Omnitron Systems

FlexPoint™ T1/E1 User Manual

DESCRIPTION

The FlexPoint T1/E1 media converter provides standard T1 (1.544Mbps) or E1 (2.048Mbps) copper to fiber conversion. T1/E1 media converters operate in pairs, providing distance extension over fiber.

Designed as a transparent repeater, the FlexPoint T1/E1 supports standard T1, E1 and Primary Rate Interface (PRI), voice or data. The converter also supports AMI, B8ZS and HDB3 line codes.

See data sheet for supported models.

POWER ADAPTER NOTICE

When used in a stand-alone configuration, this product should always be used with its enclosed Power Adapter.

WARNING

Before plugging the Power Adapter to any wall outlet or AC power source, verify that the power on the unit is appropriate for your AC line voltage source.

SWITCH SETTINGS

T1/E1 Copper Line Configuration DIP-switches

The T1/E1 copper line codes and line lengths are configured using dip switches located on the side of the FlexPoint T1/E1 media converter.

4	3	2	1	Description
Dn	Dn	Dn	Dn	T1 DSX-1: 0' to 133' (default) T1 DS1: 0dB (default)
Up	Dn	Dn	Dn	T1 DSX-1: 133' to 266'
Dn	Up	Dn	Dn	T1 DSX-1: 266' to 399'
Up	Up	Dn	Dn	T1 DSX-1: 399' to 533'
Dn	Dn	Up	Dn	T1 DSX-1: 533' to 655'
Up	Dn	Up	Dn	T1 DS1: -7.5dB
Dn	Up	Up	Dn	T1 DS1: -15dB
Up	Up	Up	Dn	T1 DS1: -22.5dB
Dn	Dn	Dn	Up	E1 75 Ω Coax/BNC Standard
Up	Dn	Dn	Up	E1 120 Ω RJ-45/48 Standard
Dn	Up	Dn	Up	E1 75 Ω Coax/BNC Extended/LH
Up	Up	Dn	Up	E1 120 Ω RJ-45/48 Extended/LH

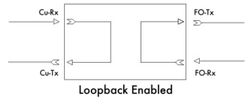
DCE/DTE Slide Switch

When connecting the RJ-45/48 port to a demarcation or headend equipment, set the switch DCE (straight through). When connecting the port to far end equipment, set the switch to DCE (crossover). Use a straight through cable at both ends of the connection.

Front Panel DIP-switches

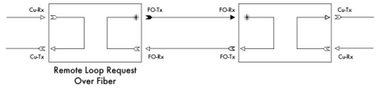
Local loop-back (L/LB)

This switch will set the FlexPoint T1/E1 converter in a loop-back mode on both the fiber and copper connections. By returning the switch to the normal position the unit will resume to normal operation.



Remote loop-back (R+L/LB)

This switch will allow the entire fiber segment to be tested at either of the FlexPoint T1/E1 converters without having to set switches on both units. When set in this mode the local unit is switched to a local loop-back mode. The fiber Tx port will transmit a remote loop-back signal to the far end converter. This remote loop-back signal will set the far end converter to remote loop-back mode and return a signal to the sending unit. An LED on the local and remote T1/E1 converters will show a confirmation that the fiber segment is communicating properly between devices. By returning the switch to the normal position it will return to normal operation.



Local loop-back and Remote loop-back

When both Local and Remote Loop-back are set to the Normal position, the FlexPoint T1/E1 uses the default B8ZS data format. When both switches are turned to their On position, it uses the AMI data format.

Transmit/force 1's to fiber (FO/1s)

This switch is used to insert an "all ones" pattern into the data stream being transmitted out of the fiber port. Data being received on the twisted pair will be disabled and data being received on the fiber is passed through to the twisted pair side. By returning the switch to the normal position the unit will resume to normal operation.

Transmit/force 1's to UTP (UTP/1s)

This switch is used to insert an "all ones" pattern into the data stream being transmitted out of the twisted pair port. Data being received on the fiber will be disabled and data being received on the twisted pair is passed through to the fiber side. By returning the switch to the normal position the unit will resume to normal operation.

MOUNTING

The FlexPoint T1/E1 can be DIN-rail mounted using the DIN-rail mounting bracket (8250), wall-mounted using a wall mounting kit (4380), rack-mounted using a 5-Module shelf (4392) or inserted in a 14-Module FlexPoint Powered Chassis.

To power the module using the AC power adapter, connect the barrel connector at the end of the wire on the power adapter to the barrel connector on the module. Connect the power adapter to the AC outlet. Confirm that the module has powered up properly by checking the Power LED.

