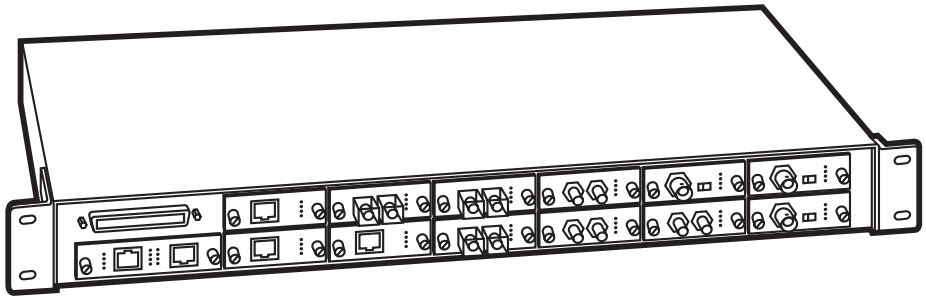
BLACK BOX®
NETWORK SERVICES

SNMP Manageable Media Converters

Connect your twisted-pair networks to fiberoptic—and detect and isolate faults—with the Manageable Media Converters.



Key Features

- *Connect virtually any twisted-pair network to any multimode or single-mode fiberoptic segment.*
- *Manage your network using Simple Network Management Protocol (SNMP).*
- *LinkLoss helps you detect a cable break on the fiberoptic or twisted-pair portion of the network.*
- *FiberAlert automatically disconnects both Transmit and Receive on a fiberoptic connection when link is lost at either connection.*

Convert your Ethernet switch's 10BASE-T or 10BASE-TX twisted-pair interface to fiberoptic with the Media Converters. Manage your networks via SNMP, too!

Telco Chassis
This modular, rackmountable chassis includes a slot for installing a master or slave module and slots for up to 12 modules. It's available with either a universal power supply or -48 VDC power supply and a slot for optional redundant power supply.

6-Slot Chassis
This modular, rackmountable chassis includes a slot for installing a master or slave module and slots for up to 6 modules. It's also available with either a universal power supply or -48 VDC power supply and a slot for optional redundant power supply.

SNMP Management Modules
These modules work with both the Telco Chassis and the 6-Slot Chassis. You must select one. With one master module, you can manage up to 60 modules installed in up to 5 slave chassis. The slave module includes an RS-485 SNMP management uplink, allowing distances up to 500 m using UTP cable.

SNMP Manageable Modules for Telco Chassis, 10 Mbps
These modules support 10 Mbps in the Telco chassis (over UTP, multimode or single-mode Fiber, or BNC cable).

SNMP Manageable Modules for 6-Slot Chassis, 10 Mbps
These modules support 10 Mbps in the 6-Slot Chassis (convert UTP to multimode or single-mode Fiber and UTP to BNC).

SNMP Manageable Modules for 6-Slot Chassis, 100 Mbps
These modules support 100 Mbps in the 6-Slot Chassis (over 100TX to 100FX for multimode or single-mode fiber).

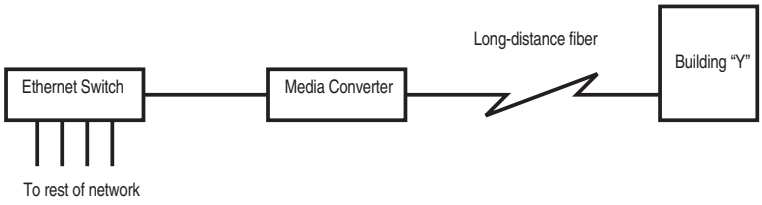
Protocol Independent Fiber Conversion Modules
These modules convert between 850 nm or 1300 nm multimode and 1300 nm single-mode fiber. And they're protocol-independent, so they're compatible with ATM/Sonet, FDDI, Fast Ethernet, Ethernet, and Token Ring.

The unique LinkLoss and FiberAlert features prevent "silent failures" on your network. For more information, see ***Technically Speaking*** on **page 2**.

Typical Application

Convert 50-pin Telco or RJ-45 twisted-pair connections to multimode or single-mode fiberoptic connections.

With LinkLoss enabled, the status of the fiber segment will always be reflected by the twisted-pair segment.



