

### **iConverter® Tx/2Fx and Tx/2Tx** **Redundant Fast Ethernet Fiber & Copper Managed Ethernet Media Converters**

The iConverter Redundant Fast Ethernet managed media converters are members of the modular iConverter product family, and include:

Tx/2Tx - 100BASE-TX copper to dual 100BASE-TX copper

Tx/2Fx - 100BASE-TX copper to dual 100BASE-FX fiber

The iConverter Redundant Fast Ethernet modules are designed for use in networks that require fiber or copper link redundancy. With a link fault detection time of 100 microseconds, the Redundant iConverter modules provide the rapid response time required for mission-critical applications.

The fiber port supports multimode and single-mode dual fiber with ST, SC and LC connectors; and single-mode single-fiber with SC connectors.

All ports support Half or Full-Duplex operation, and the RJ-45 ports can auto-negotiate or be manually set to a required duplex mode.

All ports support Link Propagation (Link Loss Carry Forward), Link Segmentation, Remote Fault Detection and Symmetrical Fault Detection modes to facilitate quick fault detection, isolation and reporting.

The iConverter Redundant modules can be used in managed or unmanaged applications. Management is accomplished by installing an iConverter Management Module (NMM2) or Network Interface Device (NID) in the same chassis. The management module provides access to all the advanced features available on the module.

The management software can override the physical DIP-switch settings such as auto-negotiation, Half/Full-Duplex and Link Mode selection. The module supports SNMP trap notification for the monitoring and notification of different network events.

The hot-swappable plug-in module can be mounted in a high-density 19 or 5-Module chassis with redundant AC and DC power supplies. It can also be mounted in a 2-Module AC or DC powered chassis, or in a 1-Module chassis with AC or DC power input.

The iConverter Multi-Service Platform consists of Network Interface Devices, T1/E1 multiplexers, CWDM/DWDM multiplexers and managed media converters that combine to deliver Carrier Ethernet and TDM services over fiber or CWDM/DWDM wavelengths. This flexible architecture supports a wide variety of configurations for scalable and reliable fiber connectivity in Service Provider and Enterprise networks.



### **KEY FEATURES**

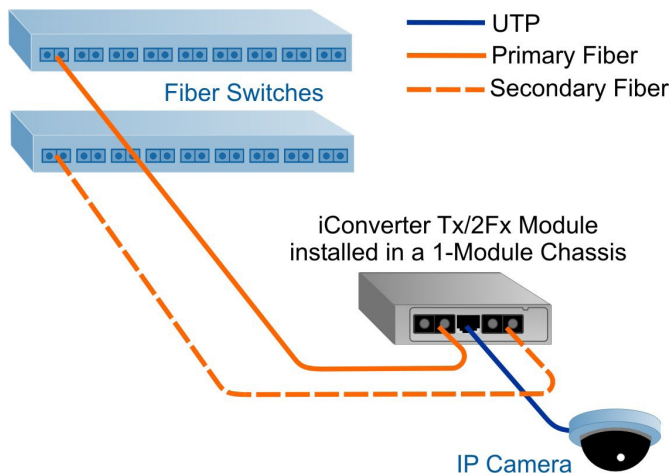
- Provide hot backup with 100 microseconds link redundancy for critical applications
- Tx/2Fx model provides 100BASE-TX copper to two 100BASE-FX fiber links
- Tx/2Tx models provide 100BASE-TX copper to two 100BASE-TX copper links
- Fiber modules support multimode, single-mode dual fiber with ST, SC and LC connectors, and single-mode single-fiber with SC connectors
- RJ-45 ports support auto-negotiation and forced Half/Full-Duplex and manual crossover switch
- User-selectable link fault detection modes facilitate quick fault detection, isolation and reporting
- Automatic Link Recovery
- Modules are hot-swappable in 19-Module, 5-Module, 2-Module or 1-Module chassis
- Management is available with the addition of a management module to the chassis
- SNMP management via NetOutlook® provides real-time port and module status information, remote parameter configuration and trap notification
- Commercial (0 to 50°C) and wide (-40° to 60°C) temperature ranges
- TAA, BAA and NDAA compliant, and Made in the USA
- Lifetime Warranty and free 24/7 Technical Support

