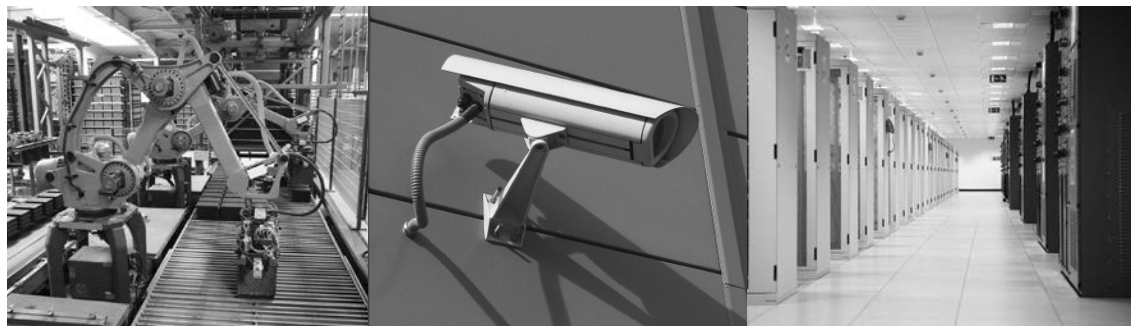TRANSITION
NETWORKS®

Mini Media Converters

Just Convert It
Simple and Cost-Effective Fiber Integration

Just Convert It with Mini Media Converters

Overview

Miniature Media Converters provide simple and cost-effective integration of copper and fiber equipment in an infrastructure where basic conversion between disparate media types is needed. The compact design and basic features make them ideal for applications where physical space is limited and advanced network management is not required. Transition Networks' Mini Media Converters are the perfect solution for situations where, in order to extend your network, you need to "Just Convert It".

Media conversion technology allows for the integration of fiber optic cabling into environments with copper-based equipment. As an alternative to replacing legacy equipment, media converters provide a quick, inexpensive method for connecting new or existing fiber to copper-based networking devices. Media conversion is ideal for remote ports at the network edge, and media converters can be deployed back-to-back over fiber or as single stand-alone units. Transition Networks offers a variety of Mini Media Converters with various fiber interfaces and RJ-45 connections to accommodate copper networking devices within Fast Ethernet and Gigabit Ethernet networks. They are simple to install, requiring no special configuration or setting of dip-switches — just plug, play, and walk away. Mini Media Converters can be easily deployed in locations where space is at a premium or even placed inside enclosures alongside security cameras or other remote equipment.

Benefits

- Cost Savings
  - Reduce capital expenditures by affordably integrating fiber infrastructure and legacy copper equipment
- Flexibility
  - The compact design is ideal for locations with space constraints and various fiber interface options accommodate almost any network environment
- Scalability
  - Stand-alone units accommodate individual applications and a rack-mount chassis is available to accommodate higher density or future growth
- Economical
  - Pay only for the product features required to meet your specific network needs
- Simple to Install
  - Plug-and-play design requires no special configuration
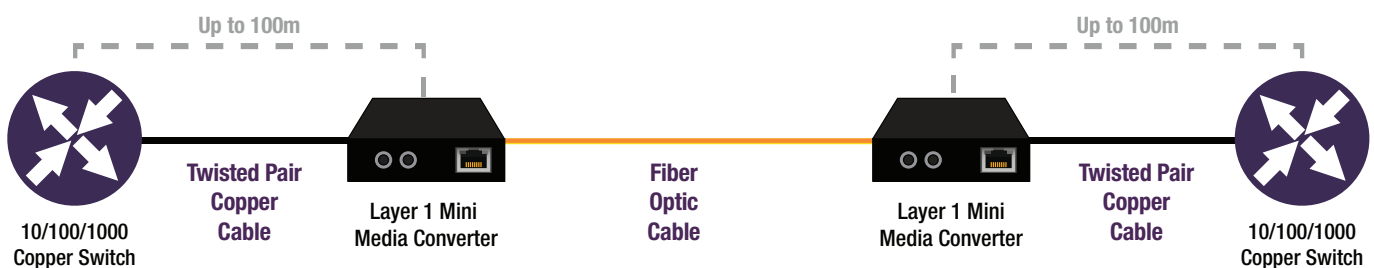
Layer 1 & Layer 2 Media Converters

Transition Networks' Mini Media Converter solutions are designed for low-cost, basic copper-to-fiber media conversion. The converters are provided in a fixed configuration, designed for simple plug-and-play deployment when you need to "Just Convert It". These basic devices are available in two formats, categorized as Layer 1 or Layer 2 media converters. The layers refer to the functions of the converters in relationship to the Open Systems Interconnection (OSI) model. The goal of the OSI reference model is to define standards and promote interoperability between various manufacturers of networking equipment. Both Layer 1 and Layer 2 media converters support unique and purposeful functions that will improve a network's performance when used in specific applications.

