

Gigabit Ethernet Media Converter



► Migrate to Gigabit Ethernet in a cost-effective manner. Used in conjunction with lower cost 1000BASE-T switches, companies can take advantage of the high bandwidth Gigabit Ethernet offers without all of the higher costs.

Transition Networks's 1000BASE-T to SX/LX converters allow users to extend the bandwidth to those users outside the reach of the 1000BASE-T standard (**up to 125 km**).

Features

- Copper & Fiber Auto-Negotiation *see next pages*
- Transparent Link Pass Through *see next pages*
- Automatic Link Restoration *see next pages*
- Pause *see next pages*
- Remote Fault Detect

Specifications

Standards IEEE Std. 802.3ab™ and IEEE Std. 802.3™

Fiber Optic Connector Specs

SKU	Min TX PWR (dBm)	Max TX PWR (dBm)	RX Sens (dBm)	Max In PWR (dBm)	Link Budget (dB)
SGETF1013-110	-10.0	-4.0	-17.0	0.0	7.0
SGETF1014-110	-13.0	-3.0	-20.0	-3.0	7.0
SGETF1015-110	-5.0	0.0	-20.0	-3.0	15.0
SGETF1017-110	-3.0	+2.0	-23.0	-3.0	20.0
SGETF1024-110	-10.0	-3.0	-17.0	-3.0	7.0
SGETF1029-110	-8.0	-3.0	-21.0	-3.0	13.0
SGETF1029-111	-8.0	-3.0	-21.0	-3.0	13.0
SGETF1029-112	-3.0	+2.0	-23.0	-8.0	20.0
SGETF1029-113	-3.0	+2.0	-23.0	-8.0	20.0
SGETF1035-110	0.0	+5.0	-32.0	-8.0	32.0

6-position Switch **SW1:** Remote Fiber Fault Detect (Down=Enabled)
SW2: Symmetric Pause
SW3: Asymmetric Pause
SW4: Transparent Link Pass Through (UP=Enabled)
SW5: Fiber Auto-Negotiation (Down=Enabled)
SW6: Loopback (Down=Enabled)

Status LEDs **PWR** (Power): Steady green LED indicates connection to external AC power
RXF (Fiber receive): Flashing LED indicates reception of data on fiber link
LKF (Fiber link): Steady LED indicates fiber link connection
RXC (Copper receive): Flashing LED indicates reception of data on copper link
LKC (Copper link): Steady LED indicates copper link connection

Dimensions **Width:** 3.25" [82 mm]
Depth: 4.8" [122 mm]
Height: 1.0" [25 mm]

Power External AC/DC required; 12V DC, 1.5A; unregulated; standard

Environment 0 – 50° C operating; 5% – 95% humidity non-condensing; 0 – 10,000 feet altitude

Shipping Weight 2 lbs. [0.90 kg]

Safety Compliance **Wall Mount Power Supply:** UL Listed, C-UL Listed (Canada)

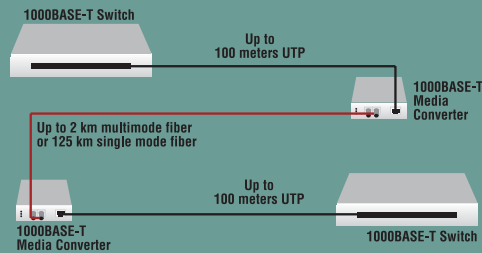
Regulatory Compliance FCC Class A, CISPR22/EN55022 Class A, EN55024, EN61000, CE Mark

Warranty Lifetime

SGETF10xx-110



Migrate to Gigabit Ethernet



Ordering Info

SGETF1013-110
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-SX 850nm MM (SC)
 [62.5/125µm fiber: 220 m/722 ft.]
 Link Budget: 7.0 dB
 [50/125µm fiber: 550 m / 1804 ft.]
 Link Budget: 7.0 dB

SGETF1024-110
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-SX 1300nm Extended MM
 (62.5/125 µm fiber only) (SC)
 [2 km / 1.2 miles] Link Budget: 7.0 dB