Technically Speaking

Link Integrity
Link can be checked either by physically observing the status of the Link LED, or, more commonly in larger networks, by network-management software—specifically SNMP.

For example, an SNMP management workstation can interrogate manageable switches in use and display the Link Status of a segment, either in graphical or tabular format. In addition, the SNMP-manageable switch may also support the ability to be configured so that a TRAP (a type of alert within SNMP) is sent to the management workstation when Link is lost.

Media Converters implement the Link Integrity Test feature. If the cable is broken or damaged, the Link LED on the Media Converter associated with that segment will go out. **Figure 1** shows the typical use of a Media Converter.

LinkLoss
The Media Converters feature the LinkLoss option. It's especially useful during initial installation, during the "checkout" phase, to isolate cable faults.

A Media Converter with LinkLoss enabled allows the Link status of the twisted-pair component to reflect the Link status of the fiber component. If fiber Link is lost at the Media Converter, the Link Integrity Test will be disabled on the twisted-pair segment. When the Media Converter disables the twisted-pair Link LED due to loss of Link on the fiber side, the Link LED on the switch will also be disabled. If the switch is configured to monitor Link status, it will immediately send an SNMP TRAP indicating loss of Link.

To use LinkLoss, simply set a jumper on the printed circuit board. With LinkLoss enabled, the Link status of the fiber segment will always be reflected by the twisted-pair segment, allowing quick notification of fiber problems.

Specifications

Telco Chassis and 6-Slot Chassis:

Rack Space — 1 U or 2U

Max. Heat Generated — 200 BTU/hour

Temperature — *Operating:* 0 to 40° C; *Storage:* -6 to 71° C

Humidity — 5 to 95% noncondensing

Power — LMC120A, LMC121A, LMC600A, LMC601A: *AC Input Load:* 95/240 V, 50/60 Hz, 0.6/0.3 A; LMC120A-DC, LMC121A-DC, LMC600A-DC, LMC601A-DC: *DC Output Load:* -48 VDC, 1.2 A

Shipping Weight — 5 kg

SNMP Management Modules:

Protocol — *Ethernet:* IEEE 802.3 or ISO 8802-3; *UDP:* RFC 768; *IP:* RFC 791; *ICMP:* RFC 792; *Management Structure:* RFC 1155; *SNMP Protocol:* RFC 1157

Connectors — (2) RJ-45

MIB Support — MIB-II, RFC 1213, MAU MIB, RFC 1515, IMC Networks Private MIB (registered with the IETF, Vendor Code 661)

Manageable Modules:

Speed — 10 Mbps or 100 Mbps

Connectors — Modules for Telco Chassis:
LMC130C-ST: (2) ST for Telco to multimode fiberoptic conversion, ***LMC130C-SC***: (2) SC for Telco to multimode fiberoptic conversion, ***LMC131C-ST***: (2) ST for Telco to single-mode fiberoptic conversion, ***LMC131C-SC***: (2) SC for Telco to multimode conversion, ***LMC132C-ST***: (2) ST for single-mode to fiberoptic conversion with higher power budget, ***LMC132C-SC***: (2) SC for single-mode to fiberoptic conversion with higher power budget, ***LMC133C***: (1) RJ-45, ***LMC134C***: (1) BNC

Modules for 6-Slot Chassis:
LMC610C-ST: (1) RJ-45, (2) ST for RJ-45 twisted pair to fiberoptic multimode conversion, ***LMC610C-SC***: (1) RJ-45, (2) SC for RJ-45 twisted pair to fiberoptic multimode conversion, ***LMC611C-ST***: (1) RJ-45 (2) ST for RJ-45 twisted pair to fiberoptic single-mode conversion, ***LMC611C-SC***: (1) RJ-45, (2) SC for RJ-45 twisted pair to fiberoptic single-mode conversion, ***LMC612C-ST***: (1) RJ-45, (2) ST for RJ-45 twisted pair to single-mode fiberoptic conversion with higher power budget, ***LMC612C-SC***: (1) RJ-45, (2) SC for single-mode fiberoptic conversion with higher power budget, ***LHC614C-ST***: (1) RJ-45, (2) ST for TX/FX to fiberoptic multimode conversion, ***LHC614C-SC***: (1) RJ-45, (2) ST for TX/FX to fiberoptic multimode conversion, ***LHC615C-ST***: (1) RJ-45), (2) ST for TX/FX to fiberoptic single mode conversion, ***LHC615C-SC***: (1) RJ-45 (2) SC for TX/FX to fiberoptic single-mode conversion, ***LHC616C-ST***: (1) RJ-45, (2) ST for TX/FX to fiberoptic single-mode conversion with higher power budget, ***LHC616C-SC***: (1) RJ-45 (2) SC for TX/FX to fiberoptic single-mode conversiton with higher power budget

