miConverter™ S-Series S/GXT and S/GXT+
Ultra-Compact 10/100/1000 to Gigabit Fiber Media Converters

The miConverter S/GXT and S/GXT+ Gigabit fiber to 10/100/1000BASE-T media converters are designed for applications where compact size, light weight and low power are critical requirements. About the length of a standard house key and weighing less than 2.5 oz. (72 grams), the miConverter S-Series converters can be easily installed in tight places or conveniently slip into any pocket or laptop carrying case for easy portability.

These ultra-compact media converters can be USB powered, which makes them ideal for field-deployed fiber-to-the-laptop and military applications where AC power is unavailable. Fiber is run directly to the converter, where it is converted to copper UTP and connected to a laptop's RJ-45 port with a standard Ethernet patch cable. Power can be supplied to the converter by the laptop's USB port using a standard USB cable, eliminating the need for an electrical outlet.

For applications not utilizing USB power, the converter is also available with a country specific AC/DC power adapter, providing compatibility with electrical outlet types found around the world.

The miConverter S-Series delivers plug-and-play set up with an RJ-45 port that auto-negotiates the speed, duplex mode and cross-over functions. LEDs display the status of power, fiber link, data rate and data activity.

The S-Series supports 1000BASE-X fixed fiber ports (SC or ST connectors) with multi-mode, single-mode and single-fiber options. It also supports 1000BASE-X Small Form Pluggable (SFP) transceivers. SFP transceivers enable adaptability to different fiber types, speeds and distances, and support Coarse Wave Division Multiplexing (CWDM) technology to increase the bandwidth capacity of fiber infrastructure.

The S-series features different fault detection and troubleshooting operations. The miConverter S/GXT port linking operates in Link Segment (LS) mode which enables quick identification of any failed segment of a network's cabling or equipment. In this mode, each of the converter's ports detects and displays link status independently of the status of the other port. As a result, a loss of link due to cable failure is seen on the port, providing immediate identification of the fault's location.
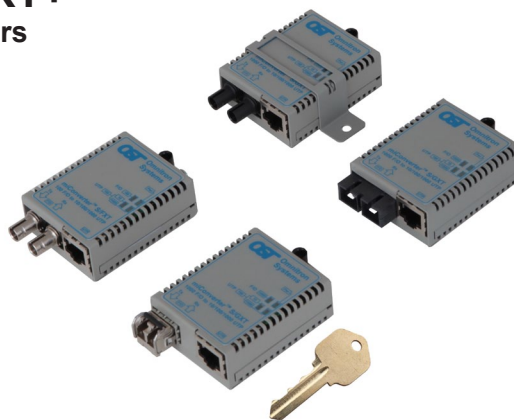
SFPs and key not included

KEY FEATURES

■ Ultra compact Gigabit copper to fiber media converters that weigh less than 2.5 oz.

■ Fixed fiber port supports multimode and single-mode dual fiber with ST and SC connectors; and single-mode single-fiber with SC connectors

■ Supports 1G SFP transceivers for standard or CWDM wavelengths

■ RJ-45 port supports 10/100/1000BASE-T and MDI/MDIX auto-crossover

■ Supports Jumbo Ethernet Frames up to 9K bytes

■ **S/GXT** features Link Segment (LS) mode

■ **S/GXT+** features smart Link Segment and Propagate (LSP) mode

■ AC power adapter options for US and International countries

■ LED indicators for Power, RJ-45 and Fiber status

■ An optional convenient travel case

■ Supports commercial (0 to 50°C), wide (-40 to 60°C) and extended (-40 to 75°C) temperature ranges

■ TAA, BAA and NDAA compliant, and Made in the USA

■ Lifetime Warranty and free 24/7 Technical Support

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The miConverter S/GXT+ port linking operates in a smart "Link Segment and Propagate" mode (LSP) which enables predictable behavior during power-up, and provides immediate notification to the user upon any link faults. In the LSP mode, the copper and fiber ports will link independent of each other. Once both ports are linked, a loss of any link is propagated to the other port, causing the link to be dropped. The dropped link can be sensed by the link partner, and when such equipment is managed it can alert the user of a link failure.

The S/GXT and S/GXT+ are available in commercial (0 to 50°C) and wide (-40 to 60°C) and extended (-40 to 75°C) operating temperature ranges allowing a wide range of deployment options.

