iConverter® **4xT1/E1 MUX**
Unmanaged T1/E1 Multiplexer

The iConverter 4xT1/E1 MUX multiplexs up to four T1/E1s and an optional 10/100 Ethernet onto a fiber optic transport link. The unmanaged T1/E1 Multiplexer provides an easy-to-use and cost-effective multi-service solution for providing TDM and Ethernet connectivity.

The iConverter 4xT1/E1 MUXes operate in a back-to-back configuration, with one multiplexer at each end of the fiber link. The 4xT1/E1 MUX transports services from legacy TDM equipment across long distances that exceed the reach or capacity of copper. This includes applications such as T1/E1 extension, mobile backhaul and building-to-building PBX connectivity, making it ideal for Enterprise, Telecom and Utility industries.

The 4xT1/E1 MUX supports Small Form Pluggable (SFP) transceivers, enabling adaptability to different fiber types and distances, and support CWDM and DWDM technology to increase the bandwidth capacity of fiber infrastructure.
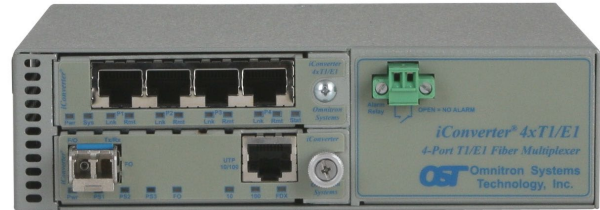
The 4xT1/E1 MUX fixed fiber models support multimode and single-mode dual fiber with ST, SC and LC connectors; and single-mode single-fiber with SC connectors.

The 4xT1/E1 MUX supports standard T1, E1 and Primary Rate Interface (PRI), voice or data. The MUX also supports AMI, B8ZS and HDB3 line codes. DIP-switches provide easy configuration of the T1/E1 line codes and line build-out.

The copper interfaces feature four RJ-48 connectors for balanced T1/E1 applications. An optional adapter cable is available to convert each RJ-48 interface to a BNC interface for unbalanced E1 transport applications.

The 4xT1/E1 MUX features user-selectable local loop-back on both the copper and fiber ports, remote fiber loop-back and circuit test modes. This functionality facilitates diagnosis of the remote unit, and minimizes the need for test equipment and support personnel at each end of a link. Alarm relay and LEDs provide fault notification for loss of power, LOS and AIS.

The 4xT1/E1 MUX is a compact, unmanaged standalone unit available in both AC and DC models. The AC model accepts AC power input ranging from 100VAC to 240VAC, 50/60Hz, while the DC model accepts +/- 18VDC to 60VDC.


SFPs not included

KEY FEATURES

■ Multiplexes four independent T1 or E1 channels from copper links into one fiber link

■ Optional 10/100 copper Ethernet service multiplexed with T1/E1 circuits

■ Small Form Pluggable (SFP) transceivers with Optical Statistics for standard, CWDM or DWDM applications

■ Fixed-fiber connectors support multimode, single-mode dual fiber with ST, SC and LC connectors, and single-mode single-fiber with SC connectors

■ Locally configurable via DIP-switches

■ Supports AMI, B8ZS and HDB3 line codes

■ Easy configuration of T1/E1 line codes and line build-out

■ Configurable alarm relay contacts for audio/visual fault notification

■ Supports local and remote fiber and copper loop-back modes

■ Commercial (0 to 50º C) and wide (-40 to 60º C) operating temperature ranges

■ TAA, BAA and NDAA Compliant, and Made in the USA

■ Lifetime Warranty and free 24/7 Technical Support

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APPLICATIONS

Enterprise Application: PBX to PBX Connectivity

In this application diagram, iConverter 4x T1/E1 Multiplexers deliver four (4) T1s over a point-to-point fiber link. Compact 2-Module chassis are installed at each customer location.

At each end, the Alarm Relay can be connected to equipment to alert when there is a loss of power, LOS or AIS condition. Multimode or single-mode fiber can be used, and fiber links can be extended up to 120km using single-mode fiber.
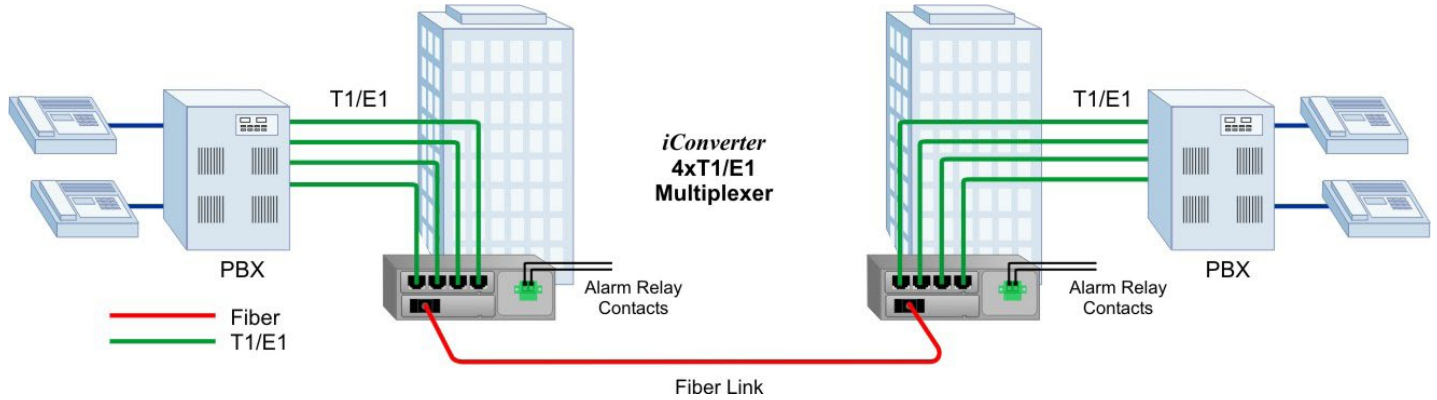
Telecom Application: Mobile Backhaul

