

# iConverter

## **iConverter® T1/E1 T1/E1 Managed Media Converter**

The *iConverter* T1/E1 media converter provides standard T1 (1.544Mbps) or E1 (2.048Mbps) copper to fiber conversion and can be used to extend the demarcation point between service provider and networking equipment. T1/E1 media converters operate in pairs, extending distances over fiber, which improves noise immunity, quality of service, intrusion protection and network security.

The T1/E1 supports Small Form Pluggable (SFP) transceivers, enabling adaptability to different fiber types, distances and wavelengths, providing maximum flexibility across a variety of network architectures and topologies. Support for SFP transceivers increases the bandwidth capacity of fiber access infrastructure by incorporating Coarse Wave Division Multiplexing (CWDM) technology. CWDM SFPs provide wavelength conversion enabling multiplexing of up to 16 wavelengths on the same fiber pair. The same media converter can utilize a variety of SFPs for different wavelengths and distances, reducing costs and simplifying inventories.

The T1/E1 also supports a variety of fixed fiber connectors for multimode, single-mode and single-mode single-fiber.

Designed as a transparent repeater, the *iConverter* T1/E1 supports standard T1, E1 and Primary Rate Interface (PRI), voice or data. The converter also supports AMI, B8ZS and HDB3 line codes. DIP-switches provide easy configuration of T1/E1 line codes and line build-out.

The *iConverter* T1/E1 features user-selectable Local Loopback, Force 1s to Copper, Force 1s to Fiber, and Fiber Optic Test modes to facilitate diagnosis of the remote unit, eliminating the cost of external hardware or support personnel at each end of a link.

The copper interface features an RJ48 connector for balanced T1/E1 applications, and models featuring coaxial BNC connectors are available for unbalanced E1 applications.

The *iConverter* T1/E1 is available as a compact, unmanaged standalone unit with an RJ48 interface or as a chassis managed plug-in module with RJ48 or coax interface. The hot-swappable plug-in module can be mounted in a 19-Module (2U high) or 5-Module (1U high) rack-mountable chassis (19-inch or 23-inch) with any combination of redundant AC, 24VDC or 48VDC power supplies. It can also be mounted in a 2-Module AC or 18 to 60VDC powered chassis, or in a 1-Module AC/DC powered chassis.

As a standalone unit, the T1/E1 is available as a wall-mount unit. The wall-mount models are DC powered and are available with an external AC/DC power adapter or a terminal connector for DC power.



- T1/E1 RJ48 or coaxial to fiber media converter
- Supports multimode, single-mode and single-fiber with ST, SC, LC and MT-RJ connectors
- Supports Small Form Pluggable (SFP) transceivers with standard and CWDM wavelengths
- The RJ48 port DCE/DTE switch facilitates connectivity to devices such as PBXs and CSUs
- User-selectable Local Loopback, Force 1s to Copper, Force 1s to Fiber and Fiber Test modes
- Supports AMI, B8ZS and HDB3 modes
- Management is available with the addition of a management module to the chassis
- SNMP management via *NetOutlook*® provides real-time port and module information, remote parameter configuration and trap notification
- Modules are hot-swappable in 19-Module, 5-Module, 2-Module or 1-Module chassis
- LED displays for immediate visual status of each port
- Conforms to ANSI, AT&T, ETSI and ITU specifications
- Lifetime Warranty and free 24/7 Technical Support