Easy to pack and convenient for mobile applications, the S-Series media converter is available with an optional traveling case that stores the media converter, power adapter, USB cable and other accessories.

ACCESSORIES

miConverter S-Series with power supply and travel case

SPECIFICATIONS

Description	miConverter S/GXT and S/GXT+ 10/100/1000 Copper to 1000 Fiber Media Converter	
Standard Compliances	IEEE 802.3	
Regulatory Compliances	Safety:	UL, cUL, CE, UKCA
	EMI:	FCC 15 Class B
	ACT:	TAA, BAA, NDAA
Environmental	RoHS, WEEE, REACH	
Frame Size	Up to 9K bytes	
Port Types	Copper:	10/100/1000BASE-T (RJ-45)
	Fiber:	1000BASE-SX/LX (ST, SC, SFP)
		1000BASE-BX (SC Single-Fiber)
Cable Types	Copper:	EIA/TIA 568A/B, Cat 5 UTP and higher
	Fiber:	Multimode: 50/125µm, 62.5/125µm
		Single-mode: 9/125µm
AC Power Requirements	100–240VAC/50-60Hz; 0.039A @ 120VAC USB micro-B cable with power adapter	
DC Power Requirements	+3VDC to +5.5VDC; 0.742 @ 5VDC USB micro-B connector direct	
Dimensions W x D x H	1.75" x 2.25" x 0.84" (44.5 mm x 57.2 mm x 21.3 mm)	
Weight	Module Only:	2.5 oz. (70.9 grams)
	With USB cable:	3.8 oz. (107.7 grams)
	With AC/DC adapter and USB cable:	12 oz. (340.2 grams)
Temperature	Commercial:	0 to 50°C
	Wide:	-40 to 60°C
	Extended:	-40 to 75°C (S/GXT+ and S/GXT w/Rev B HW)
	Storage:	-50 to 80°C
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hrs)	S/GXT	
	Module Only:	1,300,000
	AC/DC Adapter:	100,000
	S/GXT (Rev B HW)	
	Module Only:	1,460,000
	AC/DC Adapter:	100,000
	S/GXT+	
	Module Only:	1,430,000
	US AC Adapter:	100,000
Warranty	Lifetime warranty with 24/7/365 free Technical Support	

Model Number	Description
9146-1	Spare US/USB AC adapter and 3ft. USB power cable
9146-3	Spare European/USB AC adapter and 3ft. USB power cable
9146-4	Spare UK/USB AC adapter and 3ft. USB power cable
9146-5	Spare Australian/USB AC adapter and 3ft. USB power cable
9146-8	Spare Japan/USB AC adapter and 3ft. USB power cable
9146-6	3ft. USB power cable (standard Type A plug to micro-B plug)
1691-0	miConverter S-Series wall mount bracket
1692-0	miConverter S-Series travel case

DC Power Requirements vs Temperature		
USB 1.x/2.x (5.0V at 0.5A max)		
miConverter	Temperature Range	SFP Models Supported
S/GXT	Commercial, Wide	7206-x, 7207-1, 7207-2
S/GXT+	Commercial, Wide	7206-x, 7207-1, 7207-2
USB 3.0 (5.0V at 0.9A max), or USB Power Adapter (5.0V at 1.0A max):		
S/GXT Rev B	Commercial, Wide, Extended	Any MSA compliant SFP
S/GXT+	Commercial, Wide, Extended	Any MSA compliant SFP

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APPLICATION EXAMPLES

Fault Detection and Propagation using S/GXT+

In this application, a pair of miConverter S/GXT+ LSP media converters are used to connect Ethernet switches via fiber. UTP cables connect the media converters to the Gigabit Ethernet switches at both ends. On power-up, the S/GXT+ operates in smart LSP mode initially allowing both the copper and fiber ports to link independently.

