

**MMAC-M3FNB
MULTI-MEDIA ACCESS CENTER
OVERVIEW AND SETUP GUIDE**

CABLETRON
*SYSTEMS*_{IN}

The Complete Networking Solution™

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NOTICE

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Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

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This device is approved under BABT General Approval No. NS/G/1234/J/100003 for indirect connection to public telecommunications systems in the United Kingdom.

VCCI NOTICE

This equipment is in the 1st Class Category (information equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI) aimed at preventing radio interference in commercial and/or industrial areas.

Consequently, when used in a residential area or in an adjacent area thereto, radio interference may be caused to radios and TV receivers, etc.

Read the instructions for correct handling.

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取扱説明書に従って正しい取り扱いをして下さい。

NOTICE

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CHAPTER 1

INTRODUCTION

The **MMAC-M3FNB™ Multi-Media Access Center** offers flexibility and convenience in the design and operation of your network. The enclosure can contain a Repeater/Management Module and up to two Media Interface Modules (MIMs™).

This manual is an installation and reference guide. It lists the features of the MMAC-M3FNB and explains how to install the fan tray and power supply. You should read through this manual prior to using the MMAC-M3FNB to gain a full understanding of the MMAC-M3FNB and its capabilities.



The handles provided on the fan tray and power supply are for installation only; they are not designed to support the full weight of the chassis, and should not be used as carrying handles.

1.1 USING THIS MANUAL

Chapter 1, **Introduction**, discusses the features and capabilities of the MMAC-M3FNB.

Chapter 2, **Installation Requirements and Specifications**, lists the location requirements that must be met before you install the MMAC-M3FNB on your network. This chapter also includes MIM configuration guidelines and operating specifications for the MMAC-M3FNB.

Chapter 3, **MMAC-M3FNB Setup**, contains instructions for inserting the fan tray, installing the power supply, and powering up the MMAC-M3FNB.

INTRODUCTION

1.1.1 Symbols

Throughout this manual you will see two symbols which will be used to call your attention to important safety-related information:

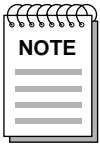


CAUTION: when you see this symbol, you will be provided with special precautionary information that can help you guard against improper use of your equipment.



WARNING: when you see this symbol, note that failure to follow the instructions provided can result in an electrical safety hazard.

You will also see a third symbol, which will be used to call your attention to additional information not related to safety:



NOTE: the information that follows could help you to better use and understand your equipment.

1.2 USING THE MMAC-M3FNB MANUAL SET

Other manuals have been developed for the Repeater/Management modules and for each MIM that can be installed in your MMAC-M3FNB. These manuals explain how to install the individual modules into the MMAC-M3FNB, how to attach segments to the modules, and how to test those segments after they have been installed.

Additional manuals have been developed on how to use Cabletron's SPECTRUM for Open Systems suite of network management products.

Each manual in this set assumes that you have a general working knowledge of Ethernet or IEEE 802.3, 802.5, and FDDI type data communications networks and their physical layer components.

1.3 GETTING HELP

If you need additional support related to the MMAC-M3FNB, or if you have any comments, suggestions, or questions concerning this manual, contact Cabletron Systems Technical Support. Before calling, please have the following information ready:

- The product type (MMAC-M3FNB) and the product serial number. The serial number is located on the front panel of the MMAC.

You can contact Cabletron Systems Technical Support Department by any of the following methods:

By phone:	Monday through Friday between 8 A.M. and 8 P.M. Eastern Standard Time at (603) 332-9400.
By Mail:	Cabletron Systems, Inc. PO Box 5005 Rochester, NH 03866-5005
By CompuServe®:	GO CTRON from any ! prompt
By Internet mail:	support@ctron.com
By FAX:	(603) 337-3075
By BBS:	(603) 335-3358

1.4 THE MMAC-M3FNB MULTI-MEDIA ACCESS CENTER

The Cabletron Systems MMAC-M3FNB is a complete modular approach to integrated networks. The MMAC-M3FNB supports Local Area Networks compliant to IEEE 802.3, IEEE 802.5, and FDDI standards. It also supports all of the Cabletron Systems Media Interface Modules (MIMs).

