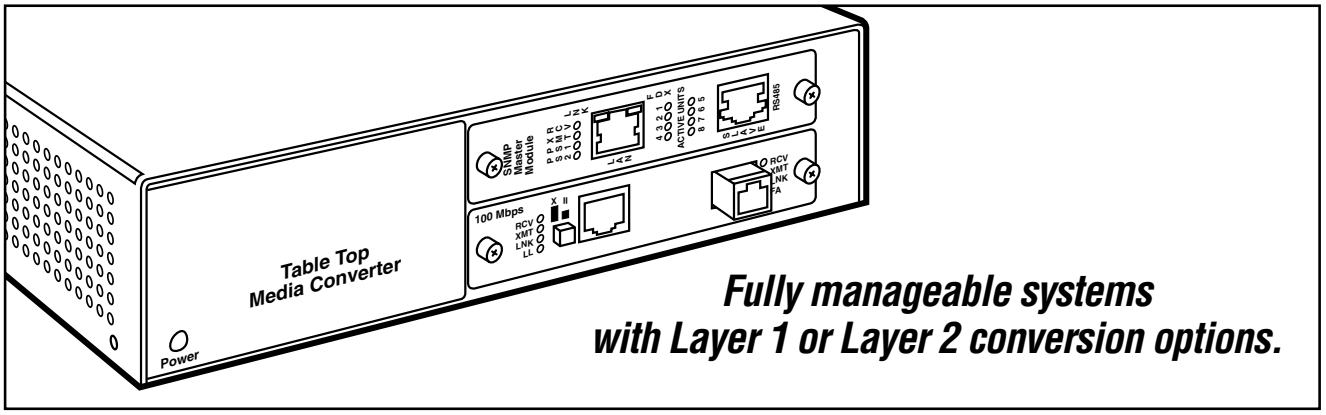
BLACK BOX®
NETWORK SERVICES

HIGH-DENSITY MEDIA CONVERTER SYSTEMS



Fully manageable systems with Layer 1 or Layer 2 conversion options.

Key Features

- ***Chassis available with or without SNMP embedded.***
- ***Choose a chassis and add only the media converters you need.***
- ***Built-in cooling fans on System II chassis.***
- ***LinkLoss and/or FiberAlert diagnostics on converter modules.***
- ***Bandwidth Manager enables you to control bandwidth per each port.***
- ***Copper-to-fiber, fiber-to-fiber, and single-strand fiber modules available.***
- ***Layer 2 converters increase network efficiency.***

Wish you could effectively manage the media converters in your rapidly growing network without ever having to leave your computer room? Our original High-Density Media Converter System or our newer High-Density Media Converter System II with Embedded SNMP gives you the ability to do just that.

Use either chassis to monitor and manage the media converters in your network right from your desk. Eliminate guesswork, avoid downtime, and isolate problems without having to visit your wiring centers. They're particularly useful in mission-critical enterprise and service-provider applications.

Choose the size of chassis to fit your application. We offer small tabletop configurations as well as high-port density rackmounted solutions. Because the systems are modular, you can add whatever equipment works best for you.

SNMP management, which is embedded in the System II chassis and available as a modular add-on to the original chassis, helps you diagnose network problems by monitoring both copper and fiber link status as well as the chassis' temperature and voltage levels. SNMP traps can alert you to potential network failures so you incur less downtime and spend less time troubleshooting. You can assign a name to each of the various ports and if a link failure occurs, you'll be notified with the port's name.

With the High-Density Media Converter System II with Embedded SNMP and the SNMP Module that plugs into the High-Density Media Converter System, you receive a CD-ROM of iView management software. This software enables you to configure the chassis and its modules in minutes and provides you with cross-platform application for managing intelligent networking devices from virtually any 32-bit Windows® system. It also includes MIBs for SNMP.

Compatible with Windows 95/98, Windows 2000, Windows NT® 4, and HTML, the user-friendly, comprehensive iView program uses a clear graphical user interface (GUI). It even shows an on-screen representation of the actual device control panels and gives you detailed information about the conversion ports.

You can also use the included MIBs with any standard SNMP program, such as HP® OpenView®. This enables you to view SNMP's in-depth technical data in iView's easy-to-use interface. You can even display statistics as charts.

