
AlterPath PM User Guide

Version 1.1.0 Revision 1d

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AlterPath PM Version 1.1.0 Revision 1d User Guide

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Preface

Purpose

The purpose of this guide is to provide instruction for users to independently install, configure, and maintain the AlterPath PM.

The AlterPath PM can be used in one of three configurations:

- Standalone - independent of any other hardware device.
- With a Cyclades-TS or AlterPath ACS.
- With any other console/terminal management device.

When used with the ACS/TS family, the AlterPath PM will yield a superior feature set. With this usage, the configuration will be different and the ACS/TS manual should be referenced for the setup.

Audience and User Levels

This guide is intended for the user who is responsible for the deployment and day-to-day operation and maintenance of the AlterPath PM. It assumes that the reader understands networking basics and is familiar with the terms and concepts used in Local and Wide Area Networking. Each configuration task will be separated into a section (a clickable link on the PDF file) for each user type.

Preface

How to use this Guide

This guide is organized into the following sections:

- [Chapter 1 - Introduction and Overview](#) contains an explanation of the product and its default setup. It also includes safety guidelines to be followed.
- [Chapter 2 - Installation, Configuration, and Usage](#) explains how the AlterPath PM should be connected. It describes the basic configuration process to get the AlterPath PM up and running for its most common uses.
- [Appendix A - Hardware Specs](#) gives a product overview, circuit breaker trip times, and electrical specifications for the AlterPath PM.

Additional Documentation and Help

There are other Cyclades documents that contain background information about Console Port Management and the Cyclades product line. These are:

- *AlterPath Console Server User Guide*
- *Cyclades-TS User Guide*
- *Cyclades' Console Management in the Data Center*
- *Cyclades' Product Catalog*

For the most updated version of Cyclades' documentation, use the following Web address:

<http://www.cyclades.com/support/downloads.php>

Preface

Conventions and Symbols

This section explains the significance of each of the various fonts, formatting, and icons that appear throughout this guide.

Fonts

This guide uses a regular text font for most of the body text and `Courier` for data that you would input, such as a command line instruction, or data that you would receive back, such as an error message. An example of this would be:

```
telnet 200.200.200.1 7001
```

Hypertext Links

References to another section of this manual are hypertext links that are [underlined](#) (and are also blue in the PDF version of the manual). When you click on them in the PDF version of the manual, you will be taken to that section.

Glossary Entries

Terms that can be found in the glossary are **underlined and slightly larger** than the rest of the text. These terms have a hypertext link to the glossary.

Quick Steps

Step-by-step instructions for installing and configuring the AlterPath PM are numbered with a summarized description of the step for quick reference. Underneath the quick step is a more detailed description. Steps are numbered 1, 2, 3, etc. Additionally, if there are sub-steps to a step, they are indicated as Step A, B, C, and are nested within the Step 1, 2, 3, etc. For example:

Step 1: Modify files.

You will modify four Linux files to let the AlterPath PM know about its local environment.

Step A: Modify `pslave.conf`.

Open the file `pslave.conf` and add the following lines . . .

Preface

Note Box Icons

Note boxes contain instructional or cautionary information that the reader especially needs to bear in mind. There are five levels of note box icons:



Tip. An informational tip or tool that explains and/or expedites the use of the AlterPath PM.



Important! An important tip that should be read. Review all of these notes for critical information.



Warning! A very important type of tip or warning. Do not ignore this information.



DANGER! Indicates a direct danger which, if not avoided, may result in personal injury or damage to the system.



Security Issue. Indicates security-related information where it is relevant.

Introduction and Overview

Introducing Cyclades

Cyclades is a data center fault management company that enables remote management of servers, network equipment, and automation devices. Its products help data center managers at enterprise, telecommunication, and Internet companies to maximize network and server availability. This results in decreased maintenance costs, increased efficiency and productivity, along with greater control, freedom, and peace of mind. Cyclades' advantage is providing scalable products leveraging Linux technology for flexibility and ease of customization.

The AlterPath PM

The AlterPath PM is an Intelligent Power Distribution Unit (IPDU) that enables remote power control of servers and network gear. When used in conjunction with Cyclades console servers, the AlterPath PM delivers easier management capabilities and faster problem solving by integrating console access and power control into one single interface.

IT professionals can power off, power on, and reboot network devices using the same console management session from any location via telnet, Secure Shell (SSHv2) or through a secure Web session, which significantly streamlines the process. This can all be done without the need for physical access to the hardware.

The AlterPath PM delivers accurate, real-time global current monitoring of all connected devices via the user interface screen or locally through an LED digital display. Users have the ability to set a current alarm threshold that, once exceeded, will have the AlterPath PM sound an alarm or send a notification message, or both.

It also incorporates a sequential power-up feature that prevents all power outlet receptacles from turning on at once, eliminating the potential of current surges that could render the equipment inoperable. Together with the global current monitoring, the sequential power-up feature lets users safely install more equipment on existing power circuits without the worry of current overloads.

The IPDU has a fixed number of power-outlet receptacles, but with daisy-chaining capabilities, users can increase capacity by connecting the control interfaces of several AlterPath PMs in a series.

Introduction and Overview

The AlterPath PM allows one administrator and up to eight users (not simultaneously) to connect to it through its RS-232 serial port. After a successful authentication it performs the following functions:

- Reads and displays the total current being used by the entire AlterPath PM.
- Manages power outlets (by powering them on and off, locking and unlocking them, and/or power cycling them).
- Manages users.
- Monitors power variables.
- Can be used as a stand-alone IPDU (independent of any other hardware) and controlled by any simple terminal access program like Minicom on Linux or HyperTerminal on Microsoft operating systems.
- Ethernet connection is available through the Cyclades-TS or AlterPath ACS to which the AlterPath PM is connected. When used with the ACS/TS family, the AlterPath PM allows you, via a configurable hotkey, to reboot servers without leaving your telnet/ssh session. To do so, all you need to do is to press the hotkey and select a power management option from the displayed menu.
- When used with the ACS/TS family, the AlterPath PM inherits the security of the console server to which it is connected.

Introduction and Overview

Standalone Configuration

In this configuration, the console port of the AlterPath PM is connected to a computer running HyperTerminal or Minicom. In this example, the AlterPath PM operates independently of any other hardware such as the TS/ACS.

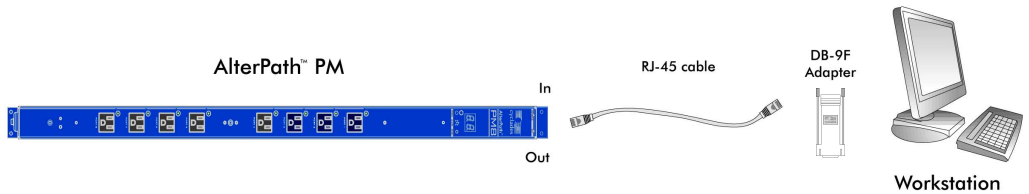


Figure 1: Standalone Configuration

Daisy-chained Configuration

This example shows three AlterPath PMs operating in a daisy-chained environment. They are configured to be used independently from any other hardware such as the AlterPath ACS or Cyclades-TS. The connections between the first PM and the computer with HyperTerminal/Minicom will be the same as in Figure #1.