A variety of IEEE 802.3, IEEE 802.5, and FDDI compliant media can be connected to the MMAC-M3FNB, including shielded and unshielded twisted pair, fiber optic cable, thick or thin coaxial cable,

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and standard AUI transceiver cable. Each media type has a variety of MIMs, which, when installed into the MMAC-M3FNB, are compatible with all other MIMs installed in that MMAC-M3FNB. You can have complete network integration of a variety of media through a single source.

The MMAC-M3FNB is designed so that network expansions or changes in media types can be done without bringing down the entire network. In a matter of minutes, you can add, change or replace MIMs without turning off the MMAC-M3FNB or using any special tools. This design also allows the MMAC-M3FNB to adapt to changing industry standards. Figure 1-1 illustrates an MMAC-M3FNB equipped with a variety of MIM cards.

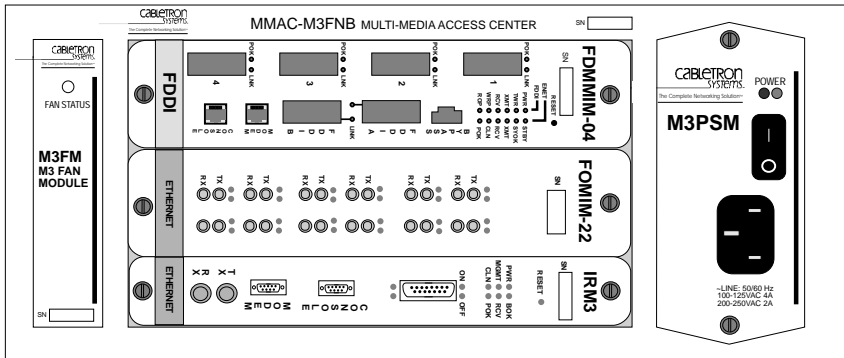


Figure 1-1. MMAC-M3FNB with Optional MIMs

1.5 MMAC-M3FNB FEATURES

Removable Fan Tray

The MMAC-M3FNB is equipped with a removable fan tray, which means that you can replace a failed fan unit quickly, without any special tools. The fan tray incorporates an LED that indicates fan status; the same signal that illuminates the LED also alerts the management module that the fans are operating properly.



*The fan tray is hot-swappable; however, the MMAC chassis should **not** be run for extended periods of time without the fans installed, as it will quickly overheat.*



The handles provided on the fan tray and power supply are for installation only; they are not designed to support the full weight of the chassis, and should not be used as carrying handles.

Universal Power Supply

The MMAC-M3FNB power supply senses and automatically adjusts to the input voltage and frequency. It is designed to operate at 110 or 220 volts without any user configuration.

Built-in Power Supply Protection

The power supply module automatically powers down under any of the following conditions: thermal overload (thermal protection); shorted output (short circuit protection); or excess output voltage (over-voltage protection). The power supply will automatically recover when a thermal overload or shorted output condition is corrected; when an over-voltage condition is corrected, the power supply requires AC power cycling (turn power switch off, then on again) to recover.

Power OK Signal

The same signal that illuminates the Power OK LED on the power supply module will also alert the management module that the power supply is functioning normally.

Flexible Network Bus

The MMAC-M3FNB's Flexible Network Bus lets you combine Token Ring, FDDI, and Ethernet modules in the same hub. Cabletron Systems offers a full line of media interface modules that let you create new networks and extend and connect existing networks.

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Rack Mountable Chassis

The MMAC-M3FNB chassis can be mounted into a standard 19" (48.26 cm) equipment rack. Separate rack mount brackets are included that allow the unit to be flush mounted or recessed from the front plane of the rack mount unit for safety and ease of network connections.