The Chassis

High-Density Media Converter System

There are two basic chassis types to choose from in this family: the 2-slot model and the 18-slot model. Each chassis can be outfitted with an SNMP Module (LMC5003A), which acts as an SNMP agent for the entire High-Density Media Converter System, providing an in-band 10BASE-T port for SNMP traffic. The add-on module gives you the capability to manage a chassis and its interface converter module(s) via the iView GUI and/or a standard SNMP platform. The module has an out-of-band integral DB9 (RS-232) port that you use to assign an IP address to the module via the included DB9 cable.

The 2-slot table-top chassis (LMC5000A) is ideal for fiber-to-the

(continued from page 1)

desktop applications or remote locations. You can install one or two media converter modules for an unmanaged LMC5000A system, or install a converter module alongside an SNMP Module for a managed system.

The 18-slot rackmount chassis (LMC5001A or LMC5002A-DC) provides a central hub for your media converters. Use it for installation in a central location, such as a computer room. And with 18 slots, you're guaranteed maximum flexibility. At 3U high, the 18-slot chassis is rackmountable and is available with your choice of an AC (LMC5001A) or DC (LMC5002A-DC) power supply. You can also add a redundant power supply (LMC5004AC or LMC5005DC).

High-Density Media Converter System II with Embedded SNMP

This chassis features an SNMP agent embedded in its backplane, eliminating the need to install a separate management module or software in your system. Just add your media converter module(s) and, for greater control, a Bandwidth Manager module.

The 2-port model (LMC5100A) features a small footprint, houses two media converter modules, and is powered by an AC power supply.

For even more conversions, order either our 8-port model (LMC5102A), which has an AC power supply, or our 18-port chassis, which we offer with either an AC (LMC5104A) or DC (LMC5105A-DC) power supply.

Although the 18-slot chassis comes with its power supply already installed, you can order a second power supply in the form of a module (LMC5106AC) that slides into the chassis. The chassis ships with blank plates preinstalled.

In addition to internal power supplies, all chassis feature redundant, 6.8-cfm-rated cooling fans to keep them from becoming overheated and causing downtime.

In situations where you need to disable chassis management, you simply move the built-in SNMP switch to the off position. Even though this makes the modules unmanageable, the SNMP agent continues to communicate with installed modules. Turning management back on returns the modules to management control and any settings you've set in iView. A chassis that has its management enabled can be connected to a switch, hub, or other network device via a Category 5 straight-through twisted-pair cable that you plug into the unit's external 10BASE-T (RJ-45) connection.

Because the High-Density Media Converter System II with Embedded SNMP chassis has an imbedded DHCP agent, its IP address is dynamically assigned when connected to a LAN with a DHCP server.

Configuring the chassis

Whether you order the System II chassis or order the original chassis along with an SNMP Module, setting up a system is straightforward.

Once you connect the chassis to your network, you begin by assigning the device its own IP address. This initial configuration can be done in-band through the chassis' (or SNMP Module's) 10BASE-T port while using the HubControl utility that's included on the iView CD or out-of-band through the chassis' (or SNMP Module's) front-panel RS-232 serial port using Dynamic Configuration Host Protocol (DCHP).

Of the two IP-address assignment routes, the second is the simplest. You simply plug one end of the included straight-through-pinned cable to the DB9 connector and the other end into the appropriate port on your computer or terminal that's set for VT100™ emulation.

The HubControl utility can also be used to initiate remote SNMP configuration for SNMP-manageable devices. This way, you can get a head start on adding subnet masks, trap assignments, and other management functions. You also use HubControl to upload new versions of the system software and new MIB information.

Once the chassis has an IP address assigned, you can use the iView software or another SNMP-compatible network management system, such as HP® OpenView®, to remotely configure, monitor, and manage the modules you install in the chassis. Program subnet masks and default gateways, create community strings (for both read-only and read/write access), configure traps—all within a password-protection process!

Bandwidth Manager

Making the most of available bandwidth becomes more important as Internet usage increases. To allocate bandwidth in the most cost-effective way within a network LAN/WAN environment, add a Bandwidth Manager (LE1028C) to any of the chassis.

