



Powerware®

ConnectUPS™ | Web/SNMP Card

X, BD, and E Models | USER'S GUIDE

www.powerware.com

POWERWARE®

Class B EMC Statements

FCC Part 15

NOTE This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna.
- ▶ Increase the separation between the equipment and the receiver.
- ▶ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▶ Consult the dealer or an experienced radio/TV technician for help.

ICES-003

This Class B Interference Causing Equipment meets all requirements of the Canadian Interference Causing Equipment Regulations ICES-003.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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- ▶ Harmonized Standards: EN 50091-1-1 and EN 50091-2; IEC 950 Second Edition, Amendments A1, A2, A3, and A4
- ▶ EU Directives: 73/23/EEC, Council Directive on equipment designed for use within certain voltage limits
93/68/EEC, Amending Directive 73/23/EEC
89/336/EEC, Council Directive relating to electromagnetic compatibility
92/31/EEC, Amending Directive 89/336/EEC relating to EMC

The EC Declaration of Conformity is available upon request for products with a CE mark. For copies of the EC Declaration of Conformity, contact:

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Chapter 1 | Introduction

The ConnectUPS™ Web/SNMP Card is a network device for your uninterruptible power system (UPS) that provides both SNMP and HTTP compatibility.

The ConnectUPS Web/SNMP Card is available in three models:

- ▶ **ConnectUPS-X** – a card for UPSs with an X-Slot™
- ▶ **ConnectUPS-BD** – a card for UPSs with a BestDock™ slot
- ▶ **ConnectUPS-E** – an external card for Powerware® 9305 and 9150 UPSs

All models can connect to a twisted-pair Ethernet network (10/100BaseT) using an RJ-45 connector.

The ConnectUPS-X has a built-in switching hub that allows three additional network devices to be connected to the network without the requirement of additional network drops.

With the ConnectUPS Web/SNMP Card, you can monitor the UPS several different ways:

- ▶ using a Web browser such as Microsoft® Internet Explorer or Netscape™ to monitor and manage the connected UPS.
- ▶ using your Internet-ready cell phone or PDA (personal digital assistant).
- ▶ SNMP-compatible network management software (user-supplied) monitors the UPS in a method similar to that of other network devices.

The ConnectUPS Web/SNMP Card also supports remote monitoring and shutdown from UPS-protected computer systems. NetWatch client software for use with a ConnectUPS Card is supplied on the Powerware Software Suite CD or on the Web at www.powerware.com.

Client software is available for Microsoft Windows® 95/98/Me/NT/2000/XP, Mac OS® X, Novell® NetWare® and various versions of UNIX®, including Linux®. These programs

communicate through TCP/IP with the ConnectUPS Card and automatically shutdown the protected system during extended power outages.

In addition, the ConnectUPS Card has the following features:

- ▶ Hot-swappable feature simplifies installation by allowing you to install the card safely without powering down the critical UPS load.
- ▶ Configuration from serial port, Telnet, or HTTP Web browser.
- ▶ Management from HTTP Web browser, Internet-ready cell phone or PDA, or SNMP management software.
- ▶ E-mail notification of changes in the UPS status through SMTP (simple mail transport protocol) via e-mail client software, a PCS (personal communication services) phone, or alphanumeric pager.
- ▶ Supports Powerware (XUPS.MIB) and RFC-1628 Standard UPS (STDUPSV1.MIB) management information bases.
- ▶ Firmware upgradable from a Microsoft Windows utility via a network connection.
- ▶ Scheduling function to control UPS shutdowns and startups.
- ▶ History log files (data and events) for recording power problems.
- ▶ UPS status information available to registered NetWatch clients for automatic shutdown of Microsoft Windows 95/98/Me/NT/2000/XP, Mac OS X, Novell NetWare, and UNIX (various versions, including Linux).
- ▶ With a special Status@aGlance™ page, a color-coded background on your Web browser provides quick visibility of the UPS status.
- ▶ Multiple ConnectUPS Web/SNMP Cards can be monitored simply by using free Powerware MultiView software.
- ▶ Two normally-open or normally-closed contact devices can be monitored through a connection to the configuration port. See page 26 to configure this option and page 44 for required cabling and MIB variable information.

System Application

The following diagram shows how the ConnectUPS Web/SNMP Card can be used in a network application.

