## *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.



SFP not included

## KEY FEATURES

- T1/E1 RJ48 or coaxial to fiber media converter

- Supports multimode, single-mode and single-fiber with ST, SC and LC connectors

- Supports Small Form Pluggable (SFP) transceivers with standard and CWDM wavelengths

- Supports SFP Digital Diagnostic Monitoring Interface (DDMI) bus

- 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

**OST** **Omnitron Systems**

# MANAGEMENT

Management of the plug-in module is accomplished by using a Management Module[1] (such as an *iConverter* NMM2 or 10/100M2) 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.
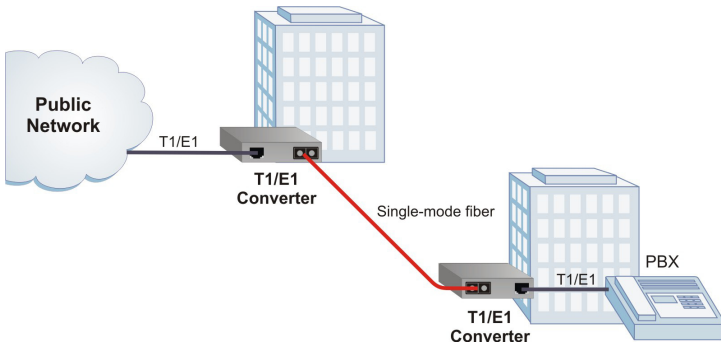
The user can override the T1/E1 module's physical DIP-switch settings by using SNMP or Telnet to remotely configure DIP-switch-selectable parameters such as line settings and loopback control.

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.

[1] For complete management support, use a M2 series module (NMM2, GX/TM2, 2GXM2, 10/100M2, 2FXM2) or higher.

# 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.



# SPECIFICATIONS

| Model Type | T1/E1 | |
|---|---|---|
| Protocols | ANSI: T1.403, T1.102 | |
| | AT&T: T62411 | |
| | ITU: G.703, G.704, G.706, G.736, G.755, G.823 | |
| | ETSI: ETS 300 166 | |
| Connectors and Cables | Coax: | BNC, 75 Ohm E1 |
| | Twisted Pair: | RJ45/RJ48, 100 Ohm T1/120 Ohm E1 *(Active Pairs are Pins 1 , 2 and 4 , 5)* |
| | Fiber: | SC or ST |
| | Multimode: | 50/125, 62.5/125, 100/140mm |
| | Single-mode: | 9/125mm |
| Fiber Connectors | SFP: | LC |
| | Dual Fiber: | SC, ST, LC |
| | Single-Fiber: | SC |
| Controls | UTP Crossover, Cable Type / Distance, Loop, Fiber AIS, UTP AIS, Fiber Optic Test | |
| LED Displays | Power, Test, RJ-45/RJ-48 Link, Fiber Optic Link | |
| DC Power Connector | Plug-in | 0.7A @ 3.3VDC (typical) |
| | Standalone | 5 - 32VDC |
| | | 0.3A @ 9VDC |
| AC Power Adapter [US] | Plug-in: | N/A |
| | Standalone: | 120VAC/60Hz |
| | | 0.05A @ 120VAC |
| AC Power Adapter [Universal] | Plug-in: | N/A |
| | Standalone: | 100-240VAC/50 to 60Hz |
| | | 0.05 A @ 120VAC |
| Dimensions | 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" |
| Weight | Plug-in: | 8 oz |
| | Standalone: | 1 lb |
| Compliance | UL, CE, FCC Class A | |
| Temperature | Standard: | 0 to 50° C |
| | Wide: | -40 to 60° C |
| | Extended: | -40 to 75° C |
| | Storage: | -40 to 80° C |
| Humidity | 5 to 95% (non-condensing) | |
| Altitude | -100m to 4000m | |
| MTBF (Hours) | Plug-in: | 580,000 |
| | Standalone without power adapter | 590,000 |
| | Standalone with US power adapter: | 250,000 |
| | Standalone with Universal adapter: | 100,000 |