Ideal for Web hosting, server colocation, and service provider applications, this two-port networking device enables you to easily and inexpensively control bidirectional bandwidth in 1-kbps increments up to 10 Mbps.

Configure the module in minutes using the iView software, which ships with the unit and installs on any network PC. This CD provides a clear, easy-to-use GUI to help you manage your Bandwidth Manager and enables you to throttle link speeds "on the fly."

Or use an SNMP application, such as HP OpenView. Within five minutes, you can configure bandwidth by simply dialing-in the desired amount.

An ISP, for instance, can use the Bandwidth Manager to quickly adjust the uplink or downlink speed to meet and guarantee a wide range of bandwidth requirements for its subscribers. By fine-tuning the amount you provide to customers, you can minimize bandwidth waste and ensure a better use of resources.

Because it offers bidirectional bandwidth control, you can adjust bandwidth on traffic travelling between upstream and downstream ports. This feature makes the Bandwidth Manager highly suited for environments where you need to provide multiple levels of service to end users, such as in a business park or multi-tenant building.

The Bandwidth Manager has two shielded RJ-45 10BASE-T ports (labeled Ports A and B) for network connections and a DB9 (RS-232) DTE serial port for IP configuration. You can configure both RJ-45 ports for half- and full-duplex operation to match the mode of your connected hardware.

Choose either Port A or Port B to assign bandwidth. This can be done using iView or manually by flipping DIP switches on the module's component side. Using iView, you can set the bandwidth of the module's data ports up to 10 Mbps and forward it in each direction (A to B or B to A). To edit the data rate for each port in iView, you can choose from one of 12 predefined rates or enter your own "custom" rate in granular, 1-kbps increments.

For each data port, choose a mode for forwarding or discarding frames that come in contact with the Bandwidth Manager. Among your choices are general modes for forwarding all traffic to your LAN or forwarding just IP/ARP traffic. The latter option best suits filtering traffic from the Internet to a LAN.

You're also given inclusionary modes in which the Bandwidth Manager forwards only IP/ARP packets that fall into a certain range while either allowing or preventing all non-IP traffic to pass.

Or use exclusionary modes in which the module forwards everything except what you specify in an IP address range, including non-IP traffic, or forwards all IP/ARP packets minus what you specify in an IP range. The second option is best for filtering traffic from a LAN to the Internet or a WAN.

Once you assign an IP address to the module, you can use iView or another SNMP-based network management application to configure and remotely manage the Bandwidth Manager.

If you don't enable bandwidth-management capabilities on the device, you can essentially use the module as a 10BASE-T to 10BASE-T extender instead.

(continued on page 3)

(continued from page 2)

Interface Converters

Populate either system with a mix of hot-swappable copper-to-fiber or fiber-to-fiber media converter modules.

Fiber modules are available in one- or two-strand models. Because the one-strand models use only a single strand of fiber optic cable, you can make two connections over your duplex fiber cable instead of one. This can lead to significant savings in cabling costs.

Read on for brief summaries of the media converter modules. Please note that all distances and speeds listed depend on the use of quality cable and, in the case of the fiber modules, the actual fiber budget and loss of the particular installation.

LGC5108C–LGC5109C

These 1.25-Gbps modules are perfect for applications involving Gigabit Ethernet within enterprise and service provider network infrastructures. Operating at Layer 1, they convert Gigabit twisted-pair signals to 1000BASE-SX or 1000BASE-LX fiber optics.

The LGC5108C provides a single 1.25-Gbps conversion between copper and 850-nm multimode fiber, giving you distances up to 0.2 km (0.1 mile).

The LGC5109C, the Plus SC model, supports distances up to 10 km (6.2 miles) over single-mode fiber.

LMC5112C–LMC5117C

The LMC5112C and LMC5115C are matched module sets that perform Fast Ethernet copper-to-fiber media conversion at Layer 1. Each set includes two converter modules that transmit data over single-strand (simplex) fiber. You simply install the two modules at the opposite ends of the same strand as a matched pair.

Single-strand products make use of Wave Duplex Multiplexing (WDM) fiber signalling techniques that enable you to use only half the amount of single-mode fiber for your transmissions. This can help you save you on your cable infrastructure and termination equipment costs. If you already have duplex cable pulled, these modules double your capacity.