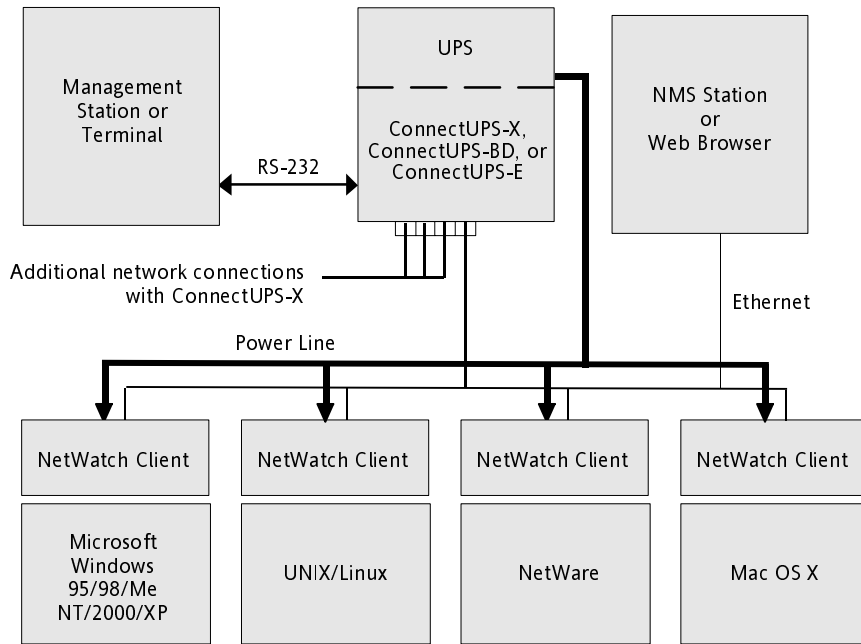


Figure 1. ConnectUPS Web/SNMP Card System Application Diagram

Chapter 2 | Installation

This section describes installation for:

- ▶ internal cards (ConnectUPS-X and ConnectUPS-BD)
- ▶ an external card (ConnectUPS-E)

With the hot-swappable feature, the ConnectUPS Web/SNMP Card can be installed easily without turning off the UPS or disconnecting the load.

Installing the ConnectUPS-X or ConnectUPS-BD

The following steps explain how to install the ConnectUPS-X or ConnectUPS-BD. Figure 2 shows a typical installation only. See “ConnectUPS Web/SNMP Card Panel Details” on page 13 for details on each model.

1. Verify that both DIP switches on the card are set to the **0** (off) position.
2. Remove the X-Slot or BestDock cover on the UPS rear panel. Retain the screws.



NOTE *If there is another card already installed with an attached communication cable, disconnect the cable and then remove the card.*

3. To prevent electrostatic discharge (ESD), place one hand on a metal surface such as the UPS rear panel.
Slide the ConnectUPS Web/SNMP Card into the open slot and secure with the screws removed in Step 2.

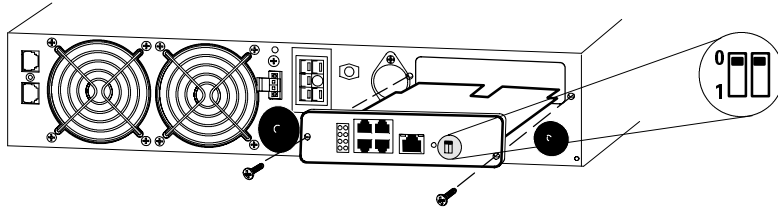


Figure 2. Installing the ConnectUPS Web/SNMP Card

4. Connect an active 10/100BaseT cable to the Uplink Ethernet connector on the ConnectUPS-X or to the network connector on the ConnectUPS-BD.



NOTE *Three additional 10/100 Mb Ethernet connectors are available on the ConnectUPS-X and are served by an internal switching hub. If you frequently move devices between these connectors or make configuration changes, it may be necessary to clear the cache by pressing the Reset button on the card.*

5. Continue to “Configuration” on page 12.

Installing the ConnectUPS-E

The ConnectUPS-E can be installed with only the following UPSs:

- ▶ a Powerware 9305 UPS
- ▶ a Powerware 9150 UPS

For details on the front and rear panel of the ConnectUPS-E, see “ConnectUPS Web/SNMP Card Panel Details” on page 13.

ConnectUPS-E with Powerware 9305 UPS Installation

To install the ConnectUPS-E, perform the following steps:

1. Verify that both DIP switches on the card are set to the 0 (off) position.
2. Open or remove the UPS front panel and locate the female, 9-pin, RS-232 port (labeled X100).

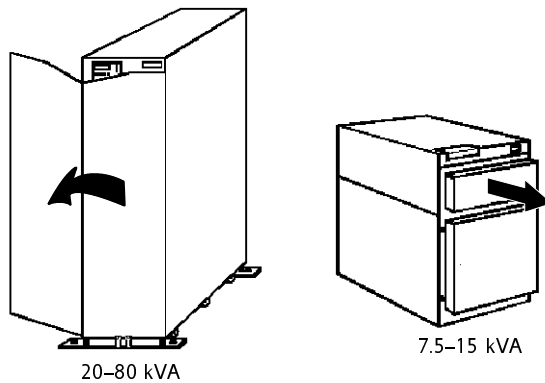


Figure 3. The Powerware 9305 UPS Front Panel

3. **If the X100 port is available**, use the supplied serial cable labeled “UPS” to connect the UPS port on the ConnectUPS-E to the female, 9-pin, RS-232 port on the UPS (see Figure 4).