# SPECIFICATIONS

<b>Model Type</b>	<b>T1/E1</b>
<b>Protocols</b>	ANSI: T1.403, T1.102, AT&T: T62411, ITU: G.703, G.704, G.706, G.736, G.775, G.823, ETS: ETS 300 166
<b>UTP Connectors</b>	RJ-45/RJ-48, Coax
<b>Fiber Connectors</b>	SFP LC Dual Fiber SC, ST, LC MT-RJ Single-Fiber SC
<b>Controls</b>	UTP Crossover, CableType / Distance, Loop, Fiber AIS, UTP AIS, Fiber Optic Test
<b>LED Displays</b>	Power, Test, RJ-45/RJ-48 Link, F/O Link
<b>DC Power</b>	Plug-in: 0.7A @ 3.3VDC (typical) Standalone: Voltage Range: 5 - 32VDC 0.3A @ 9VDC
<b>DC Power Connector</b>	Plug-in: Power supplied by backplane Standalone: 2.5mm Barrel Connector or Terminal Connector
<b>AC Power Adapter [US]</b>	Plug-in: N/A Standalone: 120VAC/60Hz 0.05A @ 120VAC
<b>AC Power Adapter [Universal]</b>	Plug-in: N/A Standalone: 100-240VAC/50 to 60Hz 0.05A @ 120VAC
<b>Dimensions</b>	Plug-in: W:0.85" x D:4.5" x H:2.8" Standalone: W:3.8" x D:4.8" x H:1.0" (Wall-mount version)
<b>Weight</b>	Plug-in: 8 oz. Standalone: 1lb
<b>Compliance</b>	UL, CE, FCC Class A
<b>Temperature</b>	Standard: 0 to 50° C Wide: -40 to 60° C Extended: -40 to 75° C Storage: -40 to 80° C
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Altitude</b>	-100m to 4000m
<b>MTBF (hrs) without power adapter</b>	Plug-in: 580,000 Standalone: 590,00
<b>MTBF (hrs) with power adapter</b>	Standalone: US: 250,00 Universal: 100,000

The *iConverter* family of managed fiber access media converters are used in Service Provider access networks and Enterprise LANs. *iConverter* media converters provide fiber connectivity with copper to fiber, multimode fiber to single-mode fiber, or dual fiber to single-fiber conversions.

## MANAGEMENT

Management of the plug-in module is accomplished by using a Network Management Module (NMM) that provides monitoring, configuration and trap notification. The management module can be accessed via SNMP, Telnet and via a serial port. The SNMP-based management is accomplished via Omnitron's intuitive, graphic-oriented *NetOutlook* management software or third party SNMP management software, while the Telnet and the serial interfaces have an easy-to-use, menu-driven interface.

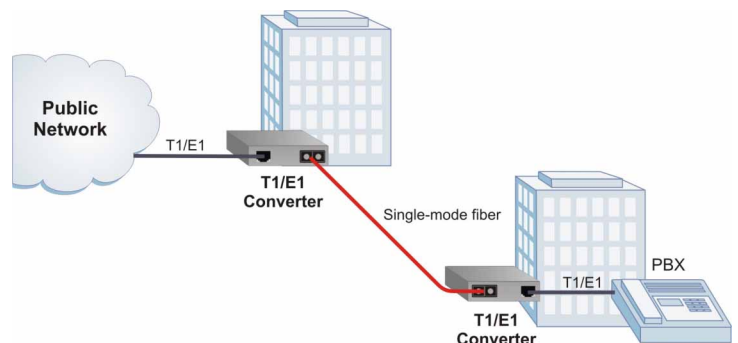
Some of the real-time T1/E1 parameters that can be monitored include power, link and data receive status. Other parameters include module type and model, hardware and software revisions, serial numbers and a user-defined identifier.

The user can override the T1/E1 module's physical DIP-switch settings by using SNMP or Telnet to remotely configure DIP-switch-selectable parameters such as line settings and loopback control.

In addition to all standard *iConverter* SNMP traps such as module insertion and removal, the T1/E1 modules can generate traps on port state changes including link-up and link-down. Trap monitoring of specific events can be selectively enabled or disabled by the network administrator.

## APPLICATION DIAGRAM

The *iConverter* T1/E1 media converter provides a cost-effective solution for extending telecom demarcation points. A pair of T1/E1 converters is used to extend the demarcation between buildings via fiber. Multimode or single-mode fiber can be used, and fiber links can be extended up to 60km using single-mode fiber.



# ORDERING INFORMATION

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SEE TABLE BELOW

<Blank>	Standard Operating Temperature Range Model
W	Wide Operating Temperature Range Model
Z	Extended Operating Temperature Range Model

<Blank>	Plug-In Module
Standalone Versions	
D	Wall-Mount with External US AC Power Supply
E	Wall-Mount with External Universal AC Power Supply
F	Wall-Mount with DC Terminal Power