The technology creates two logical channels from a single physical fiber strand with one channel operating at a 1550-nm wavelength and the second using 1310-nm wavelength.

The LMC5112C and LMC5115C differ in the distances they support. The Plus model (LMC5115C) extends the reach of fiber segments up to 40 km (24.9 miles); and the LMC5112C goes up to 20 km (12.4 miles).

The modules that make up each set can each be purchased separately if, by chance, one needs to replaced:

- From the our LMC5112C set, the individual modules are the LMC5113C, which is the 1310-nm transmit/1550-nm receive module, and the LMC5114C, which is the 1550-nm transmit/1310-nm receive module. Both support 20-km distances.
- From the our LMC5115C set, the individual modules are the LMC5116C, which is the 1310-nm transmit/1550-nm receive module, and the LMC5117C, which is the 1550-nm transmit/1310-nm receive module. Both support 40-km (24.9-mile) distances.

LMC5118C–LMC5121C

These 10-/100-Mbps Ethernet modules perform Layer 2 conversions from twisted-pair to two-strand multimode or single-mode fiber optic segments. They enable you to configure the RJ-45 port for autonegotiation or to set its speed at 10 or 100 Mbps, as well as for half- or full-duplex operation. The fiber port can be set for half- or full-duplex, too.

The single-mode Plus models (LMC5120C–LMC5121C) extend the reach of fiber segments up to 40 km (24.9 miles). The multimode modules (LMC5118C–LMC519C) support 2-km (1.2-mile) distances.

LMC5122C–LMC5127C

This family of media converter modules is similar to the LMC5112C–LMC5117C family except that these modules autonegotiate 10- or 100-Mbps connection speed and duplex mode on the twisted-pair side and operate as Level 2 converters.

Like their Fast Ethernet-only cousins, the 10-/100-Mbps modules communicate over only one strand of fiber. The LMC5122C and LMC5125C include matched pairs of modules that you install at the opposite ends of the same fiber strand. The LMC5122C enables you to send data on single-mode fiber at distances of 20 km (12.4 miles). The LMC5125C, the Plus SC model, goes twice as far, up to 40 km (24.9 miles).

You can also order the transmit and receive modules as individual modules:

- From the our LMC5122C set, the individual modules are the LMC5123C, which is the 1310-nm transmit/1550-nm receive module, and the LMC5124C, which is the 1550-nm transmit/1310-nm receive module. Both support 20-km (12.4-mile) distances.
- From the LMC5125C set, the individual modules are the LMC5126C, which is the 1310-nm transmit/1550-nm receive module, and the LMC5127C, which is the 1550-nm transmit/1310-nm receive module. Both support 40-km (24.9-mile) distances.

LMC5006C–LMC5012C

These media converters support ATM so you can establish low-cost copper-to-fiber conversion for either OC-3 155-Mbps ATM rings or OC-12 622-Mbps or 1250-Mbps data/Internet backbones.

They're ideal for ATM network managers who require fiber links to connect their network-side switching equipment to the OC-3 ATM backbone.

For OC-3 networks, we offer:

- The LMC5006C, which provides a single 155-Mbps ATM conversion between copper and 1300-nm multimode fiber and distances up to 20 km (12.4 miles) on the fiber segments.
- The LMC5007C, which converts 155-Mbps ATM between copper and 1300-nm single-mode fiber and, as a Plus SC model, supports fiber distances of 40 km (24.9 miles).
- The LMC5008C, which offers even greater distances—up to 80 km (49.7 miles)!—while providing a single 155-Mbps ATM conversion between copper and 1300-nm single-mode fiber.
- The LMC5009C, which offers the same 80-km (49.7-mile) distances of the LMC5008C but uses 1550-nm wavelength on single-mode fiber.

For 622-Mbps OC-12 networks, we offer the LMC5010C module, which provides a conversion between 1300-nm multimode and 1310-nm single-mode fiber while offering distances up to 40 km (24.9 miles) on the single-mode side.