**OST Omnitron Systems**

# ORDERING INFORMATION

8 7 x x - x - x x

| | |
|---|---|
| <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 |

SEE TABLE BELOW

## Standalone Module 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 | LC | SFP** | | | | | | | |
| T1/E1 Copper RJ-48 Dual Fiber | - | - | - | - | - | 8719-0-x | - | - | - | - | - | - | - |
| | MM | 5km | 8700-0-x | 8702-0-x | 8706-0-x | - | 1310 | 1310 | -23 | -12 | -31 | -12 | 8 |
| | SM | 30km | 8701-1-x | 8703-1-x | 8707-1-x | - | 1310 | 1310 | -15 | -8 | -31 | -8 | 16 |
| | SM | 60km | 8701-2-x | 8703-2-x | 8707-2-x | - | 1310 | 1310 | -5 | 0 | -31 | -3* | 26 |
| | SM | 120km | - | 8703-3-x | 8707-3-x | - | 1550 | 1550 | -5 | 0 | -31 | -3* | 26 |
| T1/E1 Copper RJ-48 Single-Fiber | SM | 20km | - | 8710-1-x | - | - | 1310 | 1550 | -15 | -5 | -30 | -3 | 15 |
| | SM | 40km | - | 8710-2-x | - | - | 1310 | 1550 | -8 | 0 | -30 | -3* | 22 |
| | SM | 20km | - | 8711-1-x | - | - | 1550 | 1310 | -15 | -5 | -30 | -3 | 15 |
| | SM | 40km | - | 8711-2-x | - | - | 1550 | 1310 | -8 | 0 | -30 | -3* | 22 |

## Plug-in Module 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 | LC | SFP | | | | | | | |
| T1/E1 Copper RJ-48 Dual Fiber | - | - | - | - | - | 8719-0** | - | - | - | - | - | - | - |
| | MM | 5km | 8700-0 | 8702-0 | 8706-0 | - | 1310 | 1310 | -23 | -12 | -31 | -12 | 8 |
| | SM | 30km | 8701-1 | 8703-1 | 8707-1 | - | 1310 | 1310 | -15 | -8 | -31 | -8 | 16 |
| | SM | 60km | 8701-2 | 8703-2 | 8707-2 | - | 1310 | 1310 | -5 | 0 | -31 | -3* | 26 |
| | SM | 120km | - | 8703-3 | 8707-3 | - | 1550 | 1550 | -5 | 0 | -31 | -3* | 26 |
| T1/E1 Coax + RJ-48 Dual Fiber (2-slot module) | - | - | - | - | - | 8739-0** | - | - | - | - | - | - | - |
| | MM | 5km | 8720-0 | 8722-0 | 8726-0 | - | 1310 | 1310 | -23 | -12 | -31 | -12 | 8 |
| | SM | 30km | 8721-1 | 8723-1 | 8727-1 | - | 1310 | 1310 | -15 | -8 | -31 | -8 | 16 |
| | SM | 60km | 8721-2 | 8723-2 | 8727-2 | - | 1310 | 1310 | -5 | 0 | -31 | -3* | 26 |
| | SM | 120km | - | 8723-3 | 8727-3 | - | 1550 | 1550 | -5 | 0 | -31 | -3* | 26 |
| T1/E1 Copper RJ-48 Single-Fiber | 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 |
| | SM | 40km | - | 8711-2 | - | - | 1550 | 1310 | -8 | 0 | -30 | -3* | 22 |
| T1/E1 Coax + RJ-48 Single-Fiber (2-slot module) | 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 |

Omnitron Systems

**800-675-8410 • 949-250-6510 • www.omnitron-systems.com • info@omnitron-systems.com • 140 Technology Dr., Irvine, CA 92618**