CHAPTER 2

INSTALLATION REQUIREMENTS AND SPECIFICATIONS

This chapter describes the following:

- Site guidelines that must be met before installing an MMAC-M3FNB onto your network
- MMAC configuration guidelines
- Operating specifications for the MMAC-M3FNB enclosure and power supply module

2.1 SITE GUIDELINES

The following guidelines must be followed when you select a site for the MMAC-M3FNB. If not, unsatisfactory network performance may result.

- **An unrestricted free surface area of 8.3" (21.1 cm) high, 19" (48.3 cm) wide, and 17" (43.2 cm) deep is needed for the MMAC-M3FNB enclosure.** The unit should be mounted to allow the free flow of air around the chassis.
- If the MMAC-M3FNB is to be placed on a shelving unit, the shelf must be able to support 35 lb (15.9 kg) of static weight.
- A USA standard 3 prong power receptacle must be located within 2.13 m (7 ft.) of the site.
- The temperature of the location must be maintained between 5° and 40°C (41° to 104°F). Temperature changes of greater than 10°C (18°F) per hour must not occur.



The handles provided on the fan tray and power supply are for installation only; they are not designed to support the full weight of the chassis, and should not be used as carrying handles.

INSTALLATION REQUIREMENTS AND SPECIFICATIONS

2.2 MMAC-M3FNB CONFIGURATION GUIDELINES

The MMAC-M3FNB has three slots: two that accept media interface modules, or MIMs; and one for a management module. The slots are numbered from bottom to top; slot #1 is a half-width slot reserved for the management module. Cabletron Systems' management modules, such as the IRM3 and the EMME, are equipped with firmware-based Local Management, which lets you manage the MMAC MIMs. Management modules are also SNMP compliant, which means that an MMAC equipped with a management module can be managed remotely by any SNMP management software, including any one of the SPECTRUM® for Open Systems suite of management products.

You can combine Token Ring, Ethernet, and FDDI MIMs in the same MMAC; be sure to consult the appropriate management module and MIM installation guides for detailed setup information.

2.3 OPERATING SPECIFICATIONS

The following lists the specifications for the MMAC-M3FNB. Cabletron Systems reserves the right to change these specifications without notice.

PHYSICAL

M3FNB

Dimensions: 6.3" high x 17" wide x 15" deep (16 cm high x 43.2 cm wide x 38.1 cm deep)

Weight: 10.6 lb (4.8 kg) *without power supply*

M3PSM

Dimensions: 4 1/2" high x 2 1/2" wide x 13 1/2" long (11.4 cm high x 6.4 cm wide x 33.3 cm long)

Weight: 5 lb (2.3 kg)

INSTALLATION REQUIREMENTS AND SPECIFICATIONS

POWER SUPPLY MODULE REQUIREMENTS

The MMAC-M3FNB power supply senses and automatically adapts to the input voltage and frequency. The unit is designed to be operated at 110 or 220 volts without user configuration.

Input Frequency:	47 to 63 Hz
Input Voltage:	100 to 125 Vac 200 to 250 Vac
Input Current:	4 A @ 115 Vac 2 A @ 230 Vac
Fuses:	One 250 V, 5 Amp fuse (not user serviceable)
BTUs/hour:	918.9

Table 2-1. Output Voltage Specifications

Output Voltage (Vdc)	Minimum Load (amps)	Maximum Load (amps)	Maximum Power (watts)
+5 ($\pm 1\%$)	3	30	150
+12 ($\pm 6\%$)	0.15	5	60
-5 ($\pm 3\%$)	0	0.5	2.5
-9 ($\pm 3\%$)	0	4	36

This unit is intended for indoor use only, and must be used with a two-conductor-plus-ground power supply cord with a minimum HO5VV-F cord, minimum 0.75 mm² diameter conductors, an IEC 320 female receptacle (for connection to power supply), and a male plug appropriate to the country of installation.