The LMC5011C–LMC5012C models give you 1250-Mbps ATM speeds on OC-12 networks while converting 850-nm multimode to either 1300-nm single-mode (with the LMC5011C) or 1550-nm single-mode (with the LMC5012C). The modules operate independent of protocol, so you can use them in Gigabit as well as ATM applications.

When used for Gigabit Ethernet, the LMC5011C can be used as a short haul (SX) to long-haul (LX) converter supporting distances of 220 meters (721.8 feet) on the multimode port and 40 km (24.9 miles) on the single-mode port.

The LMC5012C can be used for Gigabit Ethernet conversions from short haul to extra long haul. In this application, it provides distances of 220 meters (721.8 feet) on the multimode port and 70 km (43.5 miles) on the single-mode side.

LMC5014C–LMC5021C

These 10-Mbps media converter modules offer traditional conversion between 10BASE-T Ethernet devices and 10BASE-FL multimode fiber optic devices.

The LMC5014C and LMC5015C convert to 850-nm multimode and support up to 2 km (1.2 miles) on half-duplex and up to 4 km (2.5 miles) on full-duplex. The modules

(continued on page 4)

(continued from page 3)

differ only in their fiber connectors (ST for the LMC5014C and SC for the LMC5015C).

For even greater distances while converting to multimode, order either the LMC5016C (with ST connectors) or LMC5017C (SC connectors). They're identical to the LMC5014C and LMC5015C except that they convert to 1300-nm multimode and support up 8 km (5 miles) when operating at full-duplex. Use a pair of these converters at opposite ends of the same fiber optic link to increase your fiber reach.

We also offer four 10BASE-T to 1310-nm single-mode fiber optic interface converter modules (LMC5018C–LMC5021C).

The LMC5018C (with ST connectors) and the LMC5019C (SC connectors) offer distances up to 2 km (1.2 miles) on a single-mode link operating at half-duplex and 20 km (12.4 miles) operating at full-duplex. The Plus models, the LMC5020C (ST) and LMC5021C (SC), go further—up to 40 km (24.9 miles) while operating at full-duplex. At half-duplex, they transmit up to 2 km (1.2 miles).

LMC5022C–LMC5023C, LMC5026C–LMC5027C

Order these 100-Mbps modules to convert between 100BASE-TX and 100BASE-FX devices.

The 1300-nm multimode modules—the LMC5022C with ST connectors and the LMC5023C with SC connectors—support distances of 400 meters (1312.3 feet) at half-duplex and up to 5 km (3.1 miles) at full-duplex.

For longer distances, order a module that operates over 1300-nm single-mode fiber and has Plus connectors. The LMC5026C (ST) and LMC5027C (SC) support a distance of 400 meters (1312.3 feet) at half-duplex and 30 km (18.6 miles) at full-duplex.

LMC5028C–LMC5035C

These protocol-independent modules convert single-mode to multimode fiber. They're used typically between Ethernet devices operating at 100-Mbps speeds over fiber, although they can also be used in an OC-3 ATM (155-Mbps) environment.

With the modules that convert between 1300-nm single-mode Plus and 1300-nm multimode (LMC5028C–LMC5029C), you can achieve distances up to 7 km (4.3 miles) on the multimode port and up to 40 km (24.9 miles) on the single-mode port (with both ports running at full duplex). The LMC5028C has ST connectors; the LMC5029C, SC.

For the same type of 1300-nm single-mode to 1300-nm multimode conversions but at even greater distances, order the LMC5030C (ST) or LMC5031C (SC). These versions enable you to extend your fiber segments up to 2 km (1.2 miles) on the multimode port and up to 80 km (49.7 miles) on the single-mode port.

For applications where you need to convert from 1300-nm multimode to 850-nm single-mode, order either the LMC5032C, LMC5033C, LMC5034C, or LMC5035C. As with our other fiber-to-fiber converters, these modules support 100-Mbps conversion between fiber devices in Ethernet networks as well as 155 Mbps in ATM OC-3 environments. They differ only in their connectors and distance supported on the single-mode side (all support 2-km [1.2-mile] distances on the multimode side). The LMC5032C, which has Plus ST connectors, and the LMC5033C, which has Plus SC connectors, support distances up to 40 km (24.9 miles) over single-mode cable. The Long ST and SC models (LMC5034C and LMC5035C, respectively) support up to 80 km (49.7 miles) over single-mode fiber.

