity of an existing point-to-point fiber network, by multiplexing up to four T1/E1 TDM channels and one Fast Ethernet channel over a single fiber interface. By the use of a modular fiber SFP (mini-GBIC) uplink, installers can easily deploy the AT-CM70S over a wide range of fiber optics, including multi-mode, single-mode and bi-directional fiber at distances up to 40km.

Expanding the Bandwidth
Each AT-CM70S media converter card features four T1/E1 twisted pair interfaces, and one 10/100TX copper twisted pair interface. All five data paths are multiplexed onto a single SFP-based fiber interface, for transportation up to 40km. A second AT-CM70S blade at the remote site de-multiplexes the single, and provides the five separate data streams.

Deploying the AT-CM70S allows existing installed fiber cables, carrying only a single T1 or E1 channel, to be upgraded to carry more than four times the amount of traffic, without having to install any new fiber cable. All the T1/E1 channels are fully independent, allowing a service provider to expand the capabilities of an existing fiber, whilst providing WAN services to different customers.

Each T1 copper port has a maximum bit rate of 1.544Mbps, and a maximum line length of 6000ft over 100 Ohm balanced cable.

Each E1 copper port has a maximum bit rate of 2.048Mbps, and a maximum line length of 2.5km over 120 Ohm balanced twisted pair cable.

The 10/100TX Ethernet twisted pair port has an RJ-45 connector and a maximum operating distance of 100 meters (328 feet).

Flexible Deployment
The AT-CM70S line cards can be installed into a Converteon chassis, allowing them to be deployed into a stand-alone fashion (AT-CV1200), or into a multi-slot chassis (AT-CV5000). When deployed in a multi-slot chassis, the line cards can be unmanaged, or managed with the inclusion of at least one management card in the chassis. In unmanaged mode, the line cards can be easily configured using DIP switches, whereas in a managed chassis, all the configuration can be performed remotely.

Whatever the chassis, the line cards can be hot swapped providing the network manager with a mechanism to simply perform moves/adds/changes without having to power down other parts of the network.

OAM (Operation, Administration and Maintenance)
The AT-CM70S supports IEEE 802.3ah OAM features, allowing the device to be remotely configured and maintained in-band from a locally administered AT-CM70S. The local blade, used in conjunction with a CPM management module, allows network administrators to remotely set-up, test, and observe the remote devices without having to dispatch engineers.

Local Management Console
The AT-CM70S provides support for a local management console. The local console on the AT-CM70S allows full configuration in a AT-CV1200 or AT-CV5000 chassis when there is no CPM.

Link Test
The link test is a fast and easy way for you to test the connections between the media converter ports and the end-nodes that are connected to the ports. If a network problem occurs, you can perform a link test to determine which port is experiencing a problem, and so be able to focus your troubleshooting efforts on the cable or end-node where the problem resides.

Hassle Free Support
All Allied Telesis Ethernet media converter line cards offer free technical support, ensuring trouble-free installation.

Key Features

- Transports up to 4 x T1/E1 Point-to-Point TDM interfaces

- Supports both near and far end TDM loopback

- Inter-building and intra-building protection and electrical safety compliance of T1/E1 lines

- IEEE 802.2ah remote loopback, discovery, MIB polling

- Transports 1 x 10/100TX

- Auto MDI/MDI-X

- Auto-negotiation (IEEE 802.3u-compliant)

- 10/100TX port transparent to IEEE 802.1Q VLAN packets

- Managed or unmanaged operation

- Local console port for easy remote configuration

- System and port LEDs

- Dual width line card for Converteon series chassis

- Rate limiting
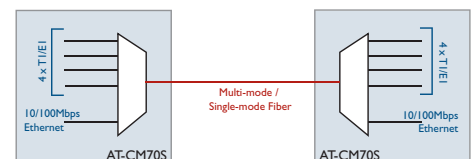
END TO END SOLUTION:
4 x T1/E1 + 10/100Mbps Ethernet multiplexed over fiber

Technical Specifications

Status Indicators

System LEDs

LED	Color	Description
RDY	Green	The line card has passed diagnostics
	Off	The line card has not passed diagnostics
OAM	Green	OAM mode is enabled
	Off	OAM mode is disabled
CONSOLE	Green	Line card managed from local console port
	Off	Line card managed from CPM management module (AT-CV5000 chassis only)