INSTALLATION REQUIREMENTS AND SPECIFICATIONS



The supplied power cord is not designed for European installations. This unit is intended to be operated from a minimum 6 ampere branch circuit in Europe.

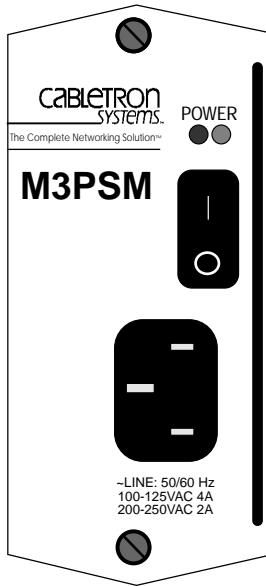


Figure 2-1. The MMAC-M3PSM

LEDs

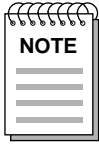
OK
(Power Supply)

When lit, this green LED indicates that the power supply module is operating correctly; a signal is also sent to the management/repeater module to indicate that the power supply is functioning properly.

Fail
(Power Supply)

When lit, this red LED indicates a loss of input power, loss of regulation on any output, or the activation of any power fail circuit protection.

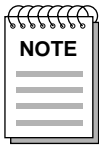
INSTALLATION REQUIREMENTS AND SPECIFICATIONS



If you have not yet installed a repeater/management module and/or a MIM or MIMs, the Fail LED may remain lit until installed MIMs create a power load. At that time, the green (Power OK) LED will light.

Fan Tray LED
(Fan Tray)

This LED is green when both the fans are operating properly. The LED turns red when either fan slows to half speed or less, and signals the management/repeater module that there is a fan tray problem.

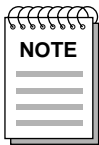


When the M3FNB is first powered up, this LED will be red for a moment until the fans are operating at the proper speed.

SAFETY

Designed in accordance with UL1950, UL910, NEC 725-2(b), CSA 950, IEC950, EN55022 Class A. Meets FCC Part 15, Class A limits.

This unit must be assembled and used in accordance with the instructions in this manual.



It is the responsibility of the person who sells the system of which the M3PSM will be a part to ensure that the total system meets allowed limits of conducted and radiated emissions.



The handles provided on the fan tray and power supply are for installation only; they are not designed to support the full weight of the chassis, and should not be used as carrying handles.

INSTALLATION REQUIREMENTS AND SPECIFICATIONS

CHAPTER 3

MMAC-M3FNB SETUP

This chapter contains instructions to help you set up Cabletron Systems' MMAC-M3FNB. You will not need any special tools or equipment to set up the MMAC-M3FNB, but you must follow all guidelines listed in Chapter 2, **Installation Requirements and Specifications**.

3.1 UNPACKING THE MMAC-M3FNB

Before you install the MMAC-M3FNB, you should inspect the unit.

To unpack the MMAC-M3FNB:

1. Remove the MMAC-M3FNB and fan tray from the shipping box. Save the shipping box and materials in the event the MMAC-M3FNB has to be reshipped.
2. Slide the two foam end caps off the MMAC-M3FNB, and remove the unit from the protective plastic bag. Set the MMAC-M3FNB aside in a safe place.
3. Remove the accessory package and verify that it contains two mounting brackets, a cable tie tray, and a small plastic bag with screws (two #10 screws, 3/8" long).

Contact Cabletron Systems Technical Support immediately if any discrepancy exists.