The following application shows an example of the iConverter 4xT1/E1 MUX used in a hybrid TDM/Ethernet transport network.
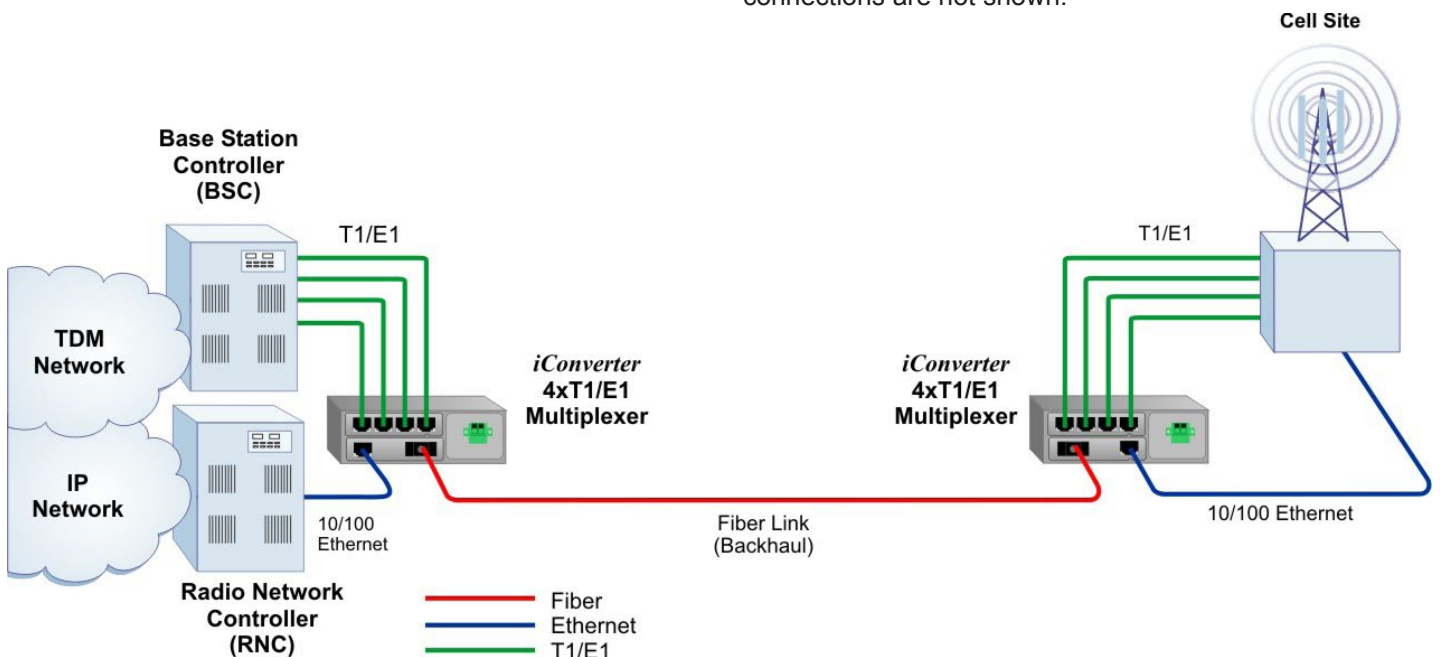
A wireless service provider has enhanced their network to support 3G/4G services. The new equipment uses Ethernet for backhaul at the Cell Site, while their existing legacy 2G equipment uses TDM (T1) for backhaul.

At the Base Station Controller (BSC) and Radio Network Controller (RNC), an iConverter 4xT1/E1 MUX is installed

to extend the TDM and IP Networks to the Cell Site. The service provider is able to multiplex up to 4 T1/E1 circuits and one 10/100 optional Ethernet service on a common fiber link.