Insert the DC power cable into the power inlet on the back of the ConnectUPS-E (labeled 12 Vdc).

Plug the other end of the DC power cable into the UPS serial cable. Continue to Step 5.

4. **If the X100 port is not available**, use the supplied serial cable labeled “PC” to connect the UPS port on the ConnectUPS-E to the male, 9-pin, RS-232 port (labeled X101) on the UPS (see Figure 5).

Install the appropriate country-specific AC plug onto the supplied external power supply.

Insert the DC power cable from the external power supply into the power inlet on the back of the ConnectUPS-E (labeled 12 Vdc).

Plug the external power supply into a UPS-protected receptacle.

5. Reinstall the UPS front cover.
6. Connect an active 10/100BaseT cable to the network connector on the ConnectUPS-E.
7. Continue to “Configuration” on page 12.

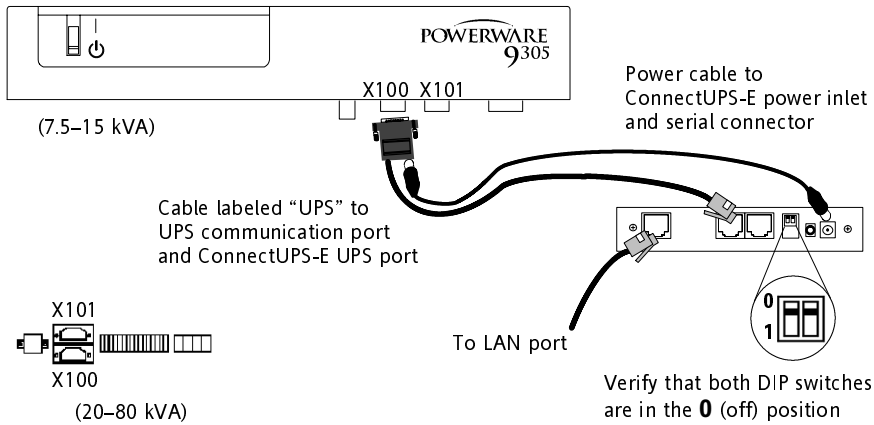


Figure 4. Installing the ConnectUPS-E with a Powerware 9305 UPS

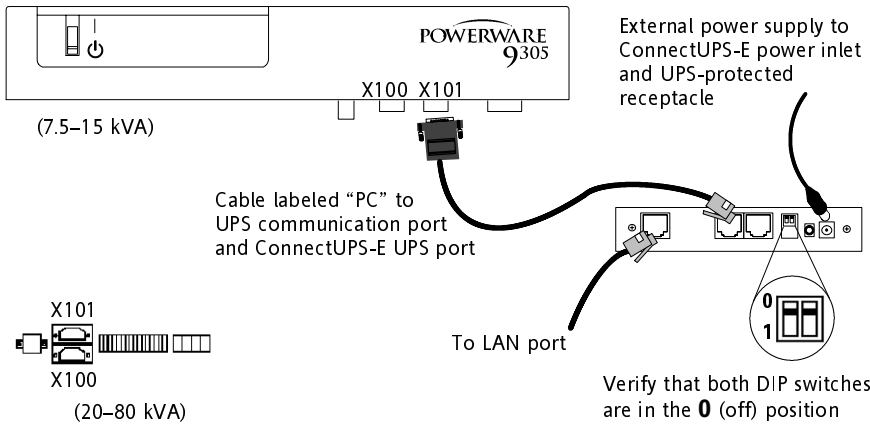


Figure 5. Alternate Installation with a Powerware 9305 UPS

ConnectUPS-E with Powerware 9150 UPS Installation

To install the ConnectUPS-E, perform the following steps:

1. Verify that both DIP switches on the card are set to the **0** (off) position.
2. Remove the UPS front panel and locate the female, 9-pin, RS-232 port.