3.2 SETTING UP THE MMAC-M3FNB

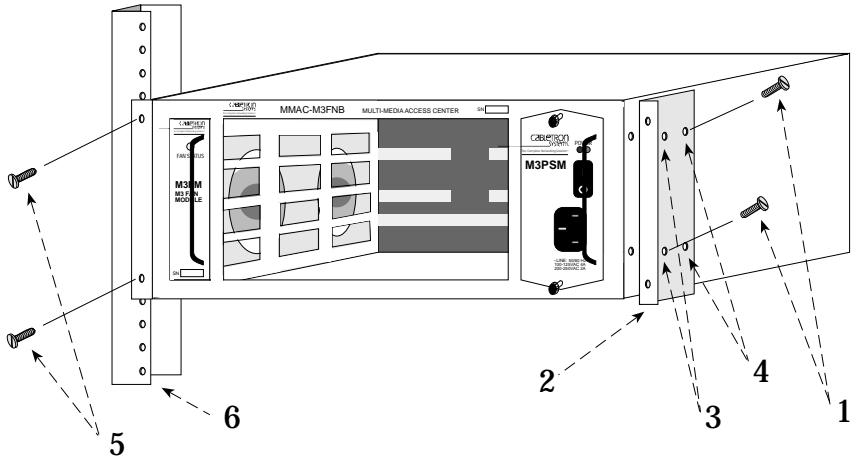
The following sections list the steps necessary to set up your MMAC-M3FNB, including installing the MMAC-M3FNB in the desired location, inserting the fan tray, and inserting the power supply module.

MMAC-M3FNB SETUP

3.2.1 Rack Mounting the MMAC-M3FNB

To mount the MMAC-M3FNB in a standard 19" equipment rack:

1. Using a Phillips head screwdriver, remove the four screws (item 1, Figure 3-1) – two on each side of the MMAC-M3FNB – which are closest to the front of the MMAC-M3FNB, and set them aside.

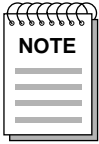


1. *Screws (4 total; 2 each side)*
2. *Rack mount bracket*
3. *Holes for flush mount*
4. *Holes for recessed mount*
5. *Bolts (secure with locking washers)*
6. *Equipment rack*

Figure 3-1. Installing the M3FNB into a Rack

2. The rack mount brackets (item 2) provided have two sets of holes: use the **front** holes (item 3) to mount the chassis flush with the equipment rack; use the **rear** holes (item 4) to mount the chassis so that it is recessed from the front of the rack. Align the appropriate holes on one rack mount bracket with the holes from which you removed the screws.

3. Insert the screws through the holes on the mounting bracket and into the screw holes on the MMAC-M3FNB.



*On the right-hand side of the chassis, use the same screws you removed in step 1, above; on the left-hand side, use the longer (3/8") screws provided in the accessory pack. **It is very important that you use the longer screws on the left side!** The shorter screws will provide inadequate support, and the bracket will not be securely mounted to the chassis.*

4. Tighten the screws until the mounting bracket is securely attached to the unit.
5. Repeat steps 2-4 for the second rack mount bracket. Be sure to use the same set of holes on the second rack mount bracket (front for flush mount, rear for recessed mount) that you used on the first bracket; also, be sure to use the longer (3/8") screws provided in the accessory pack when mounting the left bracket.
6. Slide the unit into the rack.
7. Align the slots on each mounting bracket with the desired holes on the equipment rack. Be sure to leave enough space below the unit for installation of the cable tie tray, if desired.
8. Insert bolts (item 5) through the slots in each of the mounting brackets and into the threaded holes in the equipment rack (item 6). Secure bolts with locking washers.
9. Tighten the nuts and bolts until the unit is secured to the rack.

3.2.2 Rack Mounting the Cable Tie Tray

A cable tie tray is provided with the MMAC-M3FNB to support and organize cables connected to the unit. The tray is designed to be installed directly under the MMAC-M3FNB in the equipment rack. To mount the cable tray in a standard 19" equipment rack:

MMAC-M3FNB SETUP

1. Slide the cable tie tray (Figure 3-2) into the rack.
2. Align the slots on each mounting bracket on the tray with the desired holes on the equipment rack.