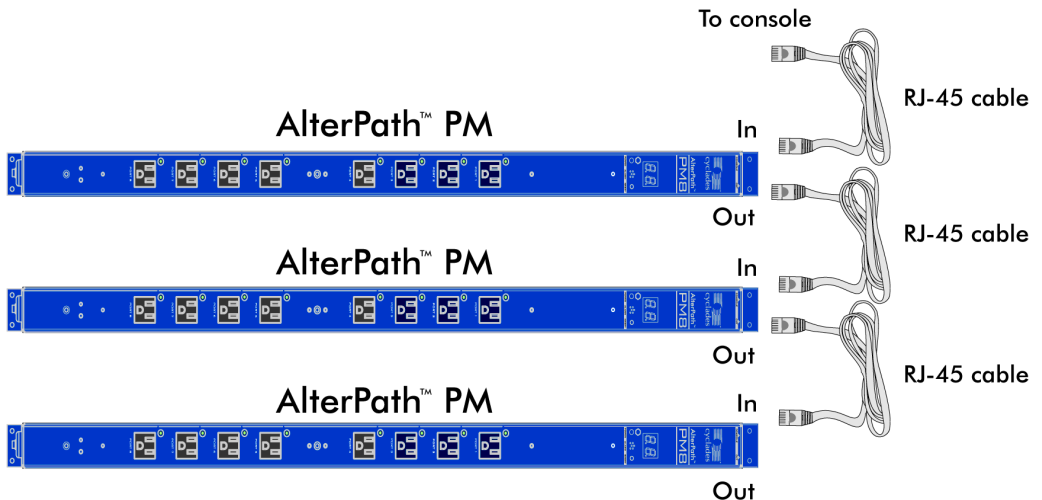


Figure 2: Daisy-chained Configuration

Introduction and Overview

Integrated Configuration

In this configuration, the AlterPath PM is configured to work in conjunction with the AlterPath ACS/Cyclades-TS. A user connects to the AlterPath PM by accessing the appropriate console port of the TS/ACS. The setup/configuration for the ACS/TS can be found in the AlterPath Console Server User Guide and the Cyclades-TS User Guide respectively. No software configuration is needed on the AlterPath PM itself in this setup.

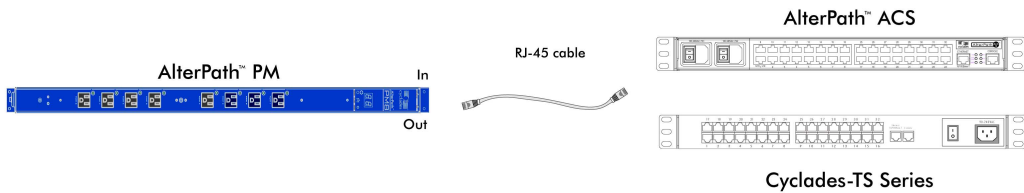


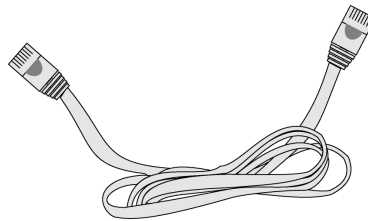
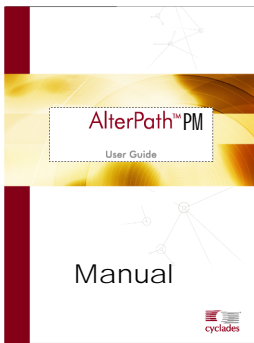
Figure 3: The AlterPath PM with an ACS or TS

If you want to daisy-chain with the AlterPath ACS or Cyclades-TS, the chain setup is similar to the Daisy-chained Configuration, with the difference that the first AlterPath PM is connected to the TS/ACS (instead of the workstation).

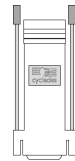
Introduction and Overview

What's in the box

The AlterPath PM comes with one adapter and one RJ-45 cable. The RJ-45 cable connects to Cyclades Console Servers, to another AlterPath PM in a daisy-chain solution, or to a PC (in this case, along with an adapter). The RJ-45 - DB-9F adapter is used along with the RJ-45 cable to connect to a PC's COM port.



RJ-45 cable



RJ-45 to DB-9 F adapter

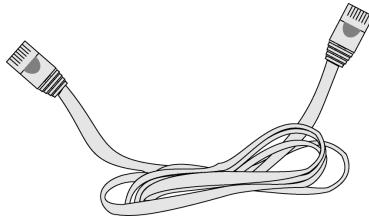
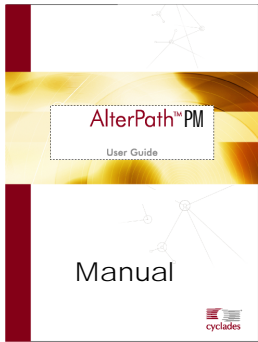


RJ-45 loopback connector



Figure 4: The AlterPath PM8, its cables, connectors and other box contents

Introduction and Overview



RJ-45 cable



RJ-45 to DB-9 F adapter



RJ-45 loopback connector



Figure 5: The AlterPath PM20, its cables, connectors and other box contents

Introduction and Overview

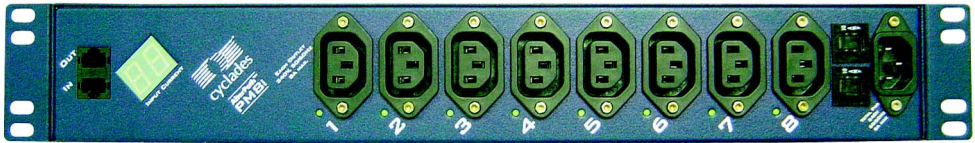
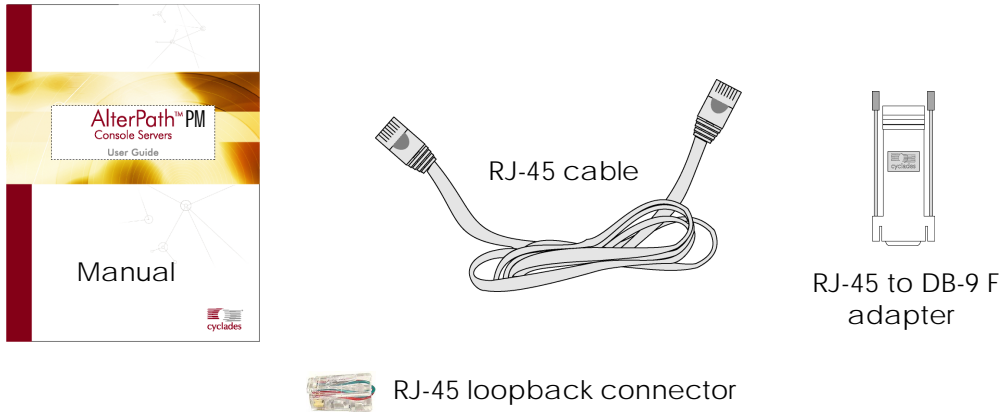


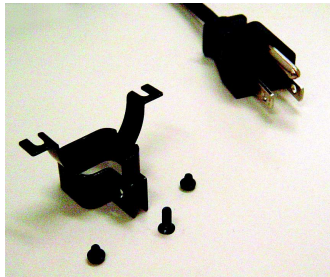
Figure 6: The AlterPath PM8i, its cables, connectors and other box contents

Depending on your site's location, the input power cables included in the box will vary. Following are the various cables listed with their corresponding countries.

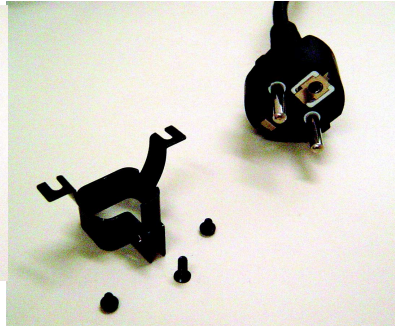
Input Power Cable Options for the AlterPath PM8i

- CAB0089: 8.2ft 3-pin power cable for the US.
- CAB0055: 8.2ft. 3-pin power cable for Australia & New Zealand.
- CAB0087: 8.2ft. 3-pin power cable for Continental Europe.
- CAB0088: 8.2ft. 3-pin power cable for the UK & Ireland.

