Omnitron Systems

iConverter® 4TxVT 10/100 Ethernet Switch User Manual

DESCRIPTION

The iConverter 4TxVT is a compact 4-Port Ethernet switch module. The 4TxVT supports Half or Full-duplex 10/100Mbps auto-negotiation, and features flexible hardware and software controls. Two ports can be controlled by DIP-switches and all the four ports can be controlled via SNMP management.

The 4TxVT supports RJ-45 auto-crossover (MDI/MDI-X) on three of the four ports, eliminating the need for a crossover cable and facilitating connectivity to different types of Ethernet equipment. Port 1 features a manual crossover switch.

See data sheet for available features.

The 4TxVT 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.

Advanced Features

The 4TxVT features Port VLAN control on all ports. Port VLAN restricts broadcast data to predetermined network paths, therefore eliminating unauthorized packet-sniffing. The switch module also supports Port Access Control

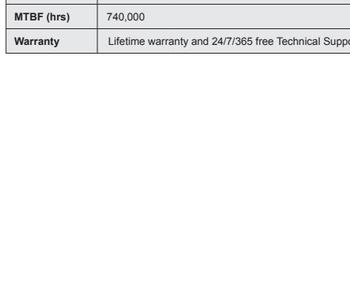
which facilitates enabling and disabling of individual RJ-45 ports, Bandwidth Allocation, and reporting of MIB statistics. The 4TxVT also features Tag VLAN and supports security and QoS prioritization based on IEEE 802.1Q and 802.1p specifications.

PORT STRUCTURE

The 4TxVT module has four front 10/100 Ethernet ports and two 100 Ethernet backplane port. The front ports allow connections to external devices and the backplane ports allow connections to adjacent module in an iConverter chassis. The backplane ports on the module are enabled using the on-board DIP-switches.

Multi-slot iConverter chassis have backplane ports that allow connectivity to adjacent slots. Backplane Port A allows connectivity between Odd Slot numbers to Even Slot numbers (1 to 2, 3 to 4, etc). Backplane Port B allows connectivity between Even Slot numbers to Odd Slot numbers (2 to 3, 4 to 5, etc).

The figure below illustrates one of the many applications of the 4TxVT when used in an iConverter chassis. By enabling Backplane Port A on both modules, the 4TxVT in slot 2 is communicating to the 10/100M2 in slot 1 via the Backplane A.

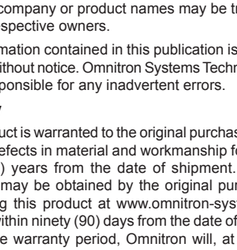


The iConverter 10/100M2 module is a 10/100Mbps copper to fiber media converter with integrated management capability. The 10/100M2 provides the long-haul network uplink via the fiber port, and the 4TxVT distributes the network service locally via the 4-port 10/100 Switch. With this configuration,the 4TxVT and the 10/100M2 form a managed 5-port Ethernet switch with a fiber uplink.

DIP-SWITCH SETTINGS

On-Board DIP-Switches

The On-Board DIP-switches control the operation for Port 1 and Port 2 only. Port 3 and Port 4 can be configured using a Management Module installed in the same chassis as the 4TxVT. By default, Port 3 and Port 4 are configured for Auto-Negotiation.



Backplane A Enable “BP A-EN”

When this DIP-switch is in the “BP A-EN” RIGHT position, backplane A is enabled and the module is connected to the adjacent slots in the chassis. When this DIP-switch is in the LEFT position (factory setting), the backplane port is disabled and disconnected from the backplane.

Backplane B Enable “BP B-EN”

When this DIP-switch is in the “BP B-EN” RIGHT position, backplane B is enabled and the module is connected to the adjacent slots in the chassis. When this DIP-switch is in the LEFT position (factory setting), the backplane port is disabled and disconnected from the backplane.

RJ-45 Auto/Manual Negotiate “AN/MAN” Port 1 or Port 2

When this DIP-Switch is in the “AN” LEFT position (factory setting), the module auto-negotiates and matches the duplex mode of a mating auto-negotiating device connected to the RJ-45 port.

When this DIP-Switch is in the “MAN” RIGHT position, the module does not auto-negotiate and operates in the duplex mode selected by the Full/Half-Duplex DIP-Switch.

RJ-45 Speed “10/100” Port 1 or Port 2

When the RJ-45 “AN/MAN” DIP-switch is in the manual “MAN” position, the “10/100” DIP-switch determines the speed of operation for the designated RJ-45 port. Setting the “10/100” DIP-switch to “100” LEFT position (factory default) forces the RJ-45 port to operate at 100Mbps. Setting this DIP-switch to “10” RIGHT position forces the RJ-45 port to operate at 10Mbps.