SGETF1014-110
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-LX 1310nm SM (SC)
 [10 km/6.2 mi.] Link Budget: 7.0 dB

SGETF1015-110
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-LX 1310nm SM (SC)
 [25 km/15.5 mi.] Link Budget: 15.0 dB

SGETF1017-110
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-LX 1550nm SM (SC)
 [65 km/40.4 mi.] Link Budget: 20.0 dB

SGETF1035-110
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-LX 1550nm SM (SC)
 [125 km/77.7 mi.] Link Budget: 27.0 dB

SGETF1040-110
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to SFP slot (empty)

Single Fiber Products

Recommended use in pairs (see next pages)

SGETF1029-110
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-LX 1310nm TX / 1550nm
 RX single fiber SM (SC)
 [20 km/12.4 mi.] Link Budget: 13.0 dB

SGETF1029-111
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-LX 1550nm TX / 1310nm
 RX single fiber SM (SC)
 [20 km/12.4 mi.] Link Budget: 13.0 dB

SGETF1029-112
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-LX 1310nm TX / 1550nm
 RX single fiber SM (SC)
 [40 km/24.9 mi.] Link Budget: 20.0 dB

SGETF1029-113
 1000BASE-T (RJ-45) [100 m/328 ft.]
 to 1000BASE-LX 1550nm TX / 1310nm
 RX single fiber SM (SC)
 [40 km/24.9 mi.] Link Budget: 20.0 dB

Optional Accessories

(sold separately)
Wide Input (18 – 72VDC) Power Supplies:

SPS-1872-PS
 Piggy Back Power Supply

SPS-1872-SA
 Stand-Alone Power Supply

Mounting Options:

E-MCR-04
 12-slot Media Converter Rack

WMBD
 DIN Rail Bracket 5.0" [127 mm]

WMBD-F
 DIN Rail Bracket (flat) 3.3" [84 mm]

WMBL
 Wall Mount Bracket 4.0" [102 mm]

WMBV
 Vertical Wall Mount Bracket 5.0" [127 mm]



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▶ Auto-Negotiation (802.3u)

Auto-Negotiation allows devices to perform automatic configuration to achieve the best possible mode of operation over a link. Devices with this feature will broadcast their speed (10Mbps, 100Mbps, etc.) and duplex (half/full) capabilities to other devices and negotiate the best mode of operation between the two devices.

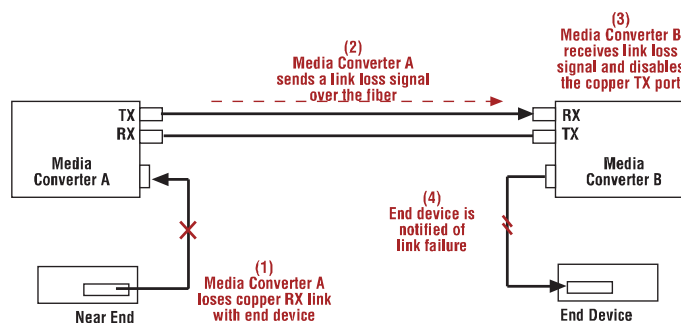
- ▶ No user intervention required to determine best mode of operation
- ▶ Optimal link established automatically
- ▶ Quick and easy installation

While the inclusion of this feature is beneficial, the ability to disable it is equally beneficial. In the event of a non-negotiating end device trying to connect to a negotiating device, the mode of operation will drop to the least common denominator between the two devices (i.e. 100Mbps, half-duplex). Disabling this feature gives the user the ability to force the connection to the best mode of operation when trying to link with a non-negotiating device. Most Transition converters with Auto-Negotiation will allow you to disable this feature.

▶ Transparent Link Pass Through

Transparent Link Pass Through will notify an end device of a link failure just like Link Pass Through, however it uses a different method for "passing through" this information. Transparent Link Pass Through sends a link-loss signal over the fiber, instructing the remote converter to shut down the copper port thus notifying the end device, while maintaining the fiber link between the two converters (see diagram below).