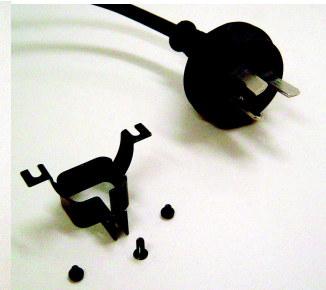
Introduction and Overview



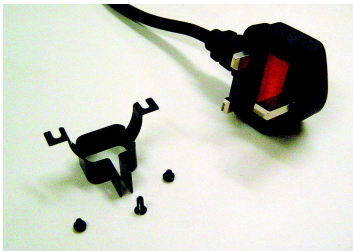
CAB0089 US Power Cord



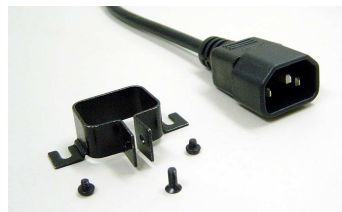
CAB0087 Continental Europe
Power Cord



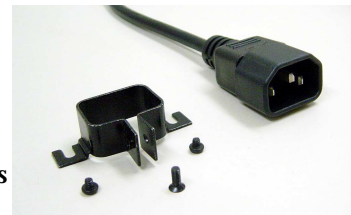
CAB0055 Australia/New
Zealand Power Cord



CAB0088 UK & Ireland Power Cord



Input Power Cable and Harness



Output Power Cable and Harness

Figure 7: Input Power Cables for the AlterPath PM8i

Optional Outlet Cable Package

8-outlet cables (C13 male to C14 female) with retaining clips (ACS0040). See above figure.

Introduction and Overview

Safety Instructions

Read all the following safety guidelines to protect yourself and your AlterPath PM.



DANGER! All outlets of the AlterPath PM output high voltage. Necessary precautions should be taken.



DANGER! To help prevent electric shock, plug the AlterPath PM into a properly grounded power source. The cable is equipped with a three-prong plug to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from the cable. If you have to use an extension cable, use a three-wire cable with properly grounded plugs.



Important! To help protect the AlterPath PM from electrical power fluctuations, use a surge suppressor, line conditioner, or uninterruptible power supply.



Important! Be sure that nothing rests on the cables of the AlterPath PM and that they are not located where they can be stepped on or tripped over.



Important! Do not spill food or liquids on the AlterPath PM. If it gets wet, disconnect the power immediately and contact Cyclades.

Introduction and Overview



DANGER! Do not push any objects through the openings of the AlterPath PM. Doing so can cause fire or electric shock by shorting out interior components.



Important! Keep your AlterPath PM away from heat sources.



DANGER! There is a possibility of live feed for either Line or Neutral even if one of the circuit breakers is disabled.

FCC Warning Statement

The AlterPath PM has been tested and found to comply with the limits for Class A digital devices, 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 generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Installation & Service Manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user is required to correct the problem at his or her own expense.

Canadian DOC Notice

The AlterPath PM does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

L'AlterPath PM n'émette pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Chapter 2 - Installation, Configuration, Usage

Introduction

This chapter will allow you to install and configure the AlterPath PM. This information refers to the standalone and daisy-chained modes only. For information about integrated use with the ACS/TS, please consult the AlterPath ACS User Guide or the Cyclades-TS User Guide respectively.

This chapter is divided into the following sections:

- [Functional Overview and Command Set](#)
- [System Requirements](#)
- [Pre-Install Checklist](#)
- [The Installation Process](#)
- [Default Configuration Parameters](#)
- [The Configuration Process](#)

System Requirements

Cyclades recommends either of the following specifications for configuration of the AlterPath PM:

- Standalone, independent of any other hardware, accessed via a terminal access program such as Minicom or HyperTerminal.
- In conjunction with a console server such as the AlterPath ACS or Cyclades-TS.

Chapter 2 - Installation, Configuration, Usage

Pre-Install Checklist

The AlterPath PM can be daisy-chained either while attached to a dumb terminal or PC emulating a terminal, or while attached to an ACS/TS. If it is attached to an ACS/TS, there is no need for a DB-9F adapter.

There are several things you will need to confirm prior to installing and configuring the AlterPath PM:

1. One or more RJ-45 - RJ-45 cables.
2. A DB-9F adapter (if the AlterPath PM is used in standalone or daisy-chained mode only).
3. A PC running a terminal emulation program (if the AlterPath PM is used in standalone or daisy-chained mode only).

Rack Installation

Connecting the Hardware

This section explains how to connect the PM to equipment for initial testing. It is a two-step process:

1. Connect the AlterPath PM to an AC power source.
2. Connect a device to one of the AlterPath PM's outlets.



Important! The suggested minimum screw size for wall-mounting the AlterPath PM units is #6 or 1/4-inch.

The RJ-45 cable included in the AlterPath PM package is minimum flame rated VW-1 or FT-1 and has a maximum length of 10.00656 feet (3.05 meters).

Chapter 2 - Installation, Configuration, Usage

Connecting the Power Cable

Connect a the AlterPath PM's power cable to a wall outlet.



Important! The following figure shows the AlterPath PM8 mounted on a wall. When mounting to a stud, securely mount using a #6 or larger screw or use a drywall fastener rated min. 25 lbs. (11.34 kg).

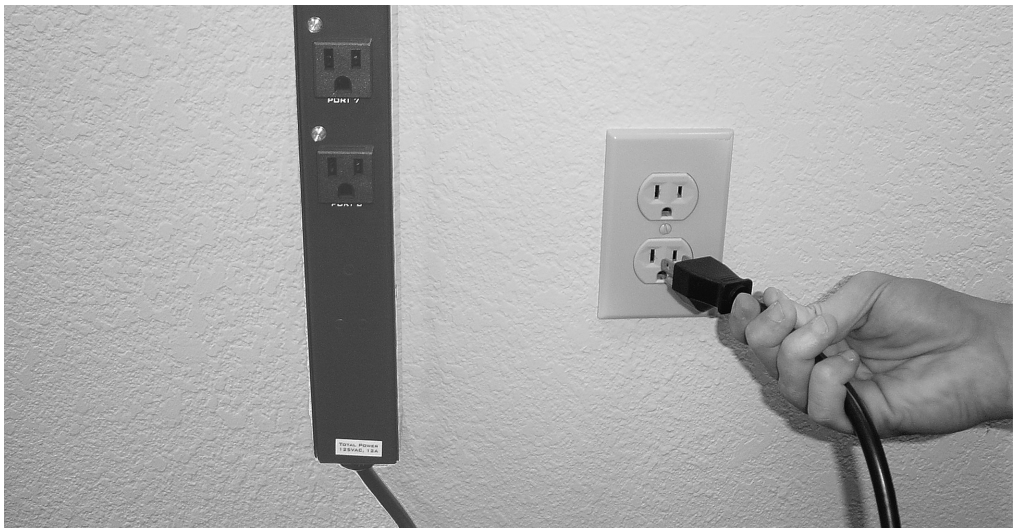


Figure 8: Connecting the AlterPath PM to a power source



Important! Install the AlterPath PM8 in a location where there is an adjacent and accessible wall socket outlet.



Important! The AlterPath PM8 unit must be plugged into a receptacle protected by a 20A Listed circuit breaker.

Chapter 2 - Installation, Configuration, Usage

Connecting to the Serial Port

Plug one end of the RJ-45 cable into the AlterPath PM “In/Console” port. The other end of the RJ-45 cable should be connected to either a Cyclades console server or to the RJ-45 to DB-9F adapter shipped with the product. In the latter case, the adapter can then be connected to a DB-9 serial port in the workstation that will control the AlterPath PM.

