LANplex Management Module Installation Guide

For the LANplex 6000

About this Guide

This guide contains:

- An overview of the LANplex Management Module (LMM)
- Instructions for installing and replacing the LMM
- A description of the module's components, including: diagnostic LEDs, ports for management access, an optical bypass switch, and A and B FDDI ports
- Pin assignments for the Ethernet and serial port connectors

Information on installing the LMM is also included in the *LANplex 6000 Getting Started* guide.

CAUTION: *In order to run software revision 5.0 or later on the LANplex 6000 you must have the new LMM Plus installed in your system. To verify if you have an LMM Plus installed check the module's ejector tab to ensure it says* **LMM+**.

Audience *This guide is intended for trained technical personnel only.*

Taking Inventory

Your package should contain the following items:

- 1 LANplex 6000 LMM (Plus or Classic)
- 1 *LANplex 6000 Software Release Notes*
- 1 disposable electrostatic discharge (ESD) wrist strap
- Operational diskette(s) (UNIX and DOS)
- MIB diskette(s) (UNIX and DOS)

Contact 3Com Customer Service Organization at 1-800-876-3266, option 2, if any item is missing.

LMM Description

The multi-function LMM provides the following local and remote management capabilities:

As the system control processor, the LMM:

- Stores, boots, and executes the LANplex system software
- Stores and downloads the software for LANplex option modules
- Manages the configuration of LANplex system resources, which includes: control of system and option module diagnostics, management of system reconfiguration during module replacement, and storage of critical system configuration information in nonvolatile memory.

  You can manage the LANplex system locally through a terminal serial port connection or remotely using an IP or modem connection on the LMM.

Connectivity Options

The LMM provides the following connectivity options:

- Two serial (RS-232C) ports (port 1 for a terminal connection; port 2 for an external modem connection)
- An out-of-band Ethernet port (10BASE-T or AUI)
- Optionally, two FDDI connections that permit the LANplex system to act as either a dual attached station (DAS) (A and B ports) or as a node in an FDDI "ring of trees" (M ports). The FDDI connectivity option can be supplied with up to 3 FDDI MACs, and provides full optical bypass capability.

System Management

The LMM provides local and remote management capabilities. These management capabilities include:

- A full-featured Station Management (SMT) implementation for managing FDDI network resources
- A full Simple Network Management Protocol (SNMP) agent (which includes proxy capabilities) for standards-based enterprise management
- Administration Console management software for local LANplex system management. You can access these administration functions through either serial (RS-232C) or network (Internet Protocol) connections.

LMM Installation

This section describes the following:

- Module safety information
- Installation information
- LED activity during installation

Safety Information

Electrostatic discharge (ESD) damage occurs when the module is improperly handled. ESD can damage module components, causing complete or intermittent failures.

To prevent ESD-related damage, handle the module in the following manner:

- Always wear the ESD wrist strap provided with the system, ensuring that it makes good skin contact and that the alligator clip is connected to a suitable ground. See Figure 3 on page 6.
- Keep the module in its antistatic shielded bag until you are ready to install it.
- Do not touch the components, pins, leads, or solder connections.
- Always handle the module by its edges.

Additionally, you should cover every empty slot with a blank faceplate to protect the system from dust or other foreign substances, and to ensure proper system cooling.

Prior to Installation

Before you install your new module, follow the appropriate pre-installation instructions below:

Read if installing in an empty slot

Your LANplex system is shipped with no modules installed and with protective faceplates covering all of the installation slots, with the exception of slot one where you will install the LMM.

Read if replacing an LMM

You can replace a module while the system is powered on. Replacing the module requires that you remove the attached cables from the module's ports prior to installing the new module.

CAUTION: *Inserting and extracting an LMM erases all information stored in NVRAM on the LMM. Before removing the installed LMM, save all nonvolatile data using the NV data save functionality on the system's Administration Console. This information can be restored using the NV restore functionality. See the LANplex 6000 Administration Console User Guide for information on saving, restoring, and resetting nonvolatile data. Inserting and extracting a module causes a system warm reboot.*

To remove a module:

1. Discharge yourself of static electricity by placing the ESD wrist strap on your wrist and clipping the alligator clip to the mounting screw located next to the black ground symbol on the system's right mounting bracket. See Figure 3. If your system does not have mounting brackets, touch the rear panel.

