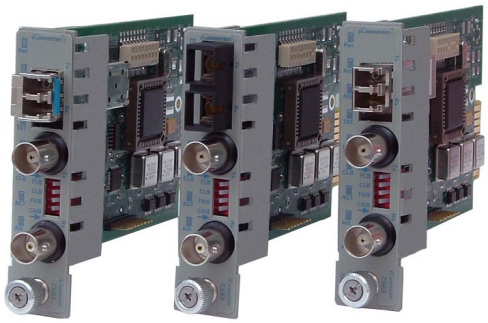
Omnitron Systems

iConverter® **T3/E3 Plug-In**



User Manual

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For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to Buyer's designated US address using Omnitron's standard shipping method.

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The foregoing warranty shall not apply to product malfunctions resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

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Environmental Notices

The equipment covered by this manual must be disposed of or recycled in accordance with the Waste Electrical and Electronic Equipment Directive (WEEE Directive) of the European Community directive 2012/19/EU on waste electrical and electronic equipment (WEEE) which, together with the RoHS Directive 2015/863/EU, for electrical and electronic equipment sold in the EU after July 2019. Such disposal must follow national legislation for IT and Telecommunication equipment in accordance with the WEEE directive: (a) Do not dispose waste equipment with unsorted municipal and household waste. (b) Collect equipment waste separately. (c) Return equipment using collection method agreed with Omnitron.

The equipment is marked with the WEEE symbol shown to indicate that it must be collected separately from other types of waste. In case of small items the symbol may be printed only on the packaging or in the user manual. If you have questions regarding the correct disposal of equipment go to www.omnitron-systems.com/support or e-mail to Omnitron at intlinfo@omnitron-systems.com.

Safety Warnings and Cautions

ATTENTION: Observe precautions for handling electrostatic discharge sensitive devices.

WARNING: Potential damage to equipment and personal injury.

WARNING: Risk of electrical shock.

Technical Support:

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Description

The iConverter T3/E3 media converter provides standard T3 (44.736Mbps), E3 (34.368Mbps) or STS-1 (51.84Mbps) coax to fiber conversion and can be used to connect to devices such as PBXs, multiplexers, routers and video servers via fiber. T3/E3 media converters operate in pairs, extending distances over fiber, which improves noise immunity, quality of service, intrusion protection and network security.

The T3/E3 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.

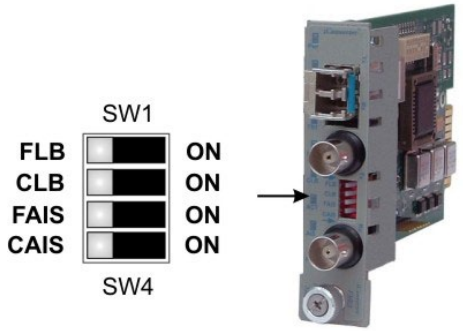
See data sheet for available models.

The T3/E3 modules can be used in an unmanaged or managed applications. To be managed, an Network Management Module (NMM2) or a module with integrated management must be installed in the same chassis.

For more information on management software and hardware options, see Comprehensive Network Management Solution product page.

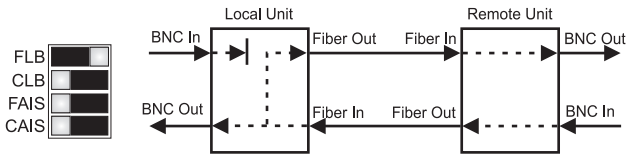
DIP-switch Settings

Front Panel DIP-switches



SW1 - Fiber Loopback "FLB"

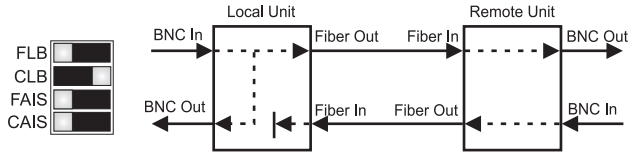
This DIP-switch facilitates the testing of the fiber cables. When the "FLB" DIP-switch is in the ON position, it sets the fiber port to a Local Fiber Loopback Mode and the "FLB" LED is turned on. When in this mode, data received at the Fiber-In is forwarded to the BNC-Out and the Fiber-Out. If no data is received at Fiber-In, an AIS pattern is transmitted out both BNC-Out and Fiber-Out. By returning the DIP-switch to the OFF position, the unit resumes normal operation.