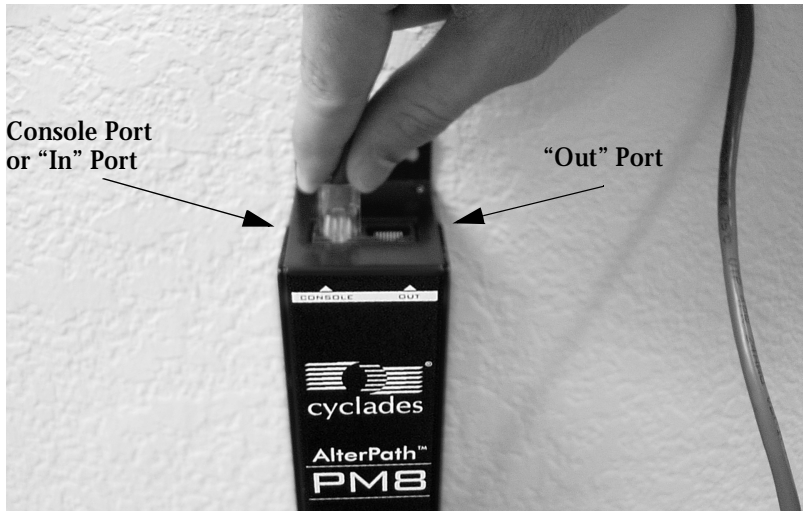


Figure 9: Connecting an RJ-45 cable to the AlterPath PM

Accessing the System Console

There are several ways to access the AlterPath PM. These methods are dependent on whether you are using the AlterPath PM as a standalone device, or in conjunction with the Cyclades-TS or AlterPath Console Server.

In standalone mode, local users can connect directly to the system console port (the “In” port) of the AlterPath PM using the console cable with the corresponding adapter.

In TS/ACS integration mode, remote users can access the AlterPath PM's control port through one of the following interfaces:

1. **Menu-driven interface:** after using telnet or SSH to access the console port equivalent to the managed device on the console server, you should type the power management hot-key (CTRL+P by default) and this will bring up a power management menu on the same screen.

Chapter 2 - Installation, Configuration, Usage

2. **Web interface:** once you are logged into the Web interface of the console server, you can access the power management functionality from the “Power Management” tab on the Web interface.

For more details, please refer to the section called [The Installation Process](#).

Rack-Mounting

The following considerations should be taken into account when rack-mounting the AlterPath PM:

Temperature

The manufacturer's maximum recommended ambient temperature for the AlterPath PM is 122 °F (50 °C).

Elevated Operating Ambient Temperature

If the AlterPath PM is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer’s maximum rated ambient temperature. See above.

Reduced Air Flow

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing

Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit, such as power strips or extension cords.

Chapter 2 - Installation, Configuration, Usage

Rack Mounting of the AlterPath PM8i

Step 1: Mount or place the AlterPath PM8i in a secure location.

Step 2: Connect the power cord to a power outlet.

Step 3: Connect your ACS/TS to the "In/Console" RJ-45 connector.

Step 4: Connect your serial devices to the AlterPath PM's outlets.

Step 5: Set the power switch to ON.

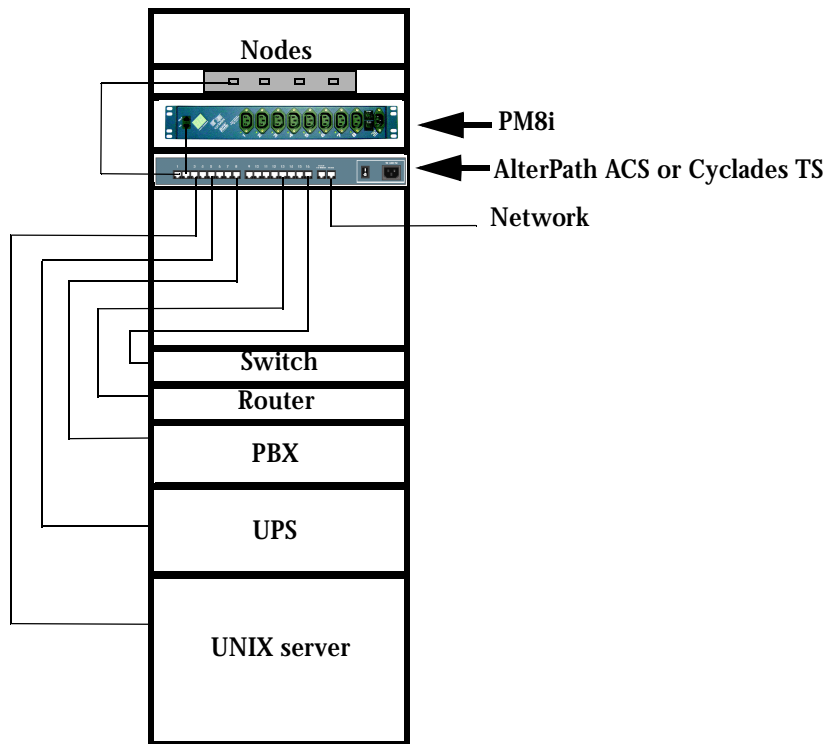


Figure 10: Rack mount for the AlterPath PM8i

Chapter 2 - Installation, Configuration, Usage

The Installation Process

Following are the steps that you will need to perform to install the AlterPath PM for either the standalone or the daisy-chained configuration. For more details and diagrams for these configurations, please refer to the section called [The AlterPath PM](#) in Chapter 1.

Standalone Configuration

- Step 1: Connect the DB-9F adapter to the PC/workstation running the Terminal Emulation Program.
- Step 2: Connect one end of the RJ-45 cable to the DB-9F adapter.
- Step 3: Connect the other end of the RJ-45 cable to the AlterPath PM.
- Step 4: Configure the terminal access program (HyperTerminal/Minicom) with the following parameters:
- 9600 baud
 - No flow control
 - 8 data bits
 - 1 stop bit

Daisy-Chained Configuration

- Step 1: Follow steps 1 - 4 above.
- Step 2: Connect one end of the RJ-45 cable to the output port of the main AlterPath PM (Master).
- Step 3: Connect the other end of the RJ-45 cable to the console port of the secondary AlterPath PM (Slave).
- A maximum of 128 outlets can be daisy chained from any AlterPath PM unit.

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Default Configuration Parameters

The AlterPath PM's default configuration is as follows:

1. User *admin* with password *pm8*.
2. Outlets 1-8 numbered as 1, 2, 3, 4, 5, 6, 7, and 8 respectively.
3. Outlets 1-8 unnamed.
4. Outlets 1-8 *unassigned to user*.
5. Outlets 1-8 turned on.
6. Outlets 1-8 unlocked.

The Configuration Process

You can configure the AlterPath PM by any one of three methods:

- CLI (Command Line Interface)
- Browser (only available when used with TS/ACS)
- Text-based menu (available only when used with TS/ACS)

Configuration using CLI

Step 1: Login to the AlterPath PM.

Use the factory default username/password pair *admin/pm8*.

Step 2: Change the password for user *admin*.

Step 3: Create up to eight users using the *adduser* command.

Step 4: Assign outlets to users using the *assign* command.

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Step 5: (Optional) Name the outlets using the *name* command.

Step 6: Save the configuration using the *save* command.

Configuration using a Web Browser

Refer to the AlterPath Console Server User Guide for the ACS or the Cyclades-TS User Guide.

Configuration using the Text-Based Menu

Refer to the AlterPath Console Server User Guide for the ACS or the Cyclades-TS User Guide.

Functional Overview and Command Set

User Interface

When you power on or exit the AlterPath PM, the following login prompt is displayed:

```
AlterPath PM
(c) 2002-2003 Cyclades Corporation
V 1.1.0 August 11, 2003
[ALTERPATH PM]: Number of IPDUs: 1
[ALTERPATH PM]: Number of Outlets: 8
Username:
```

When the unit is first powered on, the only existing user is the administrator with username *admin*. Therefore, the user would have to type in:

```
admin<cr>
```

The following string would then be presented:

```
Password:
```

Type in the password 'pm8' (factory default), and a command prompt will be shown.

```
pm>
```

Chapter 2 - Installation, Configuration, Usage

After logging in, the administrator can choose to change his or her password through the *passwd* command (seen later). Passwords can be set to null (i.e., no password).

Some commands allow specifying the outlet number (e.g. 5), outlet name (e.g. sunfire), or group of outlets (e.g. 1, 3-5). For any case, the reference to <outlet> will be used throughout this document. To know all the commands supported by the PM, the administrator would need to type in *help* (seen later).

Commands

All commands are available to the administrator, and some commands are available to regular users. Unless otherwise noted, the commands below are available to any system user.