2. Disconnect the cables from the module's ports.

3. Unscrew the securing screws on the module's faceplate. See Figure 1.

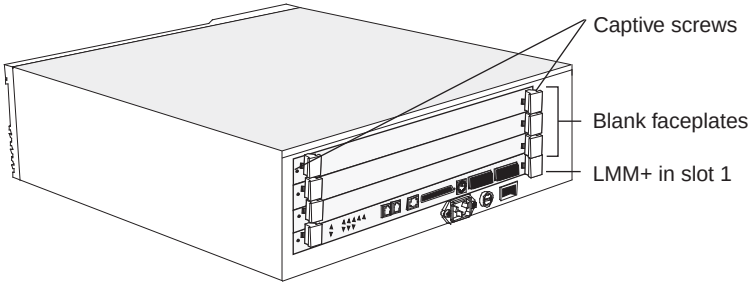

Figure 1 LANplex 6004 with Blank Faceplates

4. Grasp the inject/eject handles of the module and push them outward as shown in Figure 2.

5. Remove the module from the system.

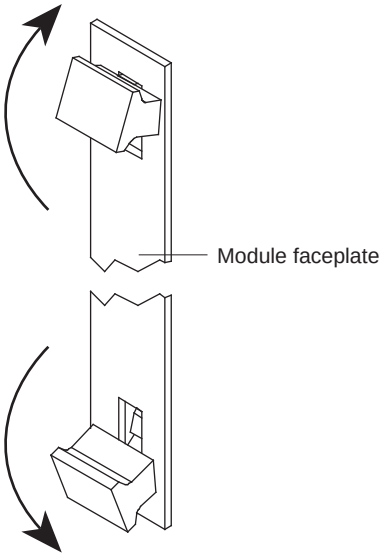

Figure 2 Handles in Outward Position

6 Place the module in its antistatic bag.

Installing the LMM

The module installation procedure takes only a few minutes to complete. You need a small, flat-blade screwdriver.

NOTE: *The LMM must be inserted only in slot one of the LANplex system. The system will not operate if it is inserted into any other slot. Slot one of the LANplex 6004 is the bottom slot, and slot one of the LANplex 6012 is the first slot on the left.*

To install the LMM into slot one of the LANplex system, perform the following steps:

1 Discharge yourself of static electricity by placing the ESD wrist strap on your wrist and clipping the alligator clip to the mounting screw located next to the black ground symbol on the system's right mounting bracket. See Figure 3. If your system does not have mounting brackets, touch the rear panel.

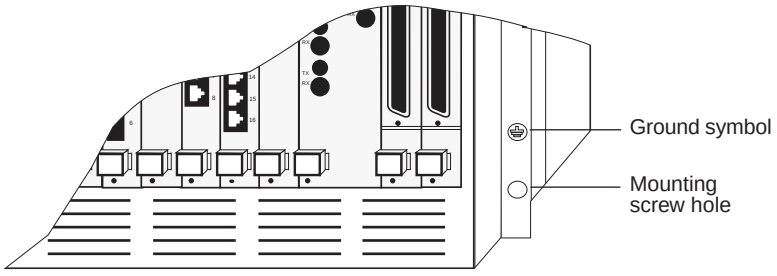

Figure 3 Ground Symbol for Static Discharge

2 Remove the LMM from its antistatic bag.

3 Make sure that the inject handles are in the outward position. See Figure 4.

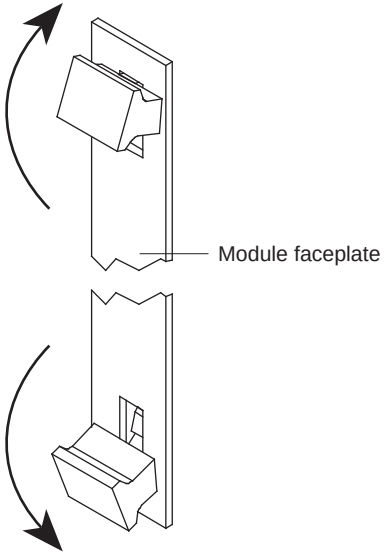

Figure 4 Handles in Outward Position

4 Orient the LMM to insert it into the LANplex system. For a LANplex 6012 system, orient the module so that its labeling is upright. For a LANplex 6004 system, the module's labeling should be on your left.

CAUTION: *If the system is powered on when you are installing a module, do not insert any metal objects, such as a screwdriver or a finger with jewelry, in the open slot. This could cause burns or other bodily harm, as well as system damage.*

5 Direct the module into the chassis by placing it between the guides of the selected slot and sliding the module until it stops. The module stops sliding when the inject handles make contact with the front of the chassis.