## Standalone Model Numbers

Model Type	Fiber Type	Distance	Connector Types					Tx Wavelength (nm)	Rx Wavelength (nm)	Min. Tx Power (dBm)	Max. Tx Power (dBm)	Min. Rx Sensitivity (dBm)	Max. Rx Sensitivity (dBm)	Link Budget (dB)
			ST	SC	MT-RJ	LC	SFP**							
T1/E1 Copper RJ-48 Dual Fiber	-	-	-	-	-	-	8719-0-y	-	-	-	-	-	-	-
	MM	5km	8700-0-y	8702-0-y	8704-0-y	-	-	1310	1310	-23	-12	-31	-12	8
	SM	30km	8701-1-y	8703-1-y	8705-1-y	8707-1-y	-	1310	1310	-15	-8	-31	-8	16
	SM	60km	8701-2-y	8703-2-x	-	8707-2-y	-	1310	1310	-5	0	-31	-3*	26
T1/E1 Copper RJ-48 Single-Fiber	SM	120km	-	8703-3-y	-	8707-3-y	-	1550	1550	-5	0	-31	-3*	26
	SM	20km	-	8710-1-y	-	-	-	1310	1550	-15	-5	-30	-3	15
	SM	40km	-	8710-2-y	-	-	-	1310	1550	-8	0	-30	-3*	22
	SM	20km	-	8711-1-y	-	-	-	1550	1310	-15	-5	-30	-3	15
	SM	40km	-	8711-2-y	-	-	-	1550	1310	-8	0	-30	-3*	22

Consult the diagram above for standalone versions. Substitute the appropriate standalone version letter for the y in the model number.  
 For wide temperature (-40 to 60°C), add a "W" to the end of the model number. Consult factory for extended temperature (-40 to +75°C) models.  
 When using single-fiber (SF) media converter models, the Tx wavelength on one end has to match the Rx wavelength on the other.  
 \*A minimum of 3dB of attenuation is required for these models.  
 \*\*See SFP data sheet under Fast Ethernet for supported transceiver models.

## Plug-in Model Numbers

Model Type	Fiber Type	Distance	Connector Types					Tx Wavelength (nm)	Rx Wavelength (nm)	Min. Tx Power (dBm)	Max. Tx Power (dBm)	Min. Rx Sensitivity (dBm)	Max. Rx Sensitivity (dBm)	Link Budget (dB)
			ST	SC	MT-RJ	LC	SFP							
T1/E1 Copper RJ-48 Dual Fiber	-	-	-	-	-	-	8719-0**	-	-	-	-	-	-	-
	MM	5km	8700-0	8702-0	8704-0	-	-	1310	1310	-23	-12	-31	-12	8
	SM	30km	8701-1	8703-1	8705-1	8707-1	-	1310	1310	-15	-8	-31	-8	16
	SM	60km	8701-2	8703-2	-	8707-2	-	1310	1310	-5	0	-31	-3*	26
T1/E1 Coax + RJ-48 Dual Fiber (2-slot module)	SM	120km	-	8703-3	-	8707-3	-	1550	1550	-5	0	-31	-3*	26
	MM	5km	8720-0	8722-0	8724-0	-	-	1310	1310	-23	-12	-31	-12	8
	SM	30km	8721-1	8723-1	8725-1	8727-1	-	1310	1310	-15	-8	-31	-8	16
	SM	60km	8721-2	8723-2	-	8727-2	-	1310	1310	-5	0	-31	-3*	26
T1/E1 Copper RJ-48 Single-Fiber	SM	120km	-	8723-3	-	8727-3	-	1550	1550	-5	0	-31	-3*	26
	SM	20km	-	8710-1	-	-	-	1310	1550	-15	-5	-30	-3	15
	SM	40km	-	8710-2	-	-	-	1310	1550	-8	0	-30	-3*	22
	SM	20km	-	8711-1	-	-	-	1550	1310	-15	-5	-30	-3	15
T1/E1 Coax + RJ-48 Single-Fiber (2-slot module)	SM	40km	-	8711-2	-	-	-	1550	1310	-8	0	-30	-3*	22
	SM	20km	-	8730-1	-	-	-	1310	1550	-15	-5	-30	-3	15
	SM	40km	-	8730-2	-	-	-	1310	1550	-8	0	-30	-3*	22
	SM	20km	-	8731-1	-	-	-	1550	1310	-15	-5	-30	-3	15
	SM	40km	-	8731-2	-	-	-	1550	1310	-8	0	-30	-3*	22

For wide temperature (-40 to 60°C), add a "W" to the end of the model number. Consult factory for extended temperature (-40 to +75°C) models.  
 When using single-fiber (SF) media converter models, the Tx wavelength on one end has to match the Rx wavelength on the other.  
 \*A minimum of 3dB of attenuation is required for these models.  
 \*\*See SFP data sheet under Fast Ethernet for supported transceiver models.

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