Attach the fiber cables to the FlexPoint T1/E1 ST or SC connectors. The FlexPoint transmit (Tx) must attach to the receive side on the device at the far end of the fiber and the receive (Rx) must attach to the transmit side.

RJ-45/RJ-48 T1/E1 connector

Connect to the RJ-45/48 connector on the module via a Category 3 or better cable (Category 5 is recommended), and attach the other end to the network equipment. (Active Pairs are Pins 1, 2 and 4, 5).

Gauge, Impedance	22 to 24 AWG (UTP), T1: 100 ohms +/- 10% E1: 120 ohms +/- 10%
Impedance Characteristics	2.6 dB / 100M @ 1MHz
Maximum Distance	T1: 6,000 ft, E1: 8,000 ft

Coax E1 Connector

Use the 9140-3 RJ-48 to Coax Adapter cable (3 meters sold separately) to interface with types of equipment requiring a 75 Ohm coax connector.

Alarm Relay Contacts

The FlexPoint T1/E1 features dry relay contacts for optionally connecting the it into a separate T1/E1 alarm circuit. The relay closes when a loss of power or when signal detect is lost to the copper or fiber connection.

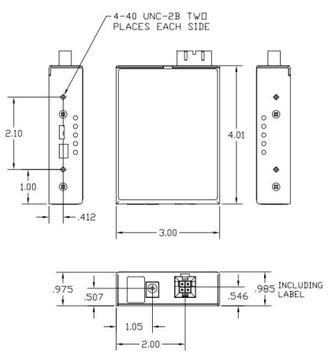
To utilize the alarm relay contacts, use the 9142-1 Relay Breakout cable (not supplied) to access the relay contact pins. Connect pins 3 and 6 on the RJ-48 connector to the alarm detection device. See specification below for the maximum voltage ratings supported by the alarm relay.

Relay Contact Ratings (pins 3 & 6 on RJ-48 port)	
Manufacturer Spec	**UL/CSA**
220V DC, 30W, 250V AC, 37.5VA, 1A max	30V DC, 1A (resistive) 110V DC, 0.3A (resistive) 125V AC, 0.5A (resistive)

LED INDICATORS

LED	Color	Description
Power "Pwr"	Amber	OFF: No power ON: Power is applied
Test "Tst"	Green	OFF: Normal operation ON: L/LB or All Ones Test Mode Slow Blinking: R+L/LB received - master Fast Blinking: R+L/LB received - remote
Fiber "FO"	Green	OFF: No signal detected ON: Signal detected Blinking: All ones signal received
RJ-45/48 "UTP/CO"	Green	OFF: No signal detected ON: Signal detected Blinking: All ones signal received

MECHANICAL



SPECIFICATIONS

Standard	ANSI, AT&T, ITU AND ETSI	
Regulatory Compliances	Safety: EMI: ACT:	UL, CE, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, REACH, WEEE	
Port Types	Copper: Fiber:	T1/E1 (RJ-45/RJ-48) Proprietary (ST, SC)
Cable Types	Copper: Fiber:	Category 3 or better (T1: 100 Ohm, E1: 120 Ohm) (Active Pairs are Pins 1, 2 and 4, 5) Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm
AC Power Requirements	AC Adapter:	100 - 240VAC/50 - 60Hz 0.05A @ 120VAC (max)
DC Power Requirements	DC Input: (AC Adapter) DC Input: (Molex Connector)	+6.0 to +15VDC 0.5A @ 9VDC 2.5mm Barrel +4.75 to +5.25VDC, 0.6A @ 5VDC
Alarm Contact	Normally Open Form A relay (pins 3 and 6)	
Dimensions W x D X H	3.0" x 4.0" x 1.0" (76.2 mm x 101.6 mm x 25.4 mm)	
Weight	6 oz. (170.1 grams)	
Temperature	Commercial:	0 to 50°C
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hrs)	Module: AC Adapter (-1): AC Adapter (-2):	680,000 250,000 100,000
Warranty	Lifetime warranty with 24/7/365 free Technical Support	

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Warranty

This product is warranted to the original purchaser (Buyer) against defects in material and workmanship for a period of two (2) years from the date of shipment. A lifetime warranty may be obtained by the original purchaser by registering this product at www.omnitron-systems.com/support within ninety (90) days from the date of shipment. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective with the same product or with a product with at least the same functionality.

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.

Limitation of Warranty

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.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

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.omniton-systems.com/support or e-mail to Omnitron at intlinfo@omnitron-systems.com.

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040-04470-002G 10/23