# APPLICATION EXAMPLES

## Redundant Fiber

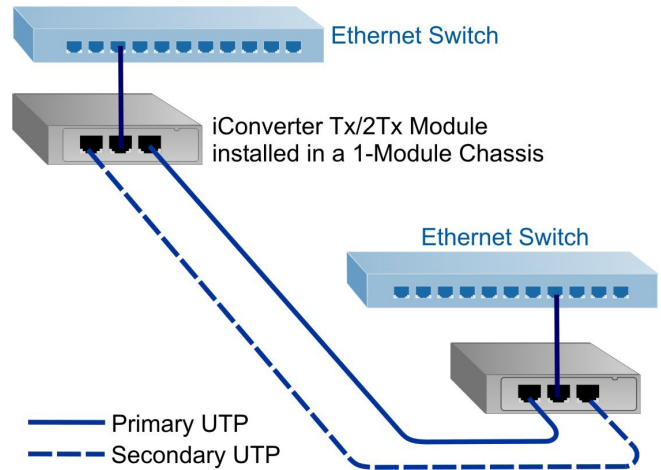
In the application below, the iConverter Tx/2Fx enables 100Mbps fiber link redundancy to an IP camera that has an RJ-45 copper port. Fiber is run to the camera from a primary fiber link connected to a fiber switch, and secondary backup fiber link is run from another fiber switch for failover protection. Both links connect to the fiber ports on the Tx/2Fx module installed in an iConverter 1-Module Chassis. If the primary fiber link goes down, the secondary backup link becomes active and maintains network connectivity to the camera via the RJ-45 port on the module.

This configuration can also provide fiber redundancy to Point of Sale equipment, Wi-Fi access points, and mission-critical Ethernet switches in financial, healthcare and military networks.



## Redundant Copper

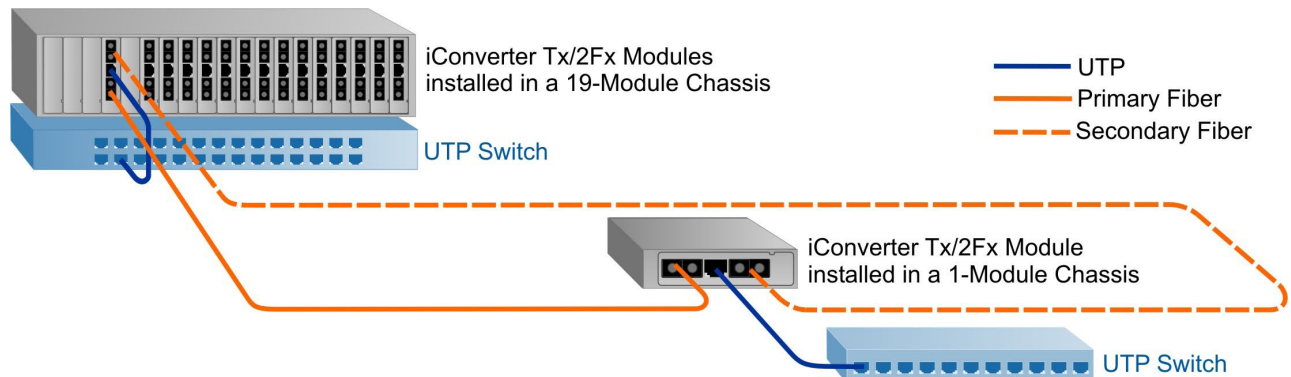
In this application, iConverter Tx/2Tx modules are installed in 1-Module Chassis and deployed in a bookend configuration between two Ethernet switches. The Tx/2Tx modules provide primary and secondary backup UTP copper cable links between the Ethernet switches. If the primary link goes down, the secondary backup link becomes active and maintains network connectivity between the switches.



## High-Density Redundant Fiber

In this application, iConverter Tx/2Fx modules are deployed in a mission-critical star topology network. In the upper left, Tx/2Fx modules are installed in an iConverter 19-Module Chassis to provide high-density distribution of redundant fiber links from a third-party Ethernet switch with RJ-45 copper ports.

At each end of the redundant fiber links, the primary link and the secondary backup fiber link are connect to the fiber ports on the Tx/2Fx module installed in an iConverter 1-Module Chassis. If the primary fiber link goes down, the secondary backup link becomes active and maintains network connectivity to the network switch via the RJ-45 port on the module.