LinkLoss and FiberAlert

A LinkLoss™ function is included on the modules that interface with twisted-pair copper, and a FiberAlert™ feature is included on the modules that connect to fiber links.

Both LinkLoss and FiberAlert notify you of "silent failures" and help you troubleshoot problems. No more time wasted searching for them! A link can be checked by physically observing the status of the media converter's Link LED.

The FiberAlert function informs you when a fault occurs on one fiber strand and the link is, in turn, incapable of carrying bidirectional communications between two fiber devices. Essentially, with FiberAlert, the link status of one end is mirrored at the opposite end. If a strand isn't available, and you have FiberAlert enabled, the receiver end device notes the loss of the link and stops transmitting data until it receives a signal or link pulse. This means that the link status can be seen at *both ends* through the respective Link LEDs, thus helping you to identify and isolate faults anywhere in the fiber loop. FiberAlert works even if the fiber devices are separated by great distances.

LinkLoss is a feature that's similar to FiberAlert in that faults on one port are mirrored on the other. But in the case of LinkLoss, a fault on the fiber port is mirrored to an Ethernet twisted-pair port rather than another fiber port. So if the fiber link is lost at the converter, the converter disables the twisted-pair Link LED. With LinkLoss enabled, the link status of the fiber segment will always be reflected by the twisted-pair segment so you're informed quickly of fiber problems.

Automatic crossover

Many of the twisted-pair modules (the LGC5108C–LGC5109C, LMC5112C–LMC5114C, and LMC5116C–LMC5127C) feature auto-crossover ports to eliminate the worry of whether to use straight- or cross-pinned cabling. This built-in MDI/MDIX function automatically determines whether the converter has to cross over between the four pairs on the twisted-pair port's RJ-45 connector.

On the twisted-pair modules without automatic termination, you use a pushbutton to choose the crossover.

Packages Include

High-Density Media Converter System Chassis (LMC5000A, LMC5001A, LMC5002A-DC)

- Chassis unit with blank plate(s) for media conversion module slot(s)
- (1) power cord
- Users' manual

High-Density Media Converter System II with Embedded SNMP 2- and 8-Slot Chassis (LMC5100A, LMC5102A)

- Chassis unit with blank plate(s) for media conversion module slot(s)
- CD containing iView software and related utilities and MIBs
- (1) 6-foot (1.8-m) DB9 male-to-female RS-232 console cable
- (1) power cord
- Users' manual

High-Density Media Converter System II with Embedded SNMP 18-Slot Chassis (LMC5104A, LMC5105A-DC)

- Chassis unit that includes (17) blank plates for media conversion module slots and (1) blank plate for the second (vacant) power supply module slot
- (1) 6-foot (1.8-m) DB9 male-to-female RS-232 console cable
- (1) power cord
- CD containing iView software and related utilities and MIBs
- Bag of rackmounting components, including ears and screws
- Users' manual

SNMP Module (LMC5003A)

- Module
- User guide
- (1) 6-foot (1.8-m) DB9 male-to-female RS-232 console cable
- CD containing iView software and related utilities and MIBS

Bandwidth Manager (LE1028C)

- Bandwidth Manager module
- CD containing iView software and related utilities and MIBs
- (1) 6-foot (1.8-m) DB9 male-to-female RS-232 console cable
- Users' manual

Interface Converter Modules

- Individual module and installation guide

Specifications

Chassis

Approvals: FCC Class A, Part 15; CE

Indicators: LNK, FDX, RCV, XMT, MGMT, SNMP

Temperature Tolerance:
Operating: 32 to 104°F (0 to 40°C);
Storage: LMC5100A, LMC5102A, LMC5104A, LMC5105A-DC: 21 to 160°F (-6 to +71°C);
LMC5000A–LMC5001A, LMC5002A-DC: 0 to 160°F (-18 to +71°C)

Humidity Tolerance: 5 to 95% (noncondensing)

