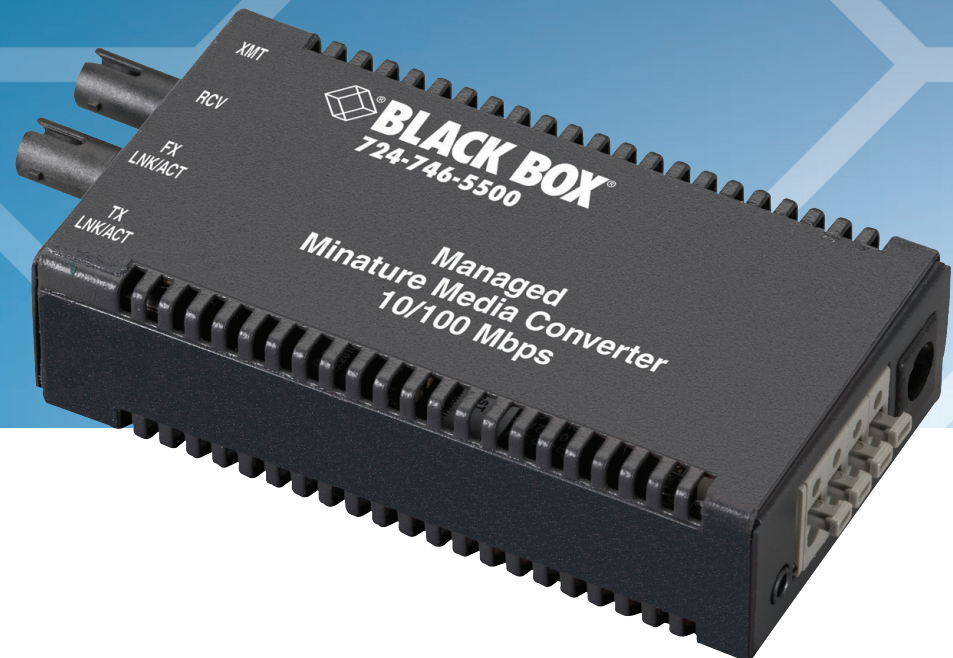


## Managed Miniature Media Converters

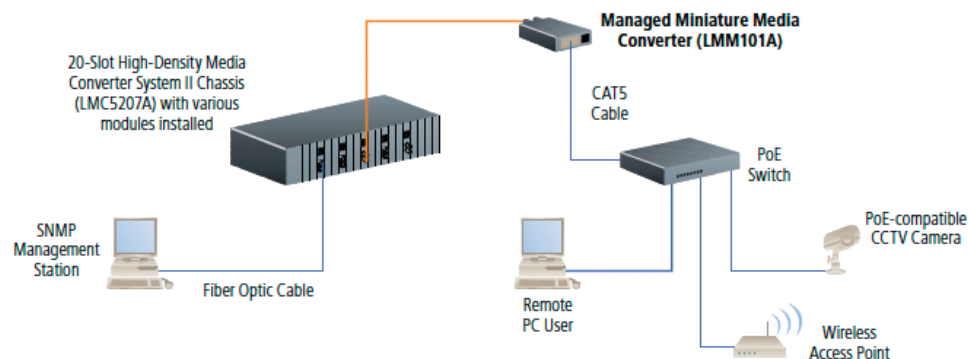
**Translate UTP to fiber media  
and control the link and converter  
from a remote location!**



## FEATURES

- » Full SNMP management for configuring and monitoring remote links.
- » Bidirectional bandwidth control.
- » IEEE 802.1Q VLAN tags with Q-in-Q tagging (802.1ad) and QoS 802.1p-based packet prioritization.
- » Can be used in VLAN-based networks.
- » Auto MDI/MDI-X on the copper port so you never need a cross-pinned cable.
- » Autonegotiate for speed and duplex on the copper port.
- » Support oversized packets up to 1916 bytes.
- » Include loopback test modes plus LinkLoss™ and FiberAlert™.
- » Use AC adapter or DC terminal block power, or draw power from compatible Power over Ethernet PSE.
- » Include clips for DIN rail mounting.
- » Compact size makes them great for areas with limited space.
- » Password protected with user-defined access settings.