# SPECIFICATIONS

<b>Description</b>	<i>iConverter Tx/2Fx and Tx/2Tx</i> Redundant Fast Ethernet Media Converters	
<b>Standard Compliances</b>	IEEE 802.3	
<b>Regulatory Compliances</b>	Safety: EMI: ACT:	UL, cUL, CE, UKCA FCC Class A TAA, BAA, NDAA
<b>Environmental</b>	RoHS, WEEE, REACH	
<b>Frame Size</b>	Up to 1,536 bytes	
<b>Port Types</b>	Copper: Fiber:	100BASE-TX (RJ-45) 100BASE-FX (ST, SC, LC) 100BASE-LX (ST, SC, LC) 100BASE-ZX (SC, LC) 100BASE-BX (SC Single-Fiber)
<b>Cable Types</b>	Copper: Fiber:	EIA/TIA 568A/B, Cat 5 UTP and higher Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm

<b>DC Power Requirements</b>	DC Input: (Backplane)	3.3VDC, 1.1A @ 3.3VDC (Tx/2Fx) 3.3VDC, 0.7A @ 3.3VDC (Tx/2Tx)
<b>Dimensions W x D x H</b>	0.85" x 4.5" x 2.8" (21.6 mm x 114.3 mm x 71.1 mm)	
<b>Weight</b>	8 oz. (226.8 grams)	
<b>Temperature</b>	Commercial: Wide: Storage:	0 to 50°C -40 to 60°C -40 to 80°C
<b>Humidity</b>	5 to 95% (non-condensing)	
<b>Altitude</b>	-100m to 4,000m	
<b>MTBF (hrs)</b>	520,000	
<b>Warranty</b>	Lifetime warranty and 24/7/365 free Technical Support	

## ORDERING INFORMATION

### Step 1: Choose a Base Part Number (xxxx-xt)

Fiber Type	Distance	Connector Type				Tx Lambda (nm)	Rx Lambda (nm)	Min. Tx Power (dBm)	Max. Tx Power (dBm)	Min. Rx Power (dBm)	Max. Rx Power (dBm)	Min. Attenuation (dB)	Link Budget (dB)
		ST	SC	LC	RJ-45								
<b>Tx/2Fx</b>													
MM/DF	5km	8420-0t	8422-0t	8426-0t	-	1310	1310	-24	-14	-31	-14	-	7
SM/DF	30km	8421-1t	8423-1t	8427-1t	-	1310	1310	-15	-8	-31	-8	-	16
SM/DF	60km	8421-2t	8423-2t	8427-2t	-	1310	1310	-5	0	-31	-3	3	26
SM/DF	120km	-	8423-3t	8427-3t	-	1550	1550	-5	0	-31	-3	3	26
SM/SF <sup>1</sup>	20km	-	8430-1t	-	-	1310	1550	-15	-5	-30	-3	-	15
SM/SF <sup>1</sup>	20km	-	8431-1t	-	-	1550	1310	-15	-5	-30	-3	-	15
SM/SF <sup>1</sup>	40km	-	8430-2t	-	-	1310	1550	-8	0	-30	-3	3	22
SM/SF <sup>1</sup>	40km	-	8431-2t	-	-	1550	1310	-8	0	-30	-3	3	22
SM/SF <sup>1</sup>	60km	-	8430-3t	-	-	1310	1550	-5	0	-31	-3	-	26
SM/SF <sup>1</sup>	60km	-	8431-3t	-	-	1550	1310	-5	0	-31	-3	-	26
<b>Tx/2Tx</b>													
UTP	100m	-	-	-	8400-0t	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<sup>1</sup> When using single-fiber (SF) models, the Tx wavelength on one end has to match the Rx wavelength on the other.

MM = Multimode, SM = Single-mode, DF = Dual Fiber, SF = Single-fiber

Contact Omnitron for other configurations, extended temperature (-40 to 75°C) and RoHS (5/6) compliant models.

For chassis options, see [iConverter Chassis and Mounting Options web page](#).

### Step 2: Choose an Operating Temperature Range (xxxx-xt)

<leave blank> = Commercial temperature (0 to 50°C)
W = Wide temperature (-40 to 60°C)

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