Power: LMC5000A–LMC5001A: 100–240 VAC, 50/60 Hz, 0.8/0.4 A;
LMC5002A-DC: -48 VDC, 1.5 A;
LMC5100A: 100–240 VAC, 50/60 Hz, 0.2/0.1 A;
LMC5102A: 100–240 VAC, 50/60 Hz, 0.5/0.2 A;
LMC5104A: 100–240 VAC, 50/60 Hz, 1.2/0.6 A;
LMC5105A-DC: -48 VDC, 2.5 A

Size: LMC5000A: 2"H x 8.6"W x 5"D (5.1 x 21.8 x 12.7 cm);
LMC5001A, LMC5002A-DC, LMC5104A, LMC5105A-DC: 4.6"H x 17.4"W x 9.1"D (11.7 x 44.2 x 23.1 cm);
LMC5100A: 2"H x 8.9"W x 5"D (5.1 x 22.6 x 12.7 cm);
LMC5102A: 4.6"H x 8.7"W x 7"D (11.7 x 22.1 x 17.8 cm)

Weight: LMC5000A: 2.8 lb. (1.3 kg);
LMC5001A, LMC5002A-DC, LMC5104A, LMC5105A-DC: 12.9 lb. (5.9 kg);
LMC5100A: 2.7 lb. (1.2 kg);
LMC5102A: 6.2 lb. (2.8 kg)

Bandwidth Manager

Approvals: FCC Class A, Part 15; CE

Bandwidth Accuracy:+0%/-5%

Bandwidth Settings: 1 kbps to 10 Mbps

Connectors: (2) RJ-45; (1) DB9 console port

Indicators: LEDs: (1) Link, (1) RCV, (1) SMT, (1) HDX/FDX

Temperature Tolerance:
Operating: 32 to 104°F (0 to 40°C);
Storage: 21 to 160°F (-6 to +71°C)

Humidity Tolerance: 5 to 95% (noncondensing)

Power: Input: 5 V ±5% 0.5 A (typical)

iView Software Requirements

System Requirements

20 MB of free disk space, 32 MB RAM with *one* of the following:

- Windows® 95/98, Windows NT®, Windows 2000 (standalone or with HP® OpenView®)
- HP-UX® and HP OpenView
- IBM® AIX and NetView® or HP OpenView
- Solaris® and HP OpenView

Display Setting Requirements

- Color setting of at least 64K (higher than 256 colors)
- Monitor resolution of at least 800 x 600

Ordering Information

ITEM	CODE
Choose the chassis for your application…	
High-Density Media Converter System	
2-Slot Desktop	LMC5000A
18-Slot Rackmount with AC Power Supply	LMC5001A
18-Slot Rackmount with DC Power Supply	LMC5002A-DC
To add SNMP to the above chassis, order…	
SNMP Module	LMC5003A
To add redundant power supplies to the above chassis, order…	
Redundant Power Supply, AC	LMC5004AC
Redundant Power Supply, DC	LMC5005DC
Choose the chassis for your application…	
High-Density Media Converter System II with Embedded SNMP Management	
2-Slot Desktop	LMC5100A
8-Slot Desktop	LMC5102A
18-Slot Rackmount with AC Power Supply	LMC5104A
18-Slot Rackmount with DC Power Supply	LMC5105A-DC
To add redundant power supplies to the LMC5100A, LMC5102A, LMC5104A, or LMC5105A-DC, order…	
Redundant Power Supply, AC	LMC5106AC
Redundant Power Supply, DC	LMC5107DC
To rackmount the LMC5102A, order…	
8-Slot Rackmount Ears	LMC5102A-RM
To manage the bandwidth on connected segments, order…	
Bandwidth Manager	LE1028C
Then add the interface modules you need…	
1.25-Gbps Ethernet, Layer 1, 2-Strand	
Twisted Pair/SX 850-nm Multimode SC (0.2 km)	LGC5108C
Twisted Pair/LX Single-Mode Plus SC (10 km)	LGC5109C
Fast Ethernet, Layer 1, 1-Strand	
Transmit/Receive Matched Pair	
Twisted Pair/Single-Strand FX Single-Mode, SC (20 km)	LMC5112C
Twisted Pair/Single-Strand FX Single-Mode, Plus SC (40 km)	LMC5115C
Individual Module	
Twisted Pair/Single-Strand FX Single-Mode, SC (20 km)	
310-nm Transmit/1550-nm Receive	LMC5113C
1550-nm Transmit/1310-nm Receive	LMC5114C
Twisted Pair/Single-Strand FX Single-Mode, Plus SC (40 km)	
1310-nm Transmit/1550-nm Receive	LMC5116C
1550-nm Transmit/1310-nm Receive	LMC5117C
10-/100-Mbps Ethernet with Autonegotiation	
Layer 2, 2-Strand	
Twisted Pair/Two-Strand FX Multimode ST (2 km)	LMC5118C
Twisted Pair/Two-Strand FX Multimode SC (2 km)	LMC5119C
Twisted Pair/Two-Strand FX Single-Mode Plus ST (40 km)	LMC5120C
Twisted Pair/Two-Strand FX Single-Mode Plus SC (40 km)	LMC5121C