Figure 5 shows an LMM being installed in a 6012 system. Figure 6 shows an LMM being installed in a 6004 system.

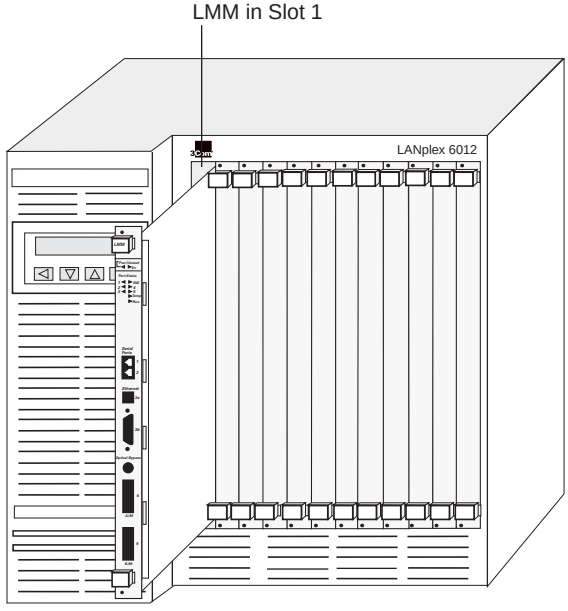

Figure 5 Installing an LMM in Slot 1 of a LANplex 6012

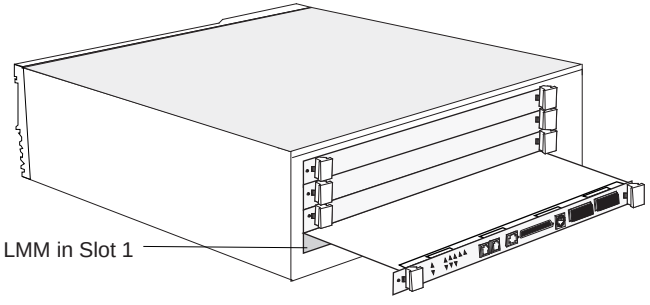

Figure 6 Installing an LMM in Slot 1 of a LANplex 6004

6 If the system is powered on, when the **Power/Unseat** LED on the panel's faceplate is yellow, inject the LMM into the chassis by grabbing both handles and simultaneously push them inward. If the system is not powered on, once you feel a slight resistance, inject the LMM into the chassis.

7 Relocate the inject handles back to their center position by gently pushing them inward. See Figure 7.

NOTE: *Do not push the handles outside the center position or you will eject the module. These handles act as "ejectors" when pushed outward and "injectors" when pushed inward.*

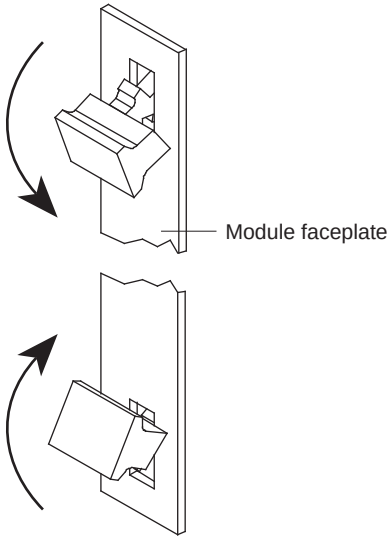

Figure 7 Handles in Inward (Inject) Position

This locks the LMM into the chassis. The **Power/Unseat** LED lights green when the LMM is seated.

8 See the following section, "LED Activity", to verify that the LMM has been properly installed.

9 Tighten the LMM's securing screws using a flat-blade screwdriver.

LED Activity

If the system is powered on when you install the module, you can verify that your LMM is properly installed by observing its LEDs. Follow the troubleshooting suggestions that follow if LED activity is not normal.

See Table 1 on page 11 for a description of LED status lights.

Normal LED Activity

The following LED activity is normal during installation:

- The **Power/Unseat** LED lights yellow briefly when the module is inserted far enough into the chassis to use the inject/eject handles.
- The **Err** LED lights yellow temporarily after insertion while the module runs diagnostics.
- The **Power/Unseat** LED lights green, indicating that the module is powered on.

  Once you have completed the installation procedure, only the green **Power/Unseat** LED should remain lit.

Troubleshooting

If LED activity is not normal, check the troubleshooting suggestions listed below.