SW2 - Coax Loopback "CLB"

This DIP-switch facilitates the testing of the coax cables. When the "CLB" DIP-switch is in the ON position, it sets the coax port to a Local Coax Loopback Mode

and the “CLB” LED is turned on. When in this mode, data received at the BNC-In is forwarded to the BNC-Out and the Fiber-Out. If no data is received at BNC-In, an AIS pattern is transmitted out both BNC-Out and Fiber-Out. By returning the DIP-switch to the OFF position, the unit resumes normal operation.



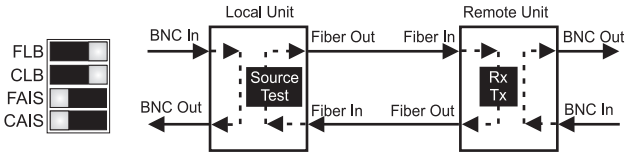
SW1 and SW2 - Remote Loopback “FLB” + “CLB”

When both the “FLB” and “CLB” DIP-switches are in the ON position, they force the remote unit at the other end of the fiber link to loop back its fiber and coax ports. This facilitates test of the fiber cables and the remote unit without having to physically set DIP-switches on the remote unit. While in this mode, the local unit’s BNC is set to a local loopback, and its “FLB” and “CLB” LEDs are turned on.

While in the remote loopback mode, the local unit sends a test pattern to the remote unit. This pattern forces the remote unit into the loopback mode and is also returned back to the local unit. When forced into the remote loopback mode, the remote unit’s “FLB” and “CLB” LEDS blink slowly (1Hz).

When the test pattern is received successfully at the local unit’s Fiber-In, the “TST” LED blinks rapidly (10Hz). Any other data causes slow blinking (1Hz) on the “TST” LED. If no data is returned to Fiber-In, the LED is turned OFF.

Returning both DIP-switches to the OFF position, causes the local and remote units to resume normal operation.



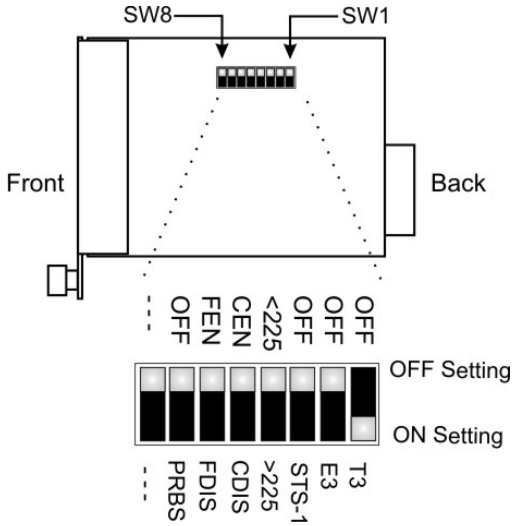
SW3 - Force 1s to Fiber (AIS) “FAIS”

When the “FAIS” DIP-switch is in the ON position, an “all ones” pattern is forced out the Fiber-Out port. The Coax-In data is discarded and Fiber-In data is passed through to BNC-Out. By returning the DIP-switch to the OFF position, the unit resumes normal operation.

SW4 - Force 1s to Coax (AIS) “CAIS”

When the “CAIS” DIP-switch is in the ON position, an “all ones” pattern is forced out the BNC-Out port. The Fiber-In data is discarded and BNC-In data is passed through to Fiber-Out. By returning the DIP-switch to the OFF position, the unit resumes normal operation.

On Board DIP-Switches



Printed on the PCB are the call outs for each DIP-switch. Please refer to the PCB for clarification.

ON and OFF refer to the direction for the settings. Setting the switch to ON would set the switch towards the center of board. Setting the switch to OFF would set the switch towards the edge of the board.

SW1 - SW3 - Select Protocol “T3”, “E3” “STS-1”

When the “T3” DIP-switch (SW1) is in the ON position, the T3 protocol is selected. When the “E3” DIP-switch (SW2) is in the ON position, the E3 protocol is selected. When the “STS-1” DIP-switch (SW3) is in the ON position, the STS-1 protocol is selected.

Only one of the three DIP-switches may be in the ON position at any one time. The default setting of the module is T3.

SW4 - Coax Build-Out Distance “<225”

When this DIP-switch is in the “<225” OFF position, a distance of less than 225 ft. is selected. When in the “>225” ON position, a distance of 225 ft. or higher is selected. Select the appropriate distance for your application.

SW5 - SW6 - Port Control “CEN” and “FEN”

When both DIP-switches are in the OFF position, the ports are enabled. When the ”CEN” DIP-switch (SW5) is in the “CDIS” ON position, the coax port is disabled. When the ”FEN” DIP-switch (SW6) is in the “FDIS” ON position, the fiber port is disabled.