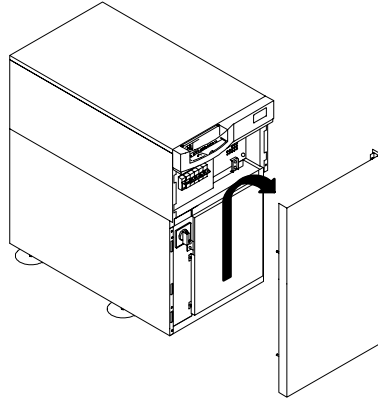


Figure 6. Removing the Powerware 9150 UPS Front Panel

3. **If the female port is available**, use the supplied serial cable labeled “UPS” to connect the UPS port on the ConnectUPS-E to the female, 9-pin, RS-232 port on the UPS (see Figure 7). Continue to Step 5.
4. **If the female port is not available**, use the supplied serial cable labeled “PC” to connect the UPS port on the ConnectUPS-E to the male, 9-pin, RS-232 port on the UPS (see Figure 8).



NOTE *The supplied external power supply MUST be used with the Powerware 9150 UPS. DO NOT plug the power cable into the serial cable.*

5. Install the appropriate country-specific AC plug onto the supplied external power supply.
6. Insert the DC power cable from the external power supply into the power inlet on the back of the ConnectUPS-E (labeled 12 Vdc).

7. Plug the external power supply into a UPS-protected receptacle.
8. Reinstall the UPS front cover.
9. Connect an active 10/100BaseT cable to the network connector on the ConnectUPS-E.
10. Continue to the following section, "Configuration."

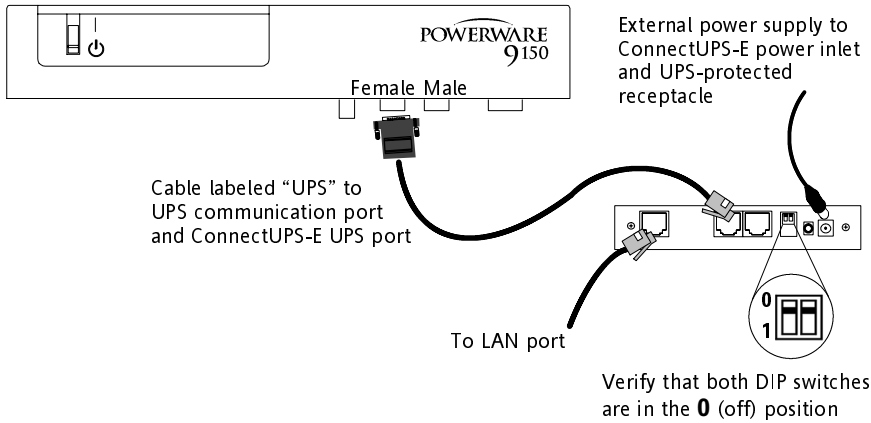


Figure 7. Installing the ConnectUPS-E with a Powerware 9150 UPS

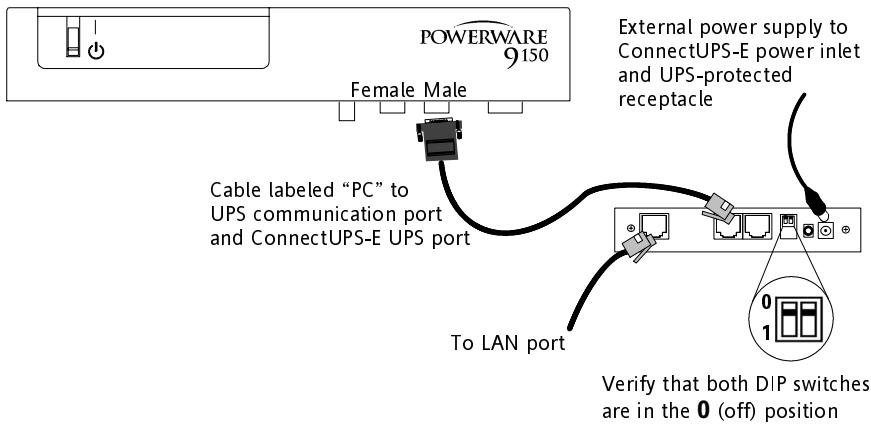


Figure 8. Alternate Installation with a Powerware 9150 UPS

Configuration

You must configure the ConnectUPS Web/SNMP Card before you can use it. There are two ways to configure the card:

- ▶ locally through the serial communication port
- ▶ remotely using a Web browser or Telnet utility

Configuring the Card Locally

The card has a configuration utility that you can access by using the supplied serial cable to connect the card to a terminal or a computer with a terminal emulation program.

If you choose to configure your card locally, see “Local Configuration” on page 17.

Configuring the Card Remotely

You can configure the card remotely through a network using a Web browser or Telnet utility.



NOTE *Security-related parameters and some hardware parameters cannot be configured from a Web browser, but can be changed from the Telnet utility.*

If you choose to configure your card remotely, see “Remote Configuration” on page 27.

ConnectUPS Web/SNMP Card Panel Details

The card panel details are shown in the following figures.