Green LED indicators on the media converters and switches at both locations indicate a complete and active data connection as shown below.
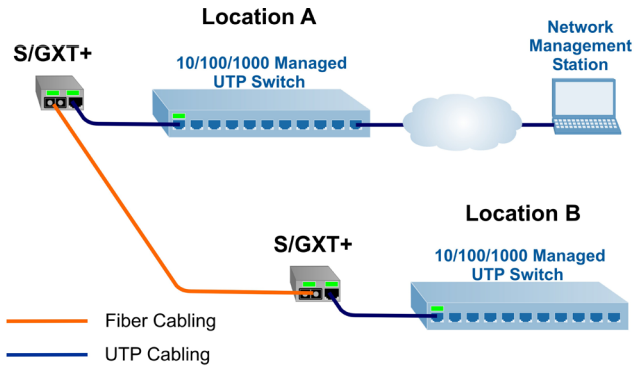
Normal Operation

When the copper cable between the S/GXT+ and the Ethernet switch at Location B has been disconnected (shown by the red X) it causes a loss of link on the S/GXT+ (B). The loss of link on the copper port causes the fiber port (1) to lose link, propagating the link fault across the fiber to the other S/GXT+ (A) converter. The detection of the fault at Location A by the fiber port (2) on the S/GXT+ (A), causes the copper port (3) to lose link. This causes the copper port (4) on the managed Ethernet switch to lose link. The managed Ethernet switch alerts the Network Management Station (5) by sending a loss of link SNMP alarm. The alarm provides immediate notification to the user of the link fault condition.
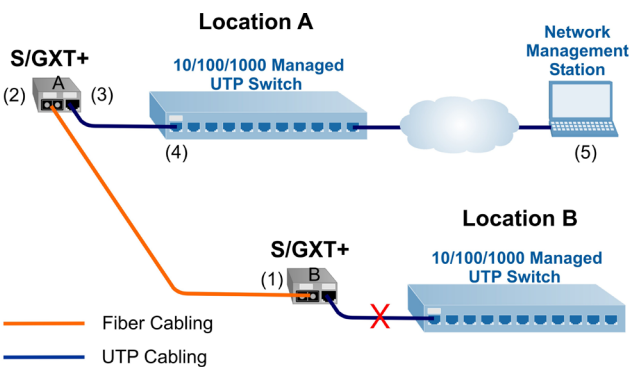

Fault Condition

Fiber to the Laptop

In this application diagram depicts a laptop computer connected to a fiber network.

The miConverter S-Series media converter connects to the laptop using two cables. The USB Power Cable draws electrical current from the USB port of the laptop. The UTP cable provides connectivity between the laptop and the copper port on the converter. The converter provides 10/100/1000BASE-T UTP to 1000BASE-X fiber conversion, which can extend the fiber link up to 34km.

The miConverter S-Series media converter is an excellent solution for fiber-to-the-laptop applications where Gigabit fiber connectivity is required and local power is not available.
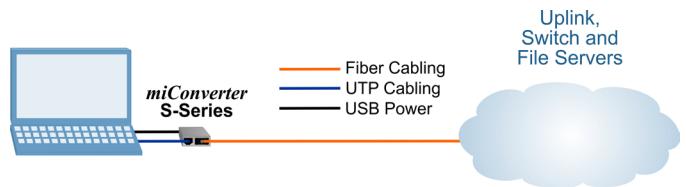
Fiber Extension

In this application, a pair of miConverter S-Series media converters are used to connect Ethernet switches between buildings via fiber. UTP cables connect the media converters to the 10/100/1000 Ethernet switches.

Multimode, single-mode, or single-mode single-fiber can be used.

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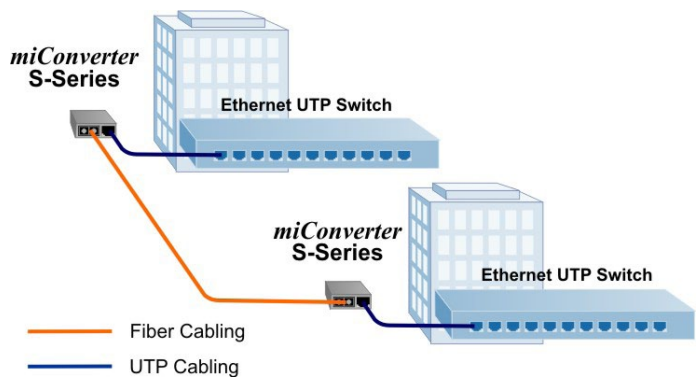
ORDERING INFORMATION

Step 1: Choose a Base Part Number (<u>xxxx-x</u>-pt)