Commands implemented in the current version areas follows: *adduser, alarm, assign, buzzer, current, cycle, deluser, exit, factory_defaults, help, list, lock, name, off, on, passwd, reboot, restore, save, status, syslog, unassign, unlock, ver, and whoami*.

The detailed functional description for each of these commands is shown below.

Adduser

Adds one username to the internal database. A maximum of eight characters (not case sensitive) is allowed, and a maximum of eight individual users is allowed. This command is available to the administrative user *only*. For example, to add the user *popper*:

```
pm>adduser popper
Password:
Username/password set for user popper.
pm>
```

Alarm <IPDU#> <threshold>

Sets the alarm threshold to the value *threshold*. Sounds a buzzer alarm if the current value in the IPDU surpasses the threshold value for the given IPDU. This command is available to the administrative user only.

```
pm>alarm 2 3.0
Alarm Threshold (2)=3.0 Amperes
pm>
```

Chapter 2 - Installation, Configuration, Usage

Assign

Assigns one outlet or group of outlets to a given user. This command is available to the administrator user *only*. For example, to assign outlet 2 to user *russef*.

```
pm>assign 2 russef
Outlet 2 assigned to russef.
pm>
```

Buzzer on|off

Turns on/off the buzzer.

```
pm>buzzer off
Buzzer turned off.
pm>
```

Current

Gets the true RMS current for the entire IPDU. For example, to get the current for outlet #1:

```
pm>current 1
True RMS current on IPDU #1: 2.4 amp(s)
pm>
```

Cycle

Power cycles an outlet or group of outlets (turns them off and back on). There's an interval of one second to turn the outlet back ON. If there is more than one outlet to be power cycled, there will be an interval of 1 second between outlet power cycles. For example, to power cycle outlet 8:

```
pm>cycle 8
8: Outlet turned off.
8: Outlet turned on.
```

To power cycle outlets 1 and 8:

```
pm>cycle 1 8
1: Outlet turned off.
8: Outlet turned off.
1: Outlet turned on.
8: Outlet turned on.
pm>
```

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Deluser

Deletes one username from the internal database. A maximum of eight characters (not case sensitive) is allowed, and a maximum of eight individual users allowed. This command is available to the administrative user *only*. For example, to delete the user *new*:

```
pm>deluser new
new: Username deleted.
pm>
```

Exit

Exits the session. For example, to exit the current session:

```
pm>exit
AlterPath PM
Copyright (c) 2002-2003 Cyclades Corporation
V 1.1.0 August 11, 2003
```

Username:

Factory_defaults

Resets the configuration to factory defaults. Example:

```
pm>factory_defaults
Setting configuration to defaults on IPDU #1
1: Outlet turned on.
2: Outlet turned on.
3: Outlet turned on.
4: Outlet turned on.
5: Outlet turned on.
6: Outlet turned on.
7: Outlet turned on.
8: Outlet turned on.
Saving configuration to flash on IPDU #1 ... done.
pm>
```

Chapter 2 - Installation, Configuration, Usage

Help

Shows the commands supported for that user. For the Admin user, the following would appear on the screen after typing in *help* at the command prompt:

```
pm>help
```

Available commands:

```
adduser    alarm      assign    buzzer    current
cycle      deluser    factory_defaults  help
list       lock       name      off       on
passwd     reboot     restore   save      status
syslog     unassign   unlock    ver       whoami
```

NOTE: To get detailed help on the commands listed above type
'<command> help';

NOTE: Some commands accept as input a data type called
<outletString>. <outletString> is a string representing
one or more outlets. This string can be:

- one single outlet.

Examples: on 3 (turn on outlet 3);

off router (turn off the outlet called router).

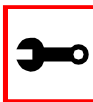
- a group of outlets.

Examples: status 1,3,5 (get status of outlets 1, 3 and 5);

cycle 2-7 (cycle the outlets 2,3, 4, 5, 6, 7)

lock 2,5-7 (lock the outlets 2,5, 6 and 7).

```
pm>
```



Note: <outStr> is a string representing one or more outlets. This string can be:

- One single outlet:

Examples: on 3 (turn on outlet 3);

off router (turn off the outlet called router).

- A group of outlets:

Examples: status 1,3,5 (get status of outlets 1, 3 and 5);

cycle 2-7 (cycle the outlets 2, 3, 4, 5, 6, 7)

lock 2,5-7 (lock the outlets 2, 5, 6 and 7).

pm>

Chapter 2 - Installation, Configuration, Usage

The regular user would see the following:

```
pm>help
```

Syntax of available commands:

```
help                - Show supported commands
on <outStr>         - Turn <outStr> ON
off <outStr>        - Turn <outStr> OFF
cycle <outStr>      - Turn <outStr> OFF and back ON
lock <outStr>       - Lock the current status of <outStr>
unlock <outStr>    - Unlock the current status of <outStr>
status <outStr>    - Show the current status of <outStr>
list                - List users created
exit               - Exit session
passwd             - Change the password for the current user
current           - Show the instantaneous current consumption
whoami            - Show the username currently logged in
ver               - Show the HW and SW version of the unit(s)
pm>
```


Chapter 2 - Installation, Configuration, Usage

List

List users created and outlets assigned to each user (for the administrator), or just the outlets assigned to the user logged in at the moment (for the regular user). For example, for the Admin to list user names in the internal database:

```
pm>list
-----
User                Outlets
-----
kant                1,5
diderot             2,6
russel              3,7
tao                 4,8
-----
pm>
```

For a regular user to list the usernames in the internal database:

```
pm>list
-----
User                Outlets
-----
kant                1,5
-----
pm>
```

Lock

Locks an outlet or group of outlets in the current state. The response to this command is a list of status lines, one per power port. For example, to lock outlets 1, 2, and 6:

```
pm>lock 2,6,1
1: Outlet locked.
2: Outlet locked.
6: Outlet locked.
```

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Name

Names an outlet. A maximum of eight characters (not case sensitive) is allowed. This command is available to the administrator user only. For example, to name outlet 4 as *nowhere*:

```
pm>name 4 nowhere
4: Outlet now named nowhere
pm>
```

Off

Turns an outlet or group of outlets off. For example, to turn all outlets off:

```
pm>off all
1: Outlet turned off.
2: Outlet turned off.
3: Outlet turned off.
4: Outlet turned off.
5: Outlet turned off.
6: Outlet turned off.
7: Outlet turned off.
8: Outlet turned off.
```

To turn off all outlets but 1 and 8:

```
pm>off 2-7
2: Outlet turned off.
3: Outlet turned off.
4: Outlet turned off.
5: Outlet turned off.
6: Outlet turned off.
7: Outlet turned off.
```

Chapter 2 - Installation, Configuration, Usage

On

Turns an outlet or group of outlets on. If more than one outlet is to be powered ON there is an interval of one second between outlets being powered on. For example, to turn on all outlets but #7:

```
pm>on 1,2,3-6,8
1: Outlet turned on.
2: Outlet turned on.
3: Outlet turned on.
4: Outlet turned on.
5: Outlet turned on.
6: Outlet turned on.
8: Outlet turned on.
```

To turn on all outlets but #8:

```
pm>on 1,2-7
1: Outlet turned on.
2: Outlet turned on.
3: Outlet turned on.
4: Outlet turned on.
5: Outlet turned on.
6: Outlet turned on.
7: Outlet turned on.
```

Passwd

Sets a password. The Administrator has a default password (pm8), which can be changed. A maximum of eight characters (not case sensitive) is allowed. Regular users can change or set only their own password. The Administrator can change his or her own password or any regular user's password. For example, to set the password for user *alpha*, the user would type in:

```
pm>passwd
Password: <new password>
Username/password set for alpha.
```

And for the admin to change the password for user *alpha*:

```
pm>passwd alpha
Password: <new password>
Username/password set for alpha.
```