- ▶ End device automatically notified of link loss
- ▶ Fiber link remains up as it carries a link-loss signal



If someone tells you media conversion is a commodity product that anyone can bring to market, they probably haven't looked at the extensive product suite offered by Transition Networks. With the industry's most comprehensive offering of full-featured products, Transition's media converters stand out as "the choice" among industry IT professionals.

Generally, media converters are low-level OSI model devices with no IP or MAC addresses and therefore are transparent to the network. This "transparency" makes them very inexpensive and easy to use, but also can make troubleshooting the network very difficult. In an effort to overcome this difficulty and to make media converters "visible" to network managers, Transition has designed their full-featured products to include the most advanced features on the market today.

Advanced Product Features



► Automatic Link Restoration

Transition Networks's converters will automatically re-establish link in all network conditions.

- No need to reset devices

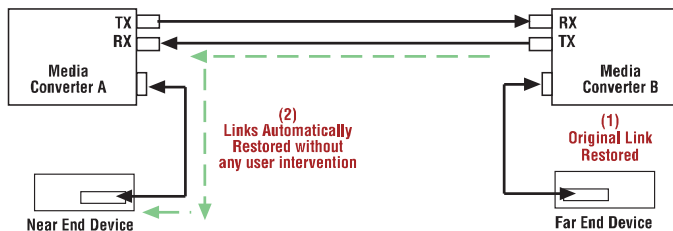
Transition Networks's converters will automatically re-establish link when connected to switches if link was lost. With other manufacturers' converters the user must reset the converter to re-establish the link.

- Auto-Negotiation Enabled

Automatic Link Restoration allows the users to continue using Auto-Negotiation with Link Loss Notification features. With other manufacturers' converters the user must disable Auto-Negotiation and hard set the link.

- Link Pass Through Activated in both directions

Automatic Link Restoration on Transition Networks's products allows users to continue using Link Loss Notification feature activated in both directions. Many competitive solutions allow for Link Loss Notification activation only in one direction. If Link Loss feature is activated in both directions, competitive products are put in a "deadly embrace" and they cannot restore the link without resetting the converters.

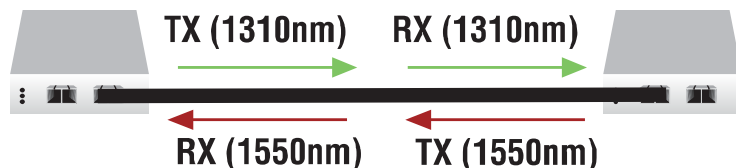


► Single Fiber

Single fiber technology offers a 50% savings in fiber utilization. It is an attractive solution to maximize the usage of a limited number of fiber runs.

In a traditional optical link, a fiber pair consists of two uni-directional strands. The single fiber technology multiplexes two optical wavelengths of 1310nm and 1550nm into a single strand fiber. In a single fiber media converter each wavelength is responsible for either the transmit or receive function. Consequently, the bi-directional transmission is achieved by using a single strand. The converters in a single fiber scenario "match" each other's wavelengths. Converter A transmits at the wavelength of 1310nm and receives at 1550nm while the other converter transmits at 1550nm and receives at 1310nm. Therefore, converters are usually used in pairs.

Single fiber technology is available on all Transition Networks Media Converters in maximum distance ranges from 20 to 80km.



► Pause (IEEE 802.3xy)

PAUSE signaling is an IEEE feature that temporarily suspends data transmission between two devices in the event that one of the devices becomes overwhelmed. In the event that a device needs some time to clear network congestion, it will send out a PAUSE signal to the other end device, which will then wait a pre-determined amount of time before re-transmitting the data. Transition's converters will pass PAUSE signaling unhindered; ensuring that the message is delivered to the end device.

- PAUSE enabled devices allowed to work properly

- Prevents loss of valuable data transmission

- Reduces bottlenecks and allows for efficient use of network devices

PAUSE signaling is not standardized over fiber media. Transition's media converters will communicate this signaling over fiber between the converters to pass this signaling on to the other end device.