Fiber Type	Distances	Connector Types				Tx / 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	ST Metal	SC	SFP							
S/GXT with LS												
SFP	-	-	-	-	1639-0-pt	-	-	-	-	-	-	-
MM/DF	220m/550m[1]	1620-0-pt	1620M-0-pt	1622-0-pt		850 / 850	-10	-4	-17	-3	-	7
SM/DF	12km	1621-1-pt	1621M-1-pt	1623-1-pt	-	1310 / 1310	-9.5	-3	-19.5	-3	-	10
SM/DF	34km	-	-	1623-2-pt	-	1310 / 1310	-5	0	-23	-3	3	18
SM/SF[2]	20km	-	-	1630-1-pt	-	1310 / 1550	-9.5	-3	-20	-3	-	10.5
SM/SF[2]	20km	-	-	1631-1-pt	-	1550 / 1310	-9.5	-3	-20	-3	-	10.5
SM/SF[2]	40km	-	-	1630-2-pt	-	1310 / 1550	-3	0	-20	-3	3	17
SM/SF[2]	40km	-	-	1631-2-pt	-	1550 / 1310	-3	0	-20	-3	3	17
S/GXT+ with LSP												
SFP	-	-	-	-	1679-0-pt	-	-	-	-	-	-	-
MM/DF	220m/550m[1]	1660-0-pt	1660M-0-pt	1666-0-pt		850 / 850	-10	-4	-17	-3	-	7
SM/DF	12km	1661-1-pt	1661M-1-pt	1667-1-pt	-	1310 / 1310	-9.5	-3	-19.5	-3	-	10
SM/DF	34km	-	-	1667-2-pt	-	1310 / 1310	-5	0	-23	-3	3	18
SM/SF[2]	20km	-	-	1670-1-pt	-	1310 / 1550	-9.5	-3	-20	-3	-	10.5
SM/SF[2]	20km	-	-	1671-1-pt	-	1550 / 1310	-9.5	-3	-20	-3	-	10.5
SM/SF[2]	40km	-	-	1670-2-pt	-	1310 / 1550	-3	0	-20	-3	3	17
SM/SF[2]	40km	-	-	1671-2-pt	-	1550 /1310	-3	0	-20	-3	3	17

[1] 62.5/125µm, 100/140µm multimode fiber up to 220m. 50/125µm multimode fiber up to 550m.

[2] When using single-fiber (SF) media converter 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 fiber options. Order the appropriate SFPs separately. Visit the Omnitron Optical Transceivers web page.

Step 2: Choose a Power Option (xxxx-x-<u>p</u>t)

1 = micro-B USB Connector, AC/DC Power Adapter and USB Power Cable, 110-240VAC, 50-60Hz, with US power
1T = micro-B USB Connector, AC/DC Power Adapter, USB Power Cable and Travel Case, 110-240VAC, 50-60Hz, with US power
3 = micro-B USB Connector, AC/DC Power Adapter and USB Power Cable, 110-240VAC, 50-60Hz, with European power clip
4 = micro-B USB Connector, AC/DC Power Adapter and USB Power Cable, 110-240VAC, 50-60Hz, with UK power clip
5 = micro-B USB Connector, AC/DC Power Adapter and USB Power Cable, 110-240VAC, 50-60Hz, with Australian power clip
6 = micro-B USB Connector, USB Power Cable. No AC/DC Power Adapter
6T = micro-B USB Connector, USB Power Cable and Travel Case, No AC/DC Power Adapter
8 = micro-B USB Connector, AC/DC Power Adapter and USB Power Cable, 110-240VAC, 50-60Hz, with US/Japan power
8T = micro-B USB Connector, AC/DC Power Adapter, USB Power Cable and Travel Case, 110-240VAC, 50-60Hz, with US/Japan power

Step 3: Choose an Operating Temperature Option (xxxx-x-p<u>t</u>)

<leave blank> = Commercial temperature (0 to 50°C)
W = Wide temperature (-40 to 60°C)
Z = Extended temperature (-40 to 75°C) - S/GXT+ and S/GXT with Rev B HW

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800-675-8410 • 949-250-6510 • www.omnitron-systems.com • info@omnitron-systems.com • 38 Tesla, Irvine, CA 92618, USA

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