Chapter 2 - Installation, Configuration, Usage

Reboot

Reboots the IPDU.

```
pm>reboot
```

```
-----  
Copyright (c) 2003 Cyclades Corporation  
PM/KVM Boot Loader Version 1.0  
-----
```

Boot Menu

1. Upgrade Firmware.
2. Boot Firmware.

```
-----  
Enter choice (1 or 2): Timeout...
```

```
Booting...
```

```
Starting AlterPath PM
```

```
Retrieving configuration
```

- ```
1: Outlet turned on.
2: Outlet turned on.
3: Outlet turned on.
4: Outlet turned on.
5: Outlet turned on.
6: Outlet turned on.
7: Outlet turned on.
8: Outlet turned on.
```

```
AlterPath PM
```

```
Copyright (c) 2002-2003 Cyclades Corporation
V 1.1.0 Aug 11, 2003
```

```
[PM]: IPDU: 1
```

```
[PM]: OUT: 8
```

```
Username:
```

# Chapter 2 - Installation, Configuration, Usage

---

## Restore

Restores the configuration currently saved in flash. Example:

```
pm>restore
1: Outlet turned on.
2: Outlet turned on.
3: Outlet turned on.
4: Outlet turned on.
5: Outlet turned on.
6: Outlet turned on.
7: Outlet turned on.
8: Outlet turned on.
pm>
```

## Save

Saves the current running configuration. Example:

```
pm>save
Saving configuration files to flash...done.
pm>exit
```

**An error message will be displayed if there is an error while writing the configuration to flash. The save command saves the username/password database and the specific information pertaining to each outlet such as outlet number, outlet name, outlet owner, state (on/off) of the outlet, whether the outlet is locked or unlocked, etc. Upon next reboot or login the Alter-Path PM retrieves the saved configuration and initializes the outlets according to the saved configuration.**

# Chapter 2 - Installation, Configuration, Usage

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## Status

Gets the status of an outlet or group of outlets, and provides information about the outlet names. For example, to get the status of outlets 1 through 8 when none of the outlets are locked:

```
pm>status all
```

| Outlet | Name    | Status       | Users   |
|--------|---------|--------------|---------|
| 1      | germany | Unlocked ON  | kant    |
| 2      | france  | Unlocked OFF | diderot |
| 3      | britain | Unlocked ON  | russel  |
| 4      | china   | Unlocked ON  | tao     |
| 5      |         | Unlocked ON  | kant    |
| 6      |         | Unlocked ON  | diderot |
| 7      |         | Unlocked ON  | russel  |
| 8      |         | Unlocked ON  | tao     |

```
pm>
```

To get the status of outlets 1 through 8 when some of the outlets are locked:

```
pm>status all
```

| Outlet | Name    | Status      | Users   |
|--------|---------|-------------|---------|
| 1      | germany | Locked ON   | kant    |
| 2      | france  | Locked OFF  | diderot |
| 3      | britain | Unlocked ON | russel  |
| 4      | china   | Unlocked ON | tao     |
| 5      |         | Unlocked ON | kant    |
| 6      |         | Locked ON   | diderot |
| 7      |         | Unlocked ON | russel  |
| 8      |         | Unlocked ON | tao     |

```
pm>
```

## Syslog on | off

Turns on/off syslog messages to the console.

```
pm>syslog on
Syslog turned on.
pm>
```

# Chapter 2 - Installation, Configuration, Usage

---

## Unassign

Removes the assignment of an outlet or group of outlets from a given user. This command is available to the administrator user only. For example, to unassign outlet 2 and 4 from user diderot:

```
pm>unassign 2,4 diderot
2: Outlet no longer assigned to diderot.
4: Outlet no longer assigned to diderot.
pm>
```

## Unlock

Unlocks an outlet or group of outlets in the current state. The response to this command is a list of status lines, one per power port. For example, to unlock outlets 2, 3, and 8:

```
pm>unlock 2,3,8
2: Outlet unlocked.
3: Outlet unlocked.
8: Outlet unlocked.
```

## Ver

Shows the current software version. Example:

```
pm>ver
IPDU 1 Hw with 8 outlets 15 AMPS max Sw V 1.1.0 August 11, 2003
pm>
```

## Whoami

Shows who is the user currently logged in. Example with the admin user logged in:

```
pm>whoami
admin
pm>
```

# Chapter 2 - Installation, Configuration, Usage

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---

## Emergency Reset of the Administrator Password

In the event the administrator wants to reset the password for the AlterPath PM (e.g. he/she forgot the password), then the procedure below should be followed:

**Step 1: Log out of the AlterPath PM.**

If you are currently logged into the AlterPath PM (as any user, regular or administrator), log out by issuing the following command:

```
exit
```

**Step 2: Attach loopback connector.**

Connect the loopback connector shipped with the product to the OUT port of the AlterPath PM. If necessary, disconnect any cables connected to the OUT port of the AlterPath PM to allow for the connection of the loopback.

**Step 3: Wait for one minute, then check the display.**

Wait for one minute. If you are watching the AlterPath PM's console output (using HyperTerminal or Minicom), messages like the ones shown below will be displayed:

```
[ALTERPATH PM]: DCD went ON on output port of IPDU #1
```

```
[ALTERPATH PM]: Trying to detect loopback cable on OUT port
of ipdu #1
```

```
[ALTERPATH PM]: Loopback detected. Changing administrator
password to default.
```

```
[ALTERPATH PM]: Please remove the loopback cable now.
```

**Step 4: Remove the loopback connector.**

After one minute, you can remove the loopback connector from the OUT port of the AlterPath PM. Now the password for the user *admin* will be reset to the default (*pm8*), and you should be able to log into the AlterPath PM using this username/ password.



# Chapter 2 - Installation, Configuration, Usage

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Step 5: Change the password for the *admin* if desired.

If you wish, log into the AlterPath PM and change the password for the *admin* user by issuing the following command:

```
passwd
```



**Note:** If you need to recover the password of many AlterPath PMs connected in a daisy-chain configuration, the above procedure needs to be executed on each AlterPath PM in the chain.

## Upgrading the AlterPath PM Firmware

Starting with version 1.1.0, the AlterPath PM firmware can be upgraded through its “IN” port. To upgrade the AlterPath PM firmware, the procedure below should be followed:

Step 1: Download the new AlterPath PM firmware from the Cyclades Web site.

The latest AlterPath PM firmware is available in the download section of the Cyclades Web site, at <http://www.cyclades.com/support/downloads.php>  
After downloading the AlterPath PM firmware file, save it to the workstation connected to the AlterPath PM console (IN port).

Step 2: Log in to the AlterPath PM as *admin* and reboot the unit.

If you are currently logged in as a different user, log out and then login as *admin*.  
Once you see the AlterPath PM command prompt, reboot the unit by executing the following command:

```
reboot
```

Step 3: At the boot loader menu, select the option to upgrade the firmware.

After the *reboot* command is executed, the boot loader menu will be displayed at the console, as shown below:

# Chapter 2 - Installation, Configuration, Usage

---

---

```
pm>reboot
AlterPath PM
Copyright (c) 2002-2003 Cyclades Corporation
V 1.1.0m Aug 11, 2003
```

```

Copyright (c) 2003 Cyclades Corporation
AlterPath PM/KVM Boot Loader Version 1.0

```

```
Boot Menu
1. Upgrade Firmware.
2. Boot Firmware.
```

```

Enter choice (1 or 2):
```

**To upgrade the firmware, select option 1 by typing 1 <ENTER>. The boot loader will then erase the firmware currently in the unit, and ask you to upload the new firmware, as shown below:**

```

Copyright (c) 2003 Cyclades Corporation
AlterPath PM/KVM Boot Loader Version 1.0

```

```
Boot Menu
1. Upgrade Firmware.
2. Boot Firmware.
```

```

Enter choice (1 or 2): 1
Erasing firmware...done.
Downloading image. Please send file in 10 seconds.
```