The fiber carries the multiplexed traffic to a second iConverter 4xT1/E1 MUX installed at the Cell Site where the T1/E1 circuits and Ethernet service provides connectivity to the equipment at the site.

Alarm Relay can be connected to equipment to alert when there is a loss of power, LOS or AIS condition. ALarm Relay connections are not shown.

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SPECIFICATIONS

Description	iConverter 4xT1/E1 MUX
Data Rates	T1 or ISDN PRI: 1.544Mbps E1: 2.048Mbps Ethernet: 10/100Mbps
Standard Compliances	ANSI: T1.403, T1.102 AT&T: T62411 ITU: G.703, G.704, G.706, G.736, G.755, G.823, G.824, G.8261 ETSI: ETS 300 166 IEEE 802.3
Regulatory	UL, CE, FCC Class A, RoHS, UKCA
Environmental	RoHS, WEEE, REACH, TAA, BAA, NDAA
Port Types	Copper: T1/E1 (RJ-45/RJ-48) 10/100BASE-T (RJ-45) Fiber: ST, SC, Single-fiber SC, SFP (100Mbps)
Cable Types	Copper: Cat 3 or higher for T1/E1 EIA/TIA 568A/B, Cat 5 or higher for Ethernet Fiber: Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm

Frame Size	Ethernet:	Up to 2,044 bytes
AC Power Requirements	AC Input:	100 to 240VAC 50/60Hz 0.5A @ 120VAC IEC 320 Socket
DC Power Requirements	DC Input:	+/- 18 to 60VDC; 2.0A @ 48VDC 3-Pin Terminal (isolated)
Dimensions W x D x H		6.7" x 5.51" x 1.87" (170.18 mm x 139.95 mm x 47.5 mm)
Weight		2.5 lb (1.14 kg)
Temperature	Commercial: Wide: Storage:	0 to 50°C -40 to 60°C -40 to 80°C
Humidity		5 to 95% (non-condensing)
Altitude		-100m to 4,000m
MTBF (hrs)	AC Model: DC Model:	150,000 165,000
Warranty		Lifetime warranty with 24/7/365 free Technical Support

ORDERING INFORMATION

Fiber Type	Distance	Connector Type				Tx / Rx Lambda (nm)	Min. Tx Power (dBm)	Max. Tx Power (dBm)	Min. Rx Power (dBm)	Max. Rx Power (dBm)	Min. Attenuation (dB)	Link Budget (dB)
		ST	SC	LC	SFP							
-	-	-	-	-	8839e-0-pt	-	-	-	-	-	-	-
MM/DF	5km	8820e-0-pt	8822e-0-pt	8826e-0-pt	-	1310 / 1310	-24	-14	-31	-14	-	7
SM/DF	30km	8821e-1-pt	8823e-1-pt	8827e-1-pt	-	1310 / 1310	-15	-8	-31	-8	-	16
SM/DF	60km	-	8823e-2-pt	8827e-2-pt	-	1310 / 1310	-5	0	-31	-3	3	26
SM/DF	120km	-	8823e-3-pt	8827e-3-pt	-	1550 / 1550	-5	0	-31	-3	3	26
SM/SF[1]	20km	-	8830e-1-pt	-	-	1310 / 1550	-15	-5	-30	-3	-	15
SM/SF[1]	20km	-	8831e-1-pt	-	-	1550 / 1310	-15	-5	-30	-3	-	15
SM/SF[1]	40km	-	8830e-2-pt	-	-	1310 / 1550	-8	0	-30	-3	3	22
SM/SF[1]	40km	-	8831e-2-pt	-	-	1550 / 1310	-8	0	-30	-3	3	22

[1] When using single-fiber (SF) media converter models, the Tx wavelength on one end has to match the Rx wavelength on the other.
MM = Multimode, SM = Single-mode, DF = Dual Fiber, SF = Single-fiber

Base Model Number: 88xxe-x-pt

Select the model from ordering table above.

Add optional Ethernet port (**e**), power option (**p**) and operating temperature range (**t**) to the model type selected.

Optional Ethernet Port (e):

<leave blank> = No Ethernet Port	**U** = 10/100 RJ-45 Copper Ethernet Port

Power Options (p):

B = AC Power Supply, 100 to 240VAC 50/60Hz, with IEC 320 Socket	**C** = Direct DC Power Supply, +/- 18 to 60VDC, with 3 Pin Terminal (isolated)

Operating Temperature Options (t):

<leave blank> = Commercial temperature (0 to 50°C)	**W** = Wide temperature (-40 to 60°C)

Contact Omnitron for other fiber options and operating temperature ranges. Order the appropriate SFPs separately. <u>Visit the Omnitron Optical Transceivers web page.</u>

Accessories			
Model Number	**Description**	**Model Number**	**Description**
9140-3	RJ-48 to Coax Adapter Cable (3 meters)	8249-0	Wall / Rack Mount Hardware Kit
9142-1	RJ-48 Alarm Breakout Cable	8260-0	19" Rack Mount Shelf

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