Use with the High-Density Media Converter System II Chassis and incorporate Power over Ethernet (PoE) connections.



## OVERVIEW

These compact, plug-and-play UTP-to-fiber media converters feature advanced link management and remote configuration tools as well as power supply flexibility for deployment in out-of-the-way industrial applications.

For instance, use the Managed Miniature Media Converters to connect lower-cost copper switches to your fiber optic backbone to not only bridge legacy Ethernet and Fast Ethernet segments to fiber, but also increase your network distance and security over optical cable. Plus, they can be used in virtual local area network (VLAN) based applications, too.

They're particularly well-suited for campus network administrators looking for a way to isolate management traffic and customer data across a high-speed, point-to-point fiber link. But they can also be used by service providers who want remote customer premise equipment (CPE) management capabilities while delivering highbandwidth "triple play" (voice, video, and data) services to customers.

In a typical application, you'd use a Managed Miniature Media Converter at a remote office to convert a long-distance fiber link from a central office to copper, managing the media converter from the central office with either SNMP or Telnet™.

The media converters support bidirectional bandwidth control, and a unique management tool in the included GUI-based software enables you to monitor the entire link between central and remote offices. Both the CPE and the fiber link can be managed as a single entity. In addition, the converters include DHCP and TFTP clients, and an SNMP management agent gives you the power to keep tabs on the status and activity of copper and fiber ports at the remote end.

The Managed Miniature Media Converters can also be remotely configured. To keep informed of link activity, you can even set them to provide vital alerts if an event occurs.

What's more, the converters support Layer 2 packet switching, store-and-forward operation, QoS (Quality of Service) 802.1p-based

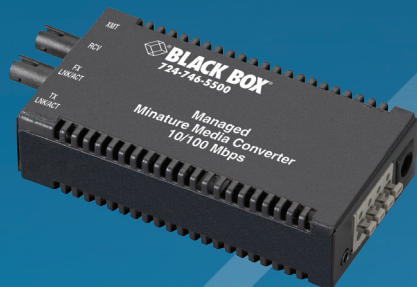
packet prioritization, and oversized packets (up to 1916 bytes per packet).

All Managed Miniature Media Converters feature a 100BASE-FX fiber data port, a 10BASE-T/100BASE-TX copper port for data and management, and an auxiliary port that (when used with the included adapter cable) functions as a serial port for local console connections. The copper port autonegotiates to the attached network speed of either 10- or 100-Mbps Ethernet and includes MDI-II/MDI-X autocross functionality that automatically adjusts to the pinning of the connected UTP cabling. In addition, the converters support both half- and full duplex operation.

We offer both multimode and single-mode ST and SC versions. No matter the version ordered, you get several power supply options. Choose from an autosensing AC power adapter or use a 4-terminal DC power block (which has an extended voltage range of 5 to 50 VDC). And because the converters comply with the IEEE 802.3af Power over Ethernet (PoE) standard, you can also deploy them as powered devices that draw their power from connected 802.3af compliant power sourcing equipment (PSE) via the spare pairs of the UTP cabling.

For a fiber-to-copper solution that incorporates a high-density centrally managed platform, use the Managed Miniature Media Converters with our High-Density Media Converter System II Chassis. By doing this, you can create a total end-to-end managed system. Ideal for any SNMP-managed enterprise network, the High-Density System II family includes a wide range of hot-swappable media converter modules for converting copper to fiber, extending T1/E1 and vDSL services, managing bandwidth, and more.

*NOTE: NOTE: For extended-distance and single-strand models, as well as information about compatible modular solutions in the High-Density Media Converter System II family, contact our FREE Tech Support*



Managed Miniature Media Converters (LMM101A)

## Technically Speaking

The Managed Miniature Media Converters offer a number of software-controlled features for managing traffic from a remote location.

These features include VLAN tagging for keeping data and SNMP traffic separated to ensure network security and transparent operation. Operating as 802.1Q VLAN compatible devices, the media converters boast 1 to 4094 valid VLAN IDs and support port-based VLAN tagging, as well as Q-in-Q (extra tagging). You can configure the converters to filter and pass up to 32 VLAN IDs for data along with an additional VLAN ID for SNMP management. In transparency mode, the converters pass all data while respecting the VLAN tag (or lack thereof), allowing you to set up a virtual network with a mix of both VLAN tagged and untagged traffic.