Layer 1

Layer 1 media converters are ideal for applications where quick throughput and low latency are top priorities. Networks in data centers and financial institutions are good examples of these applications since these networks require immediate processing of data with little to no delay. Layer 1 converters operate at the Physical Layer, which defines how data is transmitted and received over the physical cabling. These media converters act similarly to networking cables since whatever data is received on one port is immediately transmitted out the other port at wire speed without any packet inspection, resulting in high throughput. Another benefit of forgoing packet inspection is that there are no limits to the size of the frames that will be transmitted through the converter. This ensures VLAN tags will not be dropped and that Jumbo frames can be transmitted across the network. Layer 1 media converters usually support a single speed network, such as Gigabit Ethernet (also known as 1000Mbps). Even though only one speed is supported, the copper port of the media converter provides features like Auto-Negotiation, which allows it to negotiate and link with the multi-speed (10/100/1000) ports on end devices like Ethernet switches and network interface cards (NICs) in PC workstations.

Highlights of Layer 1 Conversion

- Physical Layer conversion
- High throughput, low latency
- Transfers data at wire speed
- Will auto-negotiate links with multi-speed 10/100/1000 ports
- No frame size limitation
- Generally less expensive
- Common Applications:
  - Data Centers
 - Financial Institutions
  - Big Data Analytics

Up to 100m   Up to 100m

10/100/1000 Copper Switch | Twisted Pair Copper Cable | Layer 1 Mini Media Converter | Fiber Optic Cable | Layer 1 Mini Media Converter | Twisted Pair Copper Cable | 10/100/1000 Copper Switch

*Various fiber cabling options supported. See Ordering Information for fiber types and transmission distances.

Layer 2

Layer 2 media converters are ideal for introducing new technologies into legacy networks. These applications could include connecting slower 10/100 Ethernet networks to faster 10/100/1000 networks or connecting legacy half-duplex networks to more modern full-duplex networks. This type of conversion is often needed in enterprise, manufacturing, and government agency networks. Layer 2 converters operate at the Data Link Layer, which is responsible for node-to-node data transfer. At this layer, packets are held in buffer memory and packet inspection takes place to examine Media Access Control (MAC) addresses in order to make data forwarding decisions based on source and destination addresses. While full-duplex Layer 2 switches greatly reduce network congestion when compared to half-duplex Layer 1 hubs, Layer 2 media converters will add network latency while verifying source and destination addresses. Layer 2 media converters support multiple speeds on the copper port, such as 10/100/1000. Since they are capable of connecting two networks of different speeds, Layer 2 media converters are often called Rate Converters. Because Layer 2 media converters provide additional functionality similarly to an Ethernet switch, they generally cost slightly more than Layer 1 converters.

Highlights of Layer 2 Conversion

- Data Link Layer conversion
- Speed/rate conversion (may increase latency)
- Facilitate the connection of a 10/100 network to a Gigabit backbone
- Used to deploy new technologies into legacy networks
- Performs packet inspection prior to forwarding traffic; forwards data based on MAC addresses; may have frame size limitations
- Added functionality generally increases price over Layer 1 conversion products
- Common Applications:
  - Enterprise Networks
  - Manufacturing Environments
  - Government Agencies
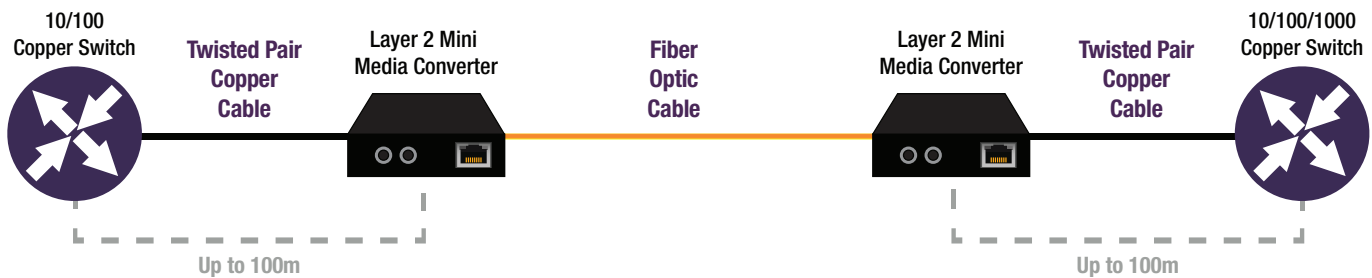
*Various fiber cabling options supported. See Ordering Information for fiber types and transmission distances.