SW7 - Pseudo Random Pattern Generator “PRBS”

When this DIP-switch is in the ON “PRBS” position, the converter forces Pseudo Random pattern out of the Coax-Out port. The data received at Fiber-In is discarded and the data at Coax-In is passed through to Fiber-Out.

SW8 - Reserved

Leave this DIP-switch in the OFF (factory default) position.

Note: Some combinations of DIP-switch settings are illegal, and will be indicated by the Fiber Test "TST" LED blinking quickly three times followed by a pause.

Mounting and Cable Attachment

The iConverter modules are hot-swappable and can be installed into any iConverter chassis.

Caution: Use proper ESD protection to reduce the risk of damage to your equipment.

1. Carefully slide the module into an open slot in the chassis. Align the module with the installation guides and ensure that the module is firmly seated against the backplane. Secure the module by fastening the front panel thumbscrew (push in and turn clockwise to tighten) to the chassis front. Verify the "Pwr" LED is ON (indicating the chassis is powered).

2. Insert the SFP fiber transceivers into the SFP receptacles on the module.

NOTE: The release latch of the SFP transceiver must be in the closed (up) position before insertion.

3. Connect the BNC cables to the T3/E3 converter and attach the other end of the cables to appropriate network equipment. The Transmit must attach to the Receive and the Receive must attach to the Transmit.

4. Connect an appropriate multimode or single-mode fiber cables to the fiber ports of the installed module. It is important to ensure that the transmit (TX) is attached to the receive side of the device at the other end and the receive (RX) is attached to the transmit side. Single-fiber (SF) media converter models operate in pairs. The TX wavelength must match the RX wavelength at the other end and the RX wavelength must match the TX wavelength at the other end.

Software Controlled Settings

Additional settings are available via software control when a T3/E3 is installed in an iConverter chassis with a Management Module.

The following software settings can be controlled via Serial Console/Telnet Console, NetOutlook Management Software or other third-party SNMP-based clients:

- Loopback Modes
- Coax Line Build Out
- Port Control
- Test Modes

Software controlled settings can be selected to override DIP-Switch settings.

For more information on using and configuring the Advanced Features, register for access to the NetOutlook Management Software user manual.

LED Indicators

LED	Color	Description
Pwr	Amber	**OFF:** Module is not powered **ON:** Module has power
Fiber Act "Act"	Green	**OFF:** No signal detected **Blinking:** Data received
Fiber AIS "AIS"	Amber	**OFF:** No signal detected **Blinking:** (10HZ):AIS received
Fiber Test "TST"	Amber	**OFF:** No signal detected Local unit asserting Remote Loopback **Blinking (10Hz):** Test pattern received **Blinking (1Hz):** Unexpected pattern received **Three blinks (2Hz) and pause 1 sec:** indicates illegal DIP-switch selection
Fiber LB "FLB"	Amber	**OFF:** Loopback not enabled **ON:** Local fiber loopback enabled. If CLB is also ON, then the local module is in Remote Loopback **Blinking (1Hz) and CLB blinking (1Hz):** The remote module is in Remote loopback
Coax LB "CLB"	Amber	**OFF:** Loopback not enabled **ON:** Local coax loopback enabled. If FLB is also ON, then the local module is in Remote Loopback **Blinking (1Hz) and FLB blinking (1Hz):** The remote module is in Remote loopback
Coax Act "Act"	Green	**OFF:** No signal detected **Blinking (10Hz):** Data received
Coax AIS "AIS"	Amber	**OFF:** No signal detected **Blinking:** (10HZ):AIS received
Coax PRBS "PRBS"	Amber	**OFF:** No signal detected **Blinking (10Hz):** PRBS received **Blinking (1Hz):** PRBS forced out BNC-Out

Specifications

Standard	ANSI: T1.102, T1.105, T1.107, T1.404, T1-404a (T3) ITU: G.703, (E3), G.751, O.151 ETSI: EN 300 689, 300 686, 300 687	
Regulatory	Safety: EMI: ACT:	UL, CE, NEBS Level 3, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, WEEE, REACH	
Data Rates	T3: E3: STS-1:	44.36Mbps 34.368Mbps 51.84Mbps
Port Types	Coax: Fiber:	T3/E3/STS-1: Coax ST, SC or SFP (depending on model)
Cable Types	Coax: Fiber:	RG-59 Coax 75 ohms Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm
DC Power Requirements	DC Input: (Backplane)	3.3VDC, 0.7A @ 3.3VDC
Dimensions W x D x H	0.85” x 4.5” x 2.8” (21.6 mm x 114.3 mm x 71.1 mm)	
Weight	8.0 oz. (226.8 grams)	
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)	480,000	
Warranty	Lifetime warranty with 24/7/365 free Technical Support	

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