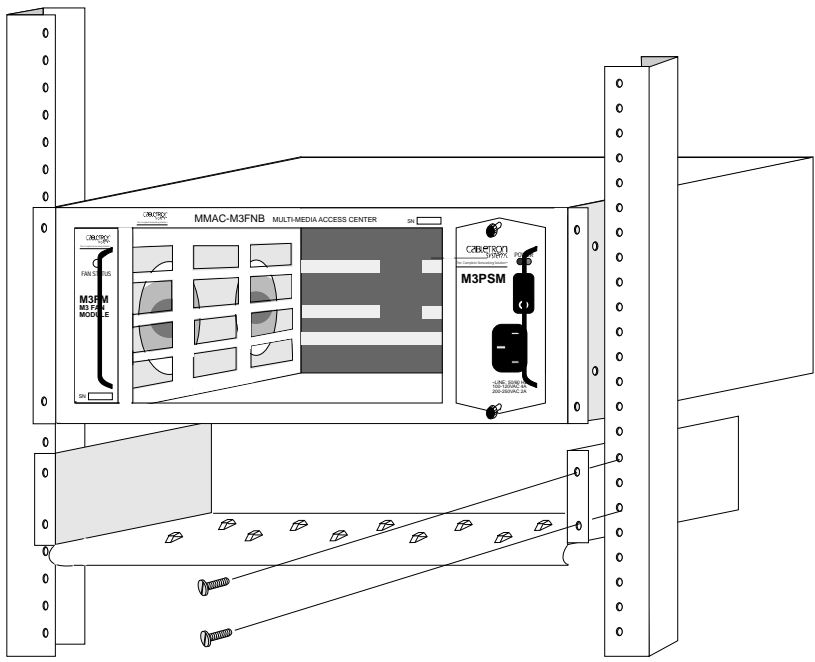


Figure 3-2. Cable Tie Tray Installation

3. Insert bolts through the slots in each of the mounting brackets and into the threaded holes in the equipment rack. Use nuts with locking washers to secure bolts.
4. Tighten the nuts and bolts until the tray is secured to the rack.

3.2.3 Inserting the Fan Tray

The MMAC-M3FNB is equipped with a removable fan tray that allows for easy periodic cleaning and/or replacement if a problem occurs with fan operation. To insert the fan tray in the MMAC-M3FNB:

1. Hold the fan tray (see Figure 3-3, below) with the handle closest to the MIM cavity (right) and align the slotted paths on the tray with the slot guides on the top and bottom of the far left opening on the MMAC-M3FNB chassis.
2. Slide the fan tray forward until its face is flush with the face of the MMAC-M3FNB. If you encounter any strong resistance, remove the fan tray and reinsert it. Do not force the fan tray into place as this may damage the unit.

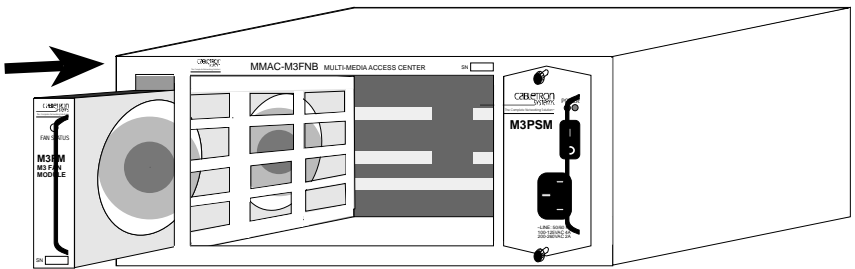


Figure 3-3. Inserting the Fan Tray

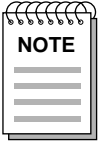


The handles provided on the fan tray and power supply are for installation only; they are not designed to support the full weight of the chassis, and should not be used as carrying handles.

3. When you power up the MMAC-M3FNB, observe the LED on the front of the fan tray. This LED should be red momentarily, then turn to green to indicate that both fans are operating properly.