#### **Step 4: Upload the new AlterPath PM firmware to the unit.**

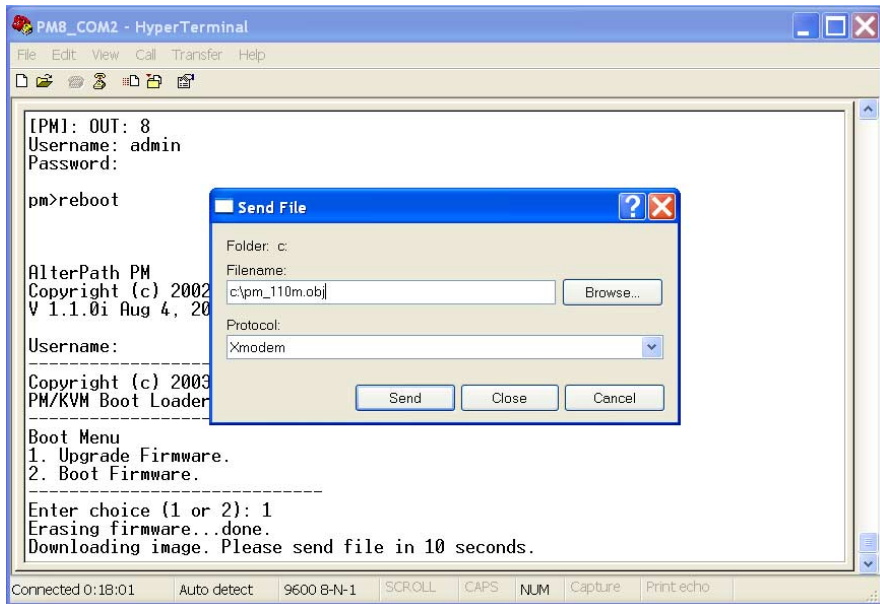
Now you should use your terminal emulator program to upload the AlterPath PM firmware file to the AlterPath PM using the Xmodem protocol.

# Chapter 2 - Installation, Configuration, Usage

---

If you are using HyperTerminal in Windows, the procedure is as follows:

- Go to the *Transfer* menu. Select *Send*. A popup window will be displayed.
- Set the proper path for the AlterPath PM firmware file, and select Xmodem as the protocol. Once this is done, click on the *Close* button.

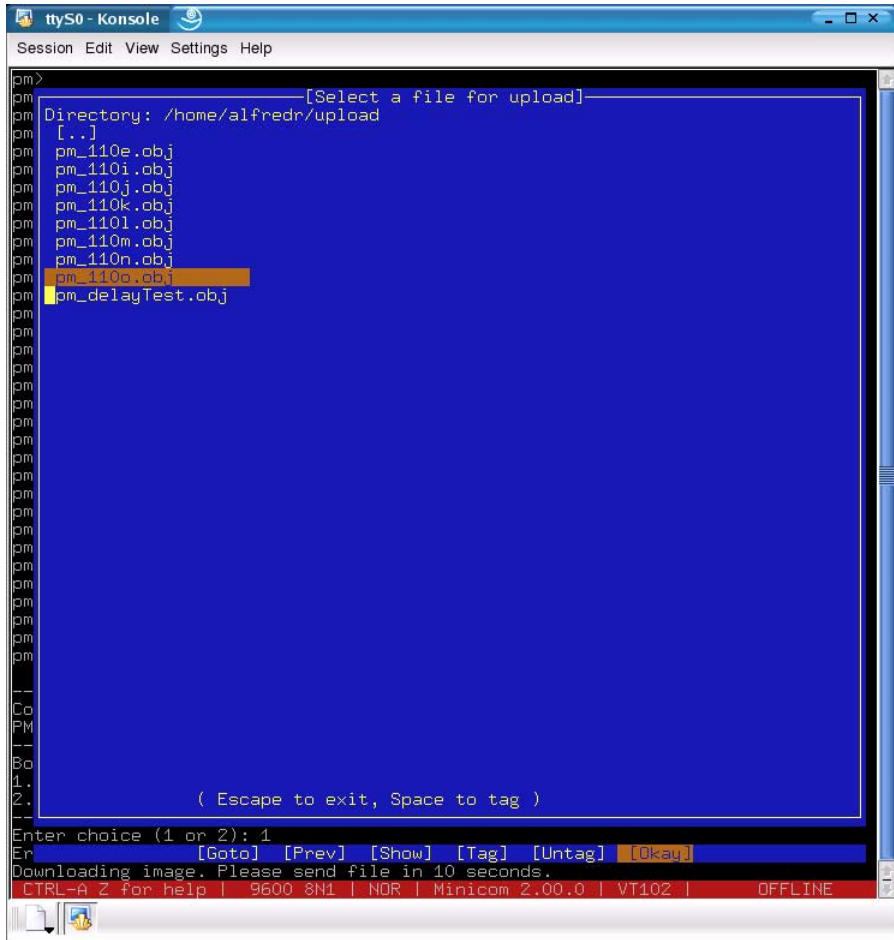


*Figure 11: Uploading the AlterPath PM firmware with HyperTerminal*

If you are using Minicom in Linux, the procedure is as follows:

- From the main screen, press CTRL-A + S (for sending files), and then select *xmodem* as the protocol in the *Upload* popup window.
- In the next window displayed, select the AlterPath PM firmware file for upload by highlighting it through browsing, and then pressing SPACE to tag it. Once this is done, press ENTER to start the file transfer.

# Chapter 2 - Installation, Configuration, Usage



*Figure 12: Uploading the AlterPath PM firmware with Minicom*

If you use a different terminal emulator, please refer to the documentation provided by the manufacturer on how to transfer files using the Xmodem protocol.

If the file transfer fails, you will get an error message on the AlterPath PM console, and the boot loader menu will be displayed again so you can redo the process. The screen would be similar to the one shown below:

# Chapter 2 - Installation, Configuration, Usage

---

```
Erasing firmware...done.
Downloading image. Please send file in 10 seconds.
BB0BB0$BB0BB0$error.
```

```

Copyright (c) 2003 Cyclades Corporation
AlterPath PM/KVM Boot Loader Version 1.0

```

```
Boot Menu
1. Upgrade Firmware.
2. Boot Firmware.

```

```
Enter choice (1 or 2):
```

**In this case, you should go back to Step 3 and follow the upgrade steps again. If the problem persists, you shall contact Cyclades Technical Support for assistance.**

**If the file transfer is successful, the AlterPath PM console will display the normal boot messages and present the login prompt. At this point, the upgrade process is completed and you may log in to the AlterPath PM and perform actions as usual.**

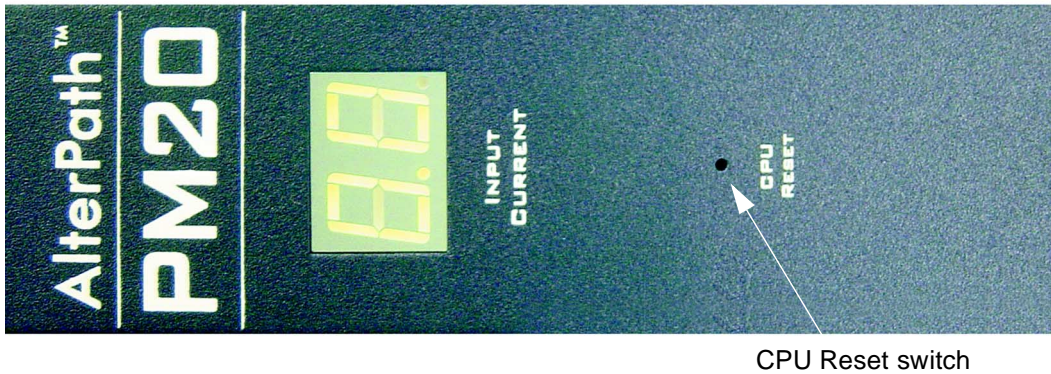
# Chapter 2 - Installation, Configuration, Usage

---

---

## CPU Reset Switch (AlterPath PM20 only)

If for any reason you need to reset / reboot the CPU other than through the command line interface from the console, you can use the CPU Reset switch. The CPU Reset switch is located below the current display and requires a paper clip or other narrow pointed device to be accessed.