Transition Networks offers Mini Media Converters for both Layer 1 and Layer 2 applications. Each type of converter serves specific purposes, so it is important to understand the goals of your network in order to choose a media converter that best meets your needs. Transition Networks has expert consultants available to assist with specific network design requirements and media converter selection.
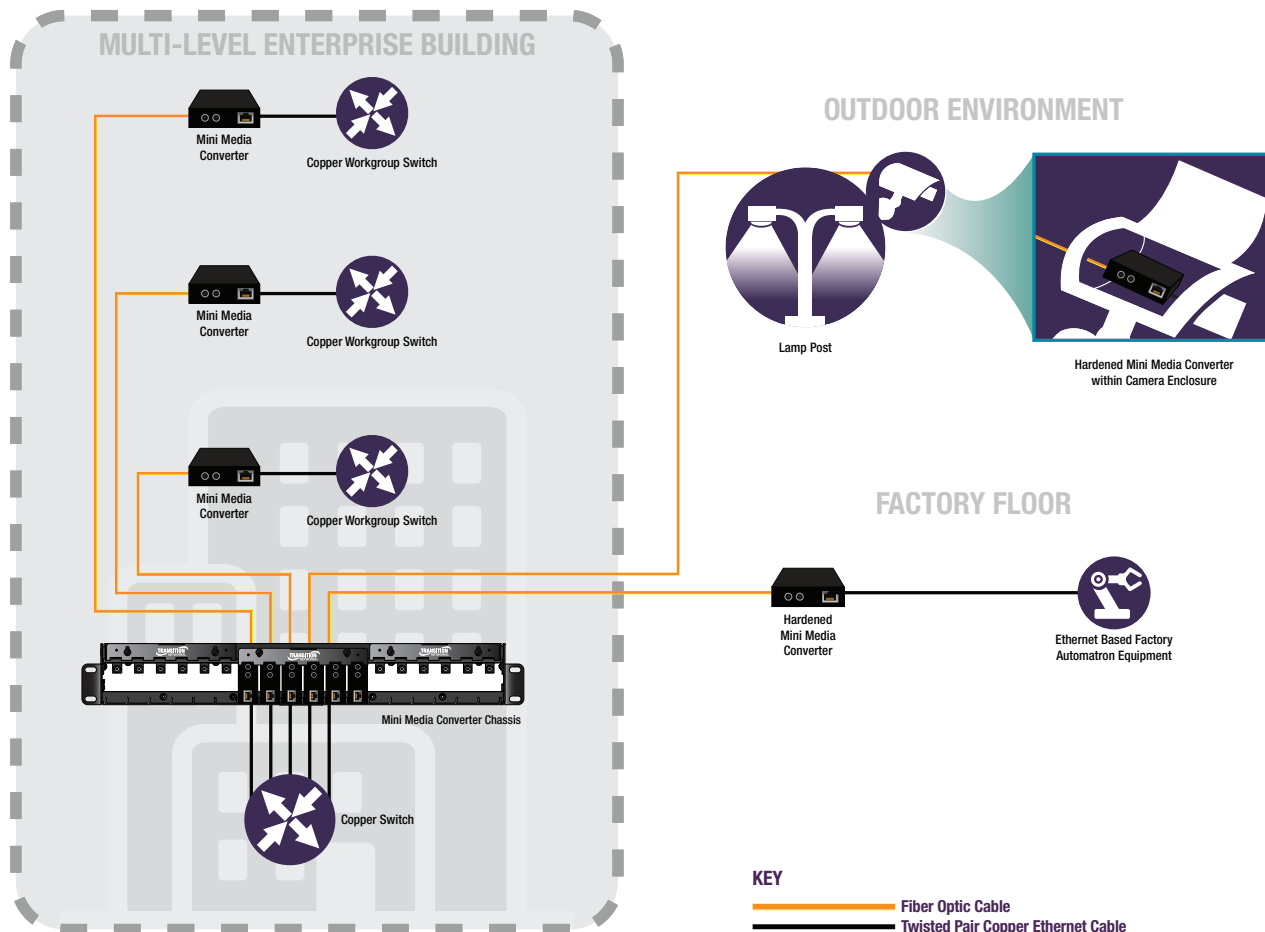
Environmental Considerations

Another important consideration is the environment in which media conversion takes place. Unique environments, such as those with extreme temperatures, high shock or vibration environments, or hazardous locations, may require media converters specifically designed to withstand the environment.

Enterprise-Rated Products

Most enterprises that need to integrate fiber cabling into their networks have climate-controlled environments in which standard products will operate effectively. However, at the edge of enterprise networks, space constraints are often an issue. The small size of Enterprise-Rated Mini Media Converters addresses this problem by offering a cost-effective and space-saving solution for integrating fiber optic cabling within the enterprise network.