If you have to devote bandwidth to a specific application or traffic on your LAN, take advantage of the Managed Miniature Media Converter's bandwidth control functions. With fine granularity, you can provide customized services for specific subscribers and set levels of bandwidth use for your power users, allocating bandwidth accordingly in a matter of seconds from a remote location via SNMP.

IEEE 802.1p compatible, the media converters provide a twoti-

er queue for differential prioritization of inbound and outbound traffic—which is especially beneficial in voice over IP (VoIP) and other applications where you need to give certain traffic the high-priority.

Through the management interface, you can change bandwidth on the fly, turn services on or off, modify your VLAN settings, adjust QoS policies assigned to different traffic types, and more. You can also create a secure management domain to isolate management domain broadcasts from TX data ports on both units.

Initial setup and modifications can be performed via the SNMP application, Telnet/TFTP, or a local serial port connection.

For troubleshooting, you can use to receive real-time device and traffic statistics on the remote device. To test link integrity, use the converters' FiberAlert and LinkLoss diagnostic features. They, along with at-a-glance LEDs, assist you in identifying and diagnosing potential problems across the entire fiber link. SNMP traps can be set to alert you to potential network failures so you incur less downtime and spend less time troubleshooting.

You can also run loopback testing, which loops back nonmanagement traffic frames arriving on the fiber port. Even better, the converters support MAC address swap on loopbacks.

## TECH SPECS

### Fiber Optic Cable Supported —

LMM101A:LMM102A: 50/125µm or 62.5/125µm multimode;  
LMM103A:LMM104A: 9/125µm single-mode

### Flow Control — IEEE 802.3x

**Forwarding Rate** — 10 Mbps: 14,880 pps;  
100 Mbps: 148,800 pps

**General MIBs** — Traps (cold start, warm start), authentication failure, link up, link down, remote unit lost, remote unit back online, far-end TX link on and off, link status of ports, port type, fiber type, SNMP port (host/remote), SNMP agent IP address (host/remote/single), link partner, user-definable name of product, user-definable ID/name of ports, enable/disable ports, enable/disable FiberAlert, enable/disable loopback modes, set duplex mode for twisted-pair ports, set autonegotiation/ speed for twisted-pair ports

**MIB-II (RFC 1213)** — Packets transmitted, packets received, octets (bytes) transmitted, octets (bytes) received, all standard MIB II objects

**Operation** — Half- or full duplex

**RMON Statistics** — Drop events, total bytes, total packets, broadcast packets, multicast packets, CRC align errors, undersize packets, oversize packets, fragments, jabbers, collisions, distribution of frame size

**SNMP Management** — SNMP V1 and V2c compatible

**QoS Supported** — IEEE 802.1p-based packet prioritization (2 queues [high/low] with 8 levels of priority)

**Tagging Supported** — Read/write IEEE 802.1Q VLAN tags;  
Q-in-Q Extra Tagging

**Connectors** — Copper twisted-pair side: (1) RJ-45 (10BASE-T/100BASE-TX);  
Fiber optic side: (1) duplex ST® or SC (100BASE-FX);  
Serial local management port: (1) DB9 F (RS-232)

### Temperature —

Operating: without AC wall adapter: -35 to +70°C,  
with AC wall adapter: 0 to 40°C;  
Storage: -49 to +185°F (-45 to +85°C);

**Humidity** — 5 to 95%, noncondensing

**Power** — AC wall adapter: Input: 100-240 VAC, 50-60, autosensing,  
Output: 5 VDC;

DC input voltage: 750 mA at 5 V, extended voltage range of 5-50 VDC;  
Supports operation as a IEEE 802.3af Power over Ethernet powered device (PD)

**Size** — 2H x 4.6W x 8.6D cm

**Weight** — 0.1 kg

### Item

### Code

Managed Miniature Media Converters

10-/100-Mbps Copper to 100-Mbps 850-nm Multimode Fiber

2 km ST

**LMM101A-R2**

SC

**LMM102A-R2**

10-/100-Mbps Copper to 100-Mbps 1300-nm Single-Mode Fiber

40 km ST

**LMM103A-R2**

SC

**LMM104A-R2**