*Figure 13: CPU reset switch on the AlterPath PM20*

Once this switch is pressed and released, the CPU in the AlterPath PM20 will reboot. However, the states of the power outlets will remain unchanged during this process.

# Appendix A - Hardware Specs

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## Introduction

Major features of the AlterPath PM family are listed below:

- 128 KB flash memory
- 8 KB RAM
- Two RJ-45 RS-232 interfaces
- 2-digit 7-segment display monitoring global current
- LED monitoring ON/OFF for each port
- Audible over current alarm
- 8-bit Microcontroller-equipped

The AlterPath PM8 has the following additional features:

- One 125VAC/15A power plug (NEMA 5-15P) or
- One 125VAC/20A power plug (NEMA 5-20P) or
- One 125VAC/20A power plug (NEMA L5-20P)
- Eight 125VAC/15A power receptacles (NEMA 5-15R)
- 125VAC/20A circuit breaker with “press to reset” function
- Vertical mounting (zero U)

The AlterPath PM8i has the following additional features:

- One 250VAC/8A power plug (IEC320-C14)
- Eight 250VAC/8A power receptacle (IEC320-C14)
- 250VAC/10A supplementary protector with “press to reset” function
- Vertical (zero U) & Horizontal (1.5 U) mounting

# Appendix A - Hardware Specs

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---

The AlterPath PM20 has the following additional features:

- One 125VAC/15A power plug (NEMA 5-15P) or
- One 125VAC/20A power plug (NEMA 5-20P) or
- One 125VAC/20A power plug (NEMA L5-20P) or
- One 125VAC/30A power plug (NEMA L5-30P)
- 20 125VAC/15A power receptacles (NEMA 5-15R)
- 125VAC/20A circuit breaker (15A and 20A models) with “press to reset” function, or
- 125VAC/30A circuit breaker (30A models) with “press to reset” function
- Vertical mounting (zero U)

## Circuit Breaker

The AlterPath PM uses a 10 Amp (PM8i), 20 Amp (PM8-15A, PM8-20A, PM8-L20A, PM20-15A, PM20-20A and PM20-L20A) or 30A (PM20-L30A) circuit breaker. The following table shows the circuit breaker trip time for all PM models.

Table 1: Circuit Breaker Trip Time

| Current Load | Trip Time          |
|--------------|--------------------|
| 100%         | No Trip            |
| 150%         | Trip in 1 hour     |
| 200%         | 4 - 40 seconds     |
| 300%         | 1.2 to 12 seconds  |
| 400%         | 0.5 to 5.5 seconds |
| 500%         | 0.4 to 3.5 seconds |
| 600%         | 0.3 to 2.5 seconds |



# Appendix A - Hardware Specs

## Electrical Specifications

The following tables illustrate the AlterPath PM's electrical specifications:

Table 2: AlterPath PM8 Electrical Specifications - 15 Amp version

| Characteristics                 | Specifications                             |
|---------------------------------|--------------------------------------------|
| Input Voltage                   | 100 - 120 VAC                              |
| Max Output Current Total        | 12A                                        |
| Max Output Current Each Outlet  | 10A                                        |
| Operating Temperature           | 50 - 122 ° F (10 - 50 °C)                  |
| Relative Humidity               | 5% to 95%, non-condensing                  |
| Weight                          | 6.1 lbs (2.8 kg)                           |
| Physical Dimensions (W x D x H) | 39.6 x 1.7 x 2.2 in (100.6 x 4.3 x 5.6 cm) |

Table 3: AlterPath PM8 Electrical Specifications - 20 Amp version

| Characteristics                 | Specifications                             |
|---------------------------------|--------------------------------------------|
| Input Voltage                   | 100 - 120 VAC                              |
| Max Output Current Total        | 16A                                        |
| Max Output Current Each Outlet  | 10A                                        |
| Operating Temperature           | 50 - 122 ° F (10 - 50 °C)                  |
| Relative Humidity               | 5% to 95%, non-condensing                  |
| Weight                          | 6.1 lbs (2.8 kg)                           |
| Physical Dimensions (W x D x H) | 39.6 x 1.7 x 2.2 in (100.6 x 4.3 x 5.6 cm) |

# Appendix A - Hardware Specs

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**Table 4: AlterPath PM8i Electrical Specifications - 10 Amp version**

| Characteristics                 | Specifications                           |
|---------------------------------|------------------------------------------|
| Input Voltage                   | 200 - 240 VAC                            |
| Max Output Current Total        | 8A                                       |
| Max Output Current Each Outlet  | 8A                                       |
| Operating Temperature           | 50 - 122 ° F (10 - 50 °C)                |
| Relative Humidity               | 5% to 95%, non-condensing                |
| Weight                          | 5 lbs (2.3 kg)                           |
| Physical Dimensions (W x D x H) | 17 x 3.7 x 2.63 in (43.2 x 9.4 x 6.7 cm) |

**Table 5: AlterPath PM20 Electrical Specifications - 15 Amp version**

| Characteristics                 | Specifications                           |
|---------------------------------|------------------------------------------|
| Input Voltage                   | 100 - 120 VAC                            |
| Max Output Current Total        | 12A                                      |
| Max Output Current Each Outlet  | 12A                                      |
| Operating Temperature           | 50 - 122 ° F (10 - 50 °C)                |
| Relative Humidity               | 5% to 95%, non-condensing                |
| Weight                          | 6.1 lbs (2.8 kg)                         |
| Physical Dimensions (W x D x H) | 1.8 x 2.2 x 66 in (4.6 x 5.6 x 167.6 cm) |

# Appendix A - Hardware Specs

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---

Table 6: AlterPath PM20 Electrical Specifications - 20 Amp version

| Characteristics                 | Specifications                           |
|---------------------------------|------------------------------------------|
| Input Voltage                   | 100 - 120 VAC                            |
| Max Output Current Total        | 16A                                      |
| Max Output Current Each Outlet  | 12A                                      |
| Operating Temperature           | 50 - 122 ° F (10 - 50 °C)                |
| Relative Humidity               | 5% to 95%, non-condensing                |
| Weight                          | 6.1 lbs (2.8 kg)                         |
| Physical Dimensions (W x D x H) | 1.8 x 2.2 x 66 in (4.6 x 5.6 x 167.6 cm) |

Table 7: AlterPath PM20 Electrical Specifications - 30 Amp version

| Characteristics                 | Specifications                           |
|---------------------------------|------------------------------------------|
| Input Voltage                   | 100 - 120 VAC                            |
| Max Output Current Total        | 24A                                      |
| Max Output Current Each Outlet  | 12A                                      |
| Operating Temperature           | 50 - 122 ° F (10 - 50 °C)                |
| Relative Humidity               | 5% to 95%, non-condensing                |
| Weight                          | 6.1 lbs (2.8 kg)                         |
| Physical Dimensions (W x D x H) | 1.8 x 2.2 x 66 in (4.6 x 5.6 x 167.6 cm) |

# Appendix A - Hardware Specs

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## Interface Pinouts

The following table illustrates the AlterPath PM's pinouts for the IN and OUT RS-232 serial ports (RJ-45F connectors).

Table 8: Pinouts for IN and OUT RS-232 serial ports

| Signal | Name/Function       | I/O | IN Pin | OUT Pin |
|--------|---------------------|-----|--------|---------|
| RTS    | Request to Send     | (O) | 5      | 1       |
| DTR    | Data Terminal Ready | (O) | 7      | 2       |
| TxD    | Transmit Data       | (O) | 6      | 3       |
| Gnd    | Signal Ground       |     | 4      | 4       |
| CTS    | Clear To Send       | (I) | 1      | 5       |
| RxD    | Receive Data        | (I) | 3      | 6       |
| DCD    | Data Carrier Detect | (I) | 2      | 7       |
| DSR    | Data Set Ready      | (I) | 8      | 8       |