When the RJ-45 “AN/MAN” DIP-switch is in the Auto-Negotiate “AN” position and the RJ-45 10/100 DIP-switch is in the “100” LEFT position, the RJ-45 port Auto-Negotiates to 100Mbps or 10Mbps. When in the “10” RIGHT position, the RJ-45 port only operates at 10Mbps.

RJ-45 Full/Half Duplex “FD/HD” Port 1 or Port 2

When the RJ-45 Auto/Manual Negotiate “AN/Man” DIP-Switch is in the Manual “Man” position, the RJ-45 Full/Half-Duplex “FD/HD” DIP-Switch determines the duplex mode for the module.

When this DIP-Switch is in the “FD” LEFT position (factory setting), the module operates in Full-Duplex mode. When in the “HD” RIGHT position, it operates in Half-Duplex mode. Set the duplex mode to match the connecting device and check for link status.

Note: Attaching an auto-negotiating RJ-45 port to a non-auto-negotiating (manual / forced / hard-coded) RJ-45 port will result in an unpredictable port setting with excessive collisions and poor link performance.

When operating in Manual mode both connected ports MUST be set manually to the same speed and duplex mode.

SOFTWARE CONTROLLED SETTINGS

Additional settings are available via software control when a 4TxVT is installed in an iConverter chassis with a Management Module, such as a Network Management Module (NMM2) or a 10/100M2 Media Converter with Integrated Management. The following settings can be controlled via the Serial Console, Telnet or SNMP Management Software such as *NetOutlook*® Management Software or other third-party SNMP-based clients:

- Enabling 10/100 Ethernet Backplane Port A and B
- RJ-45 Ports 1-4 Auto/Manual mode selection
- RJ-45 Ports 1-4 10/100 speed selection
- RJ-45 Ports 1-4 Full/Half Duplex mode selection
- Port VLAN for RJ-45 Ports and Backplane Ports
- Port Access Control for RJ-45 Ports
- MIB Statistics Reporting
- Tag VLAN for UTP Ports and Backplane Ports
- Bandwidth Allocation for RJ-45 Ports

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.

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. Using a Category 5 or better Ethernet cable, attach the RJ-45 port (or ports) to a 10/100 Ethernet device.

LED INDICATORS

LED	Color	Description
Pwr	Yellow	Module has power
Port 1 “100 Link”	Green	OFF: Not linked at 100Mbps ON: Linked at 100Mbps Blinking: Data activity
Port 1 “10 Link”	Green	OFF: Not linked at 10Mbps ON: Linked at 10Mbps Blinking: Data activity
Port 2 “100 Link”	Green	OFF: Not linked at 100Mbps ON: Linked at 100Mbps Blinking: Data activity
Port 2 “10 Link”	Green	OFF: Not linked at 10Mbps ON: Linked at 10Mbps Blinking: Data activity
Port 3 “100 Link”	Green	OFF: Not linked at 100Mbps ON: Linked at 100Mbps Blinking: Data activity
Port 3 “10 Link”	Green	OFF: Not linked at 10Mbps ON: Linked at 10Mbps Blinking: Data activity
Port 4 “100 Link”	Green	OFF: Not linked at 100Mbps ON: Linked at 100Mbps Blinking: Data activity
Port 4 “10 Link”	Green	OFF: Not linked at 10Mbps ON: Linked at 10Mbps Blinking: Data activity

SPECIFICATIONS

Standard Compliances	IEEE 802.3	
Regulatory Compliances	Safety: EMI: ACT:	UL, CE, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, WEEE, REACH	
Frame Size	Up to 1,536 bytes	
Port Types	Copper:	10/100BASE-T (RJ-45)
Cable Types	Copper:	EIA/TIA 568A/B, Cat 5 UTP and higher
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 oz. (226.8 grams)	
Temperature	Commercial: Wide: Extended: Storage:	0 to 50°C -40 to 60°C -40 to 75°C -40 to 80°C
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hrs)	740,000	
Warranty	Lifetime warranty and 24/7/365 free Technical Support	

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.

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.

Customer Support Information

Phone: (949) 250-6510

Fax: (949) 250-6514

Address: Omnitron Systems Technology, Inc.
38 Tesla
Irvine, CA 92618, USA

Email: support@omnitron-systems.com

URL: www.omnitron-systems.com

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