Ordering Information (continued)

ITEM	CODE
Layer 2, 1-Strand	
Transmit/Receive Matched Pair	
Twisted Pair/Single-Strand FX Single-Mode SC (20 km)	LMC5122C
Twisted Pair/Single-Strand FX Single-Mode Plus SC (40 km)	LMC5125C
Transmit/Receive Individual Modules	
Twisted Pair/Single-Strand FX Single-Mode SC (20 km)	
1310-nm Transmit/1550-nm Receive	LMC5123C
1550-nm Transmit/1310-nm Receive	LMC5124C
Twisted Pair/Single-Strand FX Single-Mode Plus SC (40 km)	
1310-nm Transmit/1550-nm Receive	LMC5126C
1550-nm Transmit/1310-nm Receive	LMC5127C
ATM	
155 (OC3)	
Twisted Pair/Multimode SC (20 km)	LMC5006C
Twisted Pair/Single-Mode Plus SC (40 km)	LMC5007C
Twisted Pair/Single-Mode Long SC (80 km)	LMC5008C
Twisted Pair/1550-nm Single-Mode Long SC (80 km)	LMC5009C
622 (OC12)	
1300-nm Multimode SC/1300-nm Single-Mode Plus SC (40 km)	LMC5010C
1250 (OC12)	
SX 850-nm Multimode SC/LX 1300-nm Single-Mode SC (40 km)	LMC5011C
SX 850-nm Multimode SC/LX 1550-nm Single-Mode SC (70 km)	LMC5012C
10BASE-T	
Twisted Pair/850-nm Multimode ST (4 km)	LMC5014C
Twisted Pair/850-nm Multimode SC (4 km)	LMC5015C
Twisted Pair/1300-nm Multimode ST (8 km)	LMC5016C
Twisted Pair/1300-nm Multimode SC (8 km)	LMC5017C
Twisted Pair/Single-Mode ST (20 km)	LMC5018C
Twisted Pair/Single-Mode SC (20 km)	LMC5019C
Twisted Pair/Single-Mode Plus ST (40 km)	LMC5020C
Twisted Pair/Single-Mode Plus SC (40 km)	LMC5021C
100BASE-TX	
Twisted Pair/1300-nm Multimode ST (5 km)	LMC5022C
Twisted Pair/1300-nm Multimode SC (5 km)	LMC5023C
Twisted Pair/Single-Mode Plus ST (30 km)	LMC5026C
Twisted Pair/Single-Mode Plus SC (30 km)	LMC5027C
Fiber to Fiber	
1300-nm Single-Mode Plus ST/1300-nm Multimode ST (40 km)	LMC5028C
1300-nm Single-Mode Plus SC/1300-nm Multimode SC (40 km)	LMC5029C
1300-nm Single-Mode Long ST/1300-nm Multimode ST (80 km)	LMC5030C
1300-nm Single-Mode Long SC/1300-nm Multimode SC (80 km)	LMC5031C
1300-nm Single-Mode Plus ST/850-nm Multimode ST (40 km)	LMC5032C
1300-nm Single-Mode Plus SC/850-nm Multimode SC (40 km)	LMC5033C
1300-nm Single-Mode Long ST/850-nm Multimode ST (80 km)	LMC5034C
1300-nm Single-Mode Long SC/850-nm Multimode SC (80 km)	LMC5035C