- If the **Power/Unseat** LED remains yellow, the module is not fully seated in the chassis. Eject and re-insert the module as described in the procedure starting on page 5.
- If the **Err** LED remains yellow, contact 3Com Technical Support for additional assistance.
- If the **Power/Unseat** LED does not light green when the module is powered on, contact 3Com Technical Support for assistance.

NOTE: *For 3Com Technical Support information, see Appendix B: Technical Support in the LANplex 6000 Getting Started guide.*

LMM Components

The main components of the LMM include status LEDs, an optical bypass LED, serial ports, an Ethernet port with a 10BASE-T or an AUI interface, an optical bypass switch connector, and two ports for FDDI access. See Figure 8.

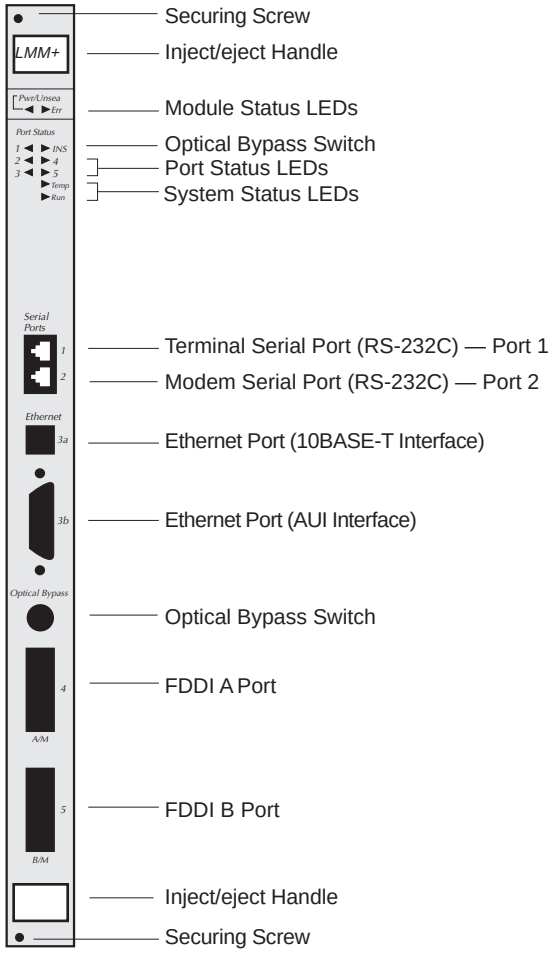

Figure 8 LMM Front Panel

Status LEDs

The LMM has several LEDs that report the status of the module, its ports, and the system as a whole. Depending on the condition, each LED is either green (indicating active) or yellow (indicating error). Table 1 describes the LMM's LEDs.

Table 1 LMM LEDs

LEDs	Name	Color	Description
System Status	**Temp**	Yellow	Indicates that the system has overheated.
	Run	Green (blinks)	Indicates that the module is processing code, such as at system power up.
Module Status	**Power/ Unseat**	Green	Indicates that the module is powered on
		Yellow	Indicates that the module is not fully plugged into the backplane.
	Err (Error)	Yellow	Indicates that either an error has occurred or the module has failed a diagnostic procedure.
Port Status	**Port Status** (1-6)	Green	Indicates that the associated port is active.
		Yellow	Indicates that an error condition has occurred with the associated port.
Optical Bypass	**INS**	Green	Indicates that when an optical bypass is present, the LMM is inserted in the dual ring.
		Not Lit	Indicates that the optical bypass switch is not present or That the optical bypass switch is present, but the LMM is not inserted in the dual ring.

NOTE: *There are no status LEDs for the AUI interface. Status for this configuration is visible on the external transceiver.*

Optical Bypass Switch Connector

The LMM provides the power/control connection for an optical bypass switch, which allows you to bypass the LANplex system from the trunk ring. The optional optical bypass switch is available from 3Com.

Ports for FDDI Connection

The LMM contains two FDDI ports (A and B) and up to three FDDI Media Access Controllers (MACs).

The LMM connects to the fiber optic cable plant using two FDDI-compliant Media Interface Connectors (MICs), labeled "A" and "B" port in Figure 8.

Ports for Management Access

You can manage your LANplex 6000 system using either in-band or out-of-band management. The LMM provides both types of management options.

- Ethernet port (10BASE-T or AUI) — The AUI interface allows physical connections to any IEEE 802.3 Ethernet MAU. This connection allows you to use rlogin or telnet to access the Administration Console through the first LMM FDDI MAC. The SNMP agent can also be accessed through this interface. A separate IP address is used to identify the first LMM FDDI MAC.