Extended Temperature-Rated Products

Certain environments, such as factory floors or outdoor enclosures, may experience a wide range of temperatures and therefore require specially designed products that can withstand those environments. Transition Networks' "Hardened" or Extended Temperature-Rated Mini Media Converters provide a cost-effective method for integrating fiber optic cabling into twisted pair Ethernet networks in environments with temperature ranges between -40°C and +75°C.

MULTI-LEVEL ENTERPRISE BUILDING

Mini Media Converter

Copper Workgroup Switch

Mini Media Converter

Copper Workgroup Switch

Mini Media Converter

Copper Workgroup Switch

Mini Media Converter Chassis

Copper Switch

OUTDOOR ENVIRONMENT

Lamp Post

Hardened Mini Media Converter within Camera Enclosure

FACTORY FLOOR

Hardened Mini Media Converter

Ethernet Based Factory Automatron Equipment

KEY

Fiber Optic Cable

Twisted Pair Copper Ethernet Cable

Ordering Information

Product	Description	Hardened	Powered Device
Layer 1 Mini Media Converters			
Fast Ethernet			
M/E-TX Series	100Base-TX to 100Base-FX		
Gigabit Ethernet			
M/GE-T Series	1000Base-T to 1000Base-SX/LX		
Layer 2 Mini Media Converters			
Ethernet / Fast Ethernet			
M/E-PSW Series	10/100Base-TX to 100Base-FX		
M/E-ISW Series	10/100Base-TX to 100Base-FX	X	
Ethernet / Fast Ethernet / Gigabit Ethernet			
M/GE-PSW Series	10/100/1000Base-T to 1000Base-SX/LX		
M/GE-ISW Series	10/100/1000Base-T to 1000Base-SX/LX	X	
M/GE-ISW-SFP-01-PD	10/100/1000Base-T to 1000Base-SX/LX	X	X
M/GE-xSW-SFP-01-xx-UxX Series	Unidirectional 10/100/1000Base-T to 1000Base-X SFP Slot	X	X
Accessories			
Mini Chassis			
M-MCR-01	18-Slot Mini Media Converter Chassis		

Global Presence
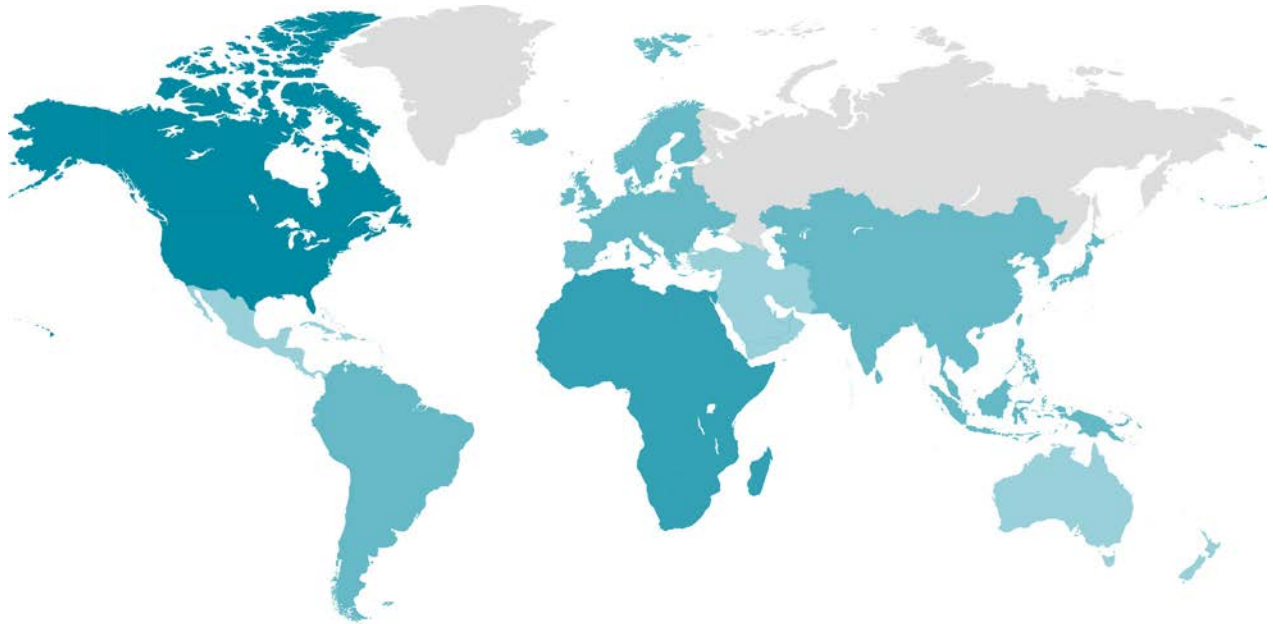
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