MMAC-M3FNB SETUP

If this LED remains red, it indicates that one or both of the fans is not operating at the proper speed. Check the fan tray to ensure that nothing is interfering with movement of the fans. If you cannot find the problem, call Cabletron Systems Technical Support for assistance.



The fan LED may remain red if no MIMs are installed in the chassis.



The fan tray is hot-swappable; however, the chassis must not be run without the fan tray for extended periods of time, as it will quickly overheat.

3.2.4 Installing the Power Supply Module

The MMAC-M3FNB is designed to operate with a single power supply module. The M3PSM is installed in the right-hand slot on the front of the chassis, opposite the fan tray.

Install the M3PSM into your MMAC-M3FNB as follows:

1. Unpack the M3PSM by removing it from the shipping box and sliding the two foam end caps off the unit. Save the shipping box and materials in the event the unit must be reshipped.
2. Move the M3PSM from its protective plastic bag.
3. Slide the M3PSM into the slot of the MMAC-M3FNB (Figure 3-4, following page) as follows:
 - a. Hold the module by the handle on the front panel.

- b. With the LEDs at the top of the M3PSM and the handle to the right, align the M3PSM with the slotted paths on the top and bottom of the opening.
- c. Ensuring that the power supply is inserted into the slotted paths, carefully slide the module forward until it is connected to the backplane and its front panel is flush with the front of the MMAC-M3FNB. Do not force the module into place. If you encounter significant resistance before the front panel is flush with the MMAC-M3FNB, remove and reinsert it.

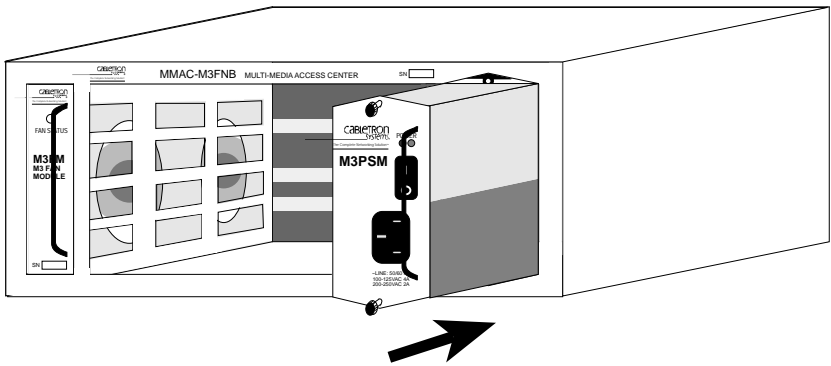


Figure 3-4. Installing the Power Supply Module

4. Tighten the knurled knobs to secure the M3PSM to the MMAC-M3FNB.



The handles provided on the fan tray and power supply are for installation only; they are not designed to support the full weight of the chassis, and should not be used as carrying handles.

After you have finished installing the power supply module, the MMAC-M3FNB is ready to be powered up; however, we recommend that you first install the repeater/management module and the MIM

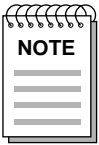
MMAC-M3FNB SETUP

or MIMs. Refer to the applicable module manuals for more information about MIM installation; see below for power-up instructions.

3.2.5 Powering Up the MMAC-M3FNB

Power up the MMAC-M3FNB as follows:

1. If the MMAC-M3FNB will not be rack mounted, place it on the selected site.
2. Plug the power cord into the power receptacle located on the front of the power supply.
3. Plug the power cord into an outlet and move the power switch on the power supply to the on position.
4. Make sure that the Power OK LED is lit.



If you have not yet installed a repeater/management module and/or a MIM or MIMs, the Fail LED may remain lit until installed MIMs create a power load. At that time, the green (Power OK) LED will light.

5. Make sure that both fans in the fan tray unit are operating correctly when power is received from the M3PSM (fan tray LED will be green).

If you experience any problems during the installation of the MMAC-M3FNB, contact Cabletron Systems Technical Support.