SFP Fiber Port LEDs

LED	Color	Description
LK	Green	Link established on the port
	Off	No link established on the port

Copper Port LEDs

LED	Color	Description
L/A	Green	Link established on the port
	Flashing	Activity
	Off	No link established on the port
FD	Green	Port operating in full-duplex mode
	Off	Port operating in half-duplex mode
100	Green	Port operating at 100Mbps
	Off	Port operating at 10Mbps

T1/E1 Ports

LED	Color	Description
RCL	Amber	Receive carrier loss occurred
	Green	Port operating normally
LOTC	Amber	Loss of transmit clock occurred
	Green	Port operating normally
AIS	Amber	Port received unframed all ones
	Green	Port operating normally
TEST	Green	Port synchronized to test stream
	Off	Test stream not detected

DIP Switches

The AT-CM70S line card features DIP switches to enable/disable the OAM mode.

Operating Mode	DIP 1	DIP 2
Link Test Mode (non-OAM)	Off	X
OAM Bypass	On	Off
OAM Visible	On	On
Manufacturing Settings (default)	Off	Off

Connectors and Pinouts

10/100TX Fast Ethernet Port

Connector	RJ-45
Pinout	Auto MDI/MDI-X

T1/E1 TDM Port

Connector   RJ-48

Pin 1	Receive Ring (RX, Ring-)	[Input to AT-CM70S]
Pin 2	Receive Tip (TX, Tip+)	[Input to AT-CM70S]
Pin 4	Transmit Ring (TX, Ring-)	[Output from AT-CM70S]
Pin 5	Transmit Tip (TX, Tip+)	[Output from AT-CM70S]

Maximum Cable distance

T1 @ 100 Ohm:	6000ft
E1 @ 120 Ohm:	2.5km

RS232 Console Port

Connector   Female 8-pin Mini-DIN

Pin	Signal
1	NC
2	DTR
3	TX
4	RX
5	DSR
6	GND
7	RTS
8	CTS

Maximum baud rate   115200bps

Fast Ethernet Port Specifications

MAC address table	1K
Maximum packet size	1550 bytes

T1/E1 WAN Port Specifications

Constant bit rate transport of full T1 frame, or fractional T1 (n x 64kbps) at the rate 1.544Mbps AMI / B8ZS line coding for T1

Constant bit rate transport of full E1 frame, or fractional E1 (n x 64kbps) at the rate 2.048Mbps AMI / HDB3 line coding for E1

Jitter tolerance and jitter attenuation per TR62411 (Dec '90) and ITU-T G.823

Physical Specifications

Dimensions: (W x D x H)	4.4cm x 7.3cm x 13.0cm (1.71" x 2.89" x 5.1")
Weight:	0.54 kg (1.20 lbs)

Power Characteristics

Power consumption   8.5W

Environmental Specifications

Maximum operating temperature:	0°C to 40°C (32°F to 104°F)
Maximum storage temperature:	-25°C to 70°C (-13°F to 158°F)
Operating and storage altitude:	Up to 3,048 meters (10,000 feet)
Relative humidity operating:	5% to 90% non-condensing
Relative humidity storage:	5% to 95% non-condensing
Predicted MTBF (Telcordia SR332):	670,000 hrs

Standards

EMI part 15:
FCC class A, EN55022 class A, VCCI class A, C-Tick, CE

Immunity:
EN55024

Safety:
UL60950-1 (cULUS), EN60950-1 (TUV)

Telecom Compliances:

US:	FCC part 68 (TIA/ EIA/IS-968)
Canada:	CS-03
Australia:	AS/ ACIF S016

Electrical Interfaces:
ITU-T G.703
ANSI T1.403
ITU-T G.823
AT&T TR62411

Ordering Information

AT-CM70S
4 x T1/E1 Fast Ethernet Converteon media converter line card

Associated Products

AT-CV1200-xx
Two slot Converteon chassis

AT-CV5000-xx
18 slot, Converteon chassis

AT-SPFX series
100FX optical modules

Connecting The IP World

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