NOTE: *Do not use both connections to the Ethernet port at the same time. If you connect to both interfaces, the port will not work until you have disconnected one of the interfaces.*

  You can also manage the system in-band through a port on another installed module using the first LMM FDDI MAC. A separate IP address is used to identify the first LMM FDDI MAC.

- Terminal (RS-232C) Serial Port (Port 1) — connect a terminal or a terminal emulator to the terminal port for direct, local management
- Modem (RS-232C) Serial Port (Port 2) — connect an external modem to the modem port for remote management

  See the *LANplex 6000 Administration Console User Guide* for information on how to configure a separate IP address.

  Only one access mechanism (serial port, modem, IP) at a time can be used to access the Administration Console. Normally, the Ethernet port (AUI or 10BASE-T interface, whichever is active) takes precedence over the serial port. However, you can use the Administration Console to "lock out" any session preemption while you are accessing the Administration Console through the serial port. For information on how to configure network access to the console, see the *LANplex 6000 Administration Console User Guide*.

Pin Assignments

This section contains pin assignments for the Ethernet connectors, serial port connectors, and optical bypass switch connector.

Ethernet Pin Assignments

The following tables show the pin assignments for the Ethernet connectors. Table 2 is for the 10BASE-T Ethernet port (RJ-45). Table 3 is for the AUI Ethernet port (DB15).

Table 2 RJ-45 Pin Assignments

Pin No.	Signal	Description
1	RX+	Receive +
2	RX-	Receive-
3	TX+	Transmit +
4	Not used	
5	Not used	
6	TX-	Transmit -
7	Not used	
8	Not used	

Table 3 DB15 Pin Assignments

Pin No.	Description
1	Collision shield
2	Collision+
3	Transmit+
4	Receive shield
5	Receive+
6	Power return
7	Not used
8	Not used
9	Collision-
10	Transmit-
11	Transmit shield
12	Receive-

(continued)

Table 3 DB15 Pin Assignments (continued)

Pin No.	Description
13	+12 volts
14	Voltage shield
15	Not used

Serial Port Pin Assignments

The following tables show the pin assignments for the two serial (RS-232C) ports (RJ12). Table 4 is for the terminal port (port 1), and Table 5 is for the modem port (port 2).

Table 4 RJ12 (port 1) Pin Assignments

Pin No.	Signal	Description	Input/Output
1	CTS	Clear to Send	Input
2	TxD	Transmitted Data	Output
3	RxD	Received Data	Input
4	GND	Signal Ground	Ground
5	DTR	Data Terminal Ready	Output
6	DCD	Data Carrier Detect	Input

Table 5 RJ12 (port 2) Pin Assignments

Pin No.	Signal	Description	Input/Output
1	DTR	Data Terminal Ready	Output
2	RxD	Received Data	Input
3	TxD	Transmitted Data	Output
4	GND	Signal Ground	Ground
5	CTS	Clear to Send	Input
6	DCD	Data Carrier Detect	Input

Optical Bypass Connector Pin Assignments

Table 6 gives the pin information for the optical bypass switch connector. Figure 9 shows the location of each pin.

Table 6 Optical Bypass Switch Connector Pin Assignments

Pin No.	Signal	Description
1	+5 volts	
2	+5 volts	
3	Control Signal	Multimode fiber High: Bypass mode Low: Insert mode
		Single mode fiber High: Insert mode Low: Bypass mode
4	Control Signal	Multimode fiber High: Bypass mode Low: Insert mode
		Single mode fiber High: Insert mode Low: Bypass mode
5		Signal ground
6		Signal ground

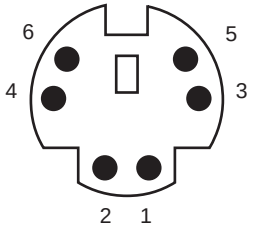

Figure 9 Optical Bypass Switch Connector Pins

Documentation Comments

Your suggestions are very important to us and will help make LANplex documentation more useful to you. Please email comments about this guide to**: sdtechpubs_comments@3Mail.3Com.com**

Please include the following information when commenting:

- Document title
- Document part number (listed on back cover of document)
- Page number (if appropriate)

Example:

- *LANplex 6000 Planning Your Site*
- Part No. 801-00251-000
- Page 2-5 (chapter 2, page 5)

3Com Corporation
5400 Bayfront Plaza
Santa Clara, California
95052-8154

Part No. 801-00264-000
Published November 1995
Revision 01