Conversion Modules:

Protocol Standards — *FO Modules:* IEEE 802.3 Ethernet 10BASE-FL (850 nm multimode, 1300 nm multimode, or 1300 nm single-mode); *TP Modules:* IEEE 802.3 Ethernet 10BASE-T; *BNC Modules:* IEEE 802.3 Ethernet 10BASE2

Speed — 10 Mbps

Connectors — ***LHC617C-ST, LHC618C-ST*:** (4) ST; ***LHC617C-SC, LHC618C-SC*:** (4) SC; ***LHC619C-ST, LHC620C-ST***: (2) ST; ***LHC619C-SC, LHC620C-SC:*** (2) SC

Additional equipment you may need:

- CAT 5 Cable
- Bulk ThinNet Cable
- Bulk Fiber Optic Cable

For these and other components...
Call our expert Technical Support Staff for all your LAN needs. They'll help you find the best equipment for your application.

Ordering Information

This information will help you place your order quickly.

PRODUCT NAME	ORDER CODE
Telco Chassis	
1 U high	LMC120A
1 U high, with DC power supply	LMC120A-DC
2 U high	LMC121A
2 U high, with DC power supply	LMC121A-DC
6-Slot Chassis	
1 U high	LMC600A
1 U high, with DC power supply	LMC600A-DC
2 U high	LMC601A
2 U high, with DC power supply	LMC601A-DC
SNMP Management Modules	
SNMP Master Module for Chassis	LMC100C-M
SNMP Slave Module for Chassis	LMC100C-S
SNMP Manageable Modules for Telco Chassis, 10 Mbps	
Fiberoptic ST	LMC130C-ST
Fiberoptic SC	LMC130C-SC
Fiberoptic, Single Mode ST	LMC131C-ST
Fiberoptic, Single Mode SC	LMC131C-SC
Fiberoptic, Single Mode Plus ST	LMC132C-ST
Fiberoptic, Single Mode Plus SC	LMC132C-SC
SNMP Manageable Modules for 6-Slot Chassis, 10 Mbps	
TP/FO ST	LMC610C-ST
TP/FO SC	LMC610C-ST
TP/FO Single Mode ST	LMC611C-ST
TP/FO Single Mode SC	LMC611C-SC
TP/FO Single Mode Plus ST	LMC612C-ST
TP/FO Single Mode Plus SC	LMC612C-SC
TP/BNC	LMC613C
SNMP Manageable Modules for 6-Slot Chassis, 100 Mbps	
TX/FX ST	LHC614C-ST
TX/FX SC	LHC614C-SC
TX/FX Single Mode ST	LHC615C-ST
TX/FX Single Mode SC	LHC615C-SC
TX/FX Single Mode Plus ST	LHC616C-ST
TX/FX Single Mode Plus SC	LHC616C-SC
Protocol Independent Fiber Conversion Modules	
SM 1300-MM 1300-ST	LHC617C-ST
SM 1300-MM 1300-SC	LHC617C-SC
SM 1300 Plus-MM 1300-ST	LHC618C-ST
SM 1300 Plus-MM 1300-SC	LHC618C-SC
SM 1300-MM 850-ST	LHC619C-ST
SM 1300-MM 850-SC	LHC619C-SC
SM 1300 Plus-MM 850-ST	LHC620C-ST
SM 1300 Plus-MM 850-SC	LHC620C-SC
You might also want to order cables:	
CAT5 Color Patch Cable (RJ-45 to RJ-45), 4 Pair, 100-ft. (30.4-m)	EVNSL05-0010
Bulk ThinNet Cable, Black PVC, Stranded Conductor, Custom Lengths	LCN300
Bulk Duplex Fiber Optic Cable, PVC—Riser Applications (OFNR/FT4), 62.5/125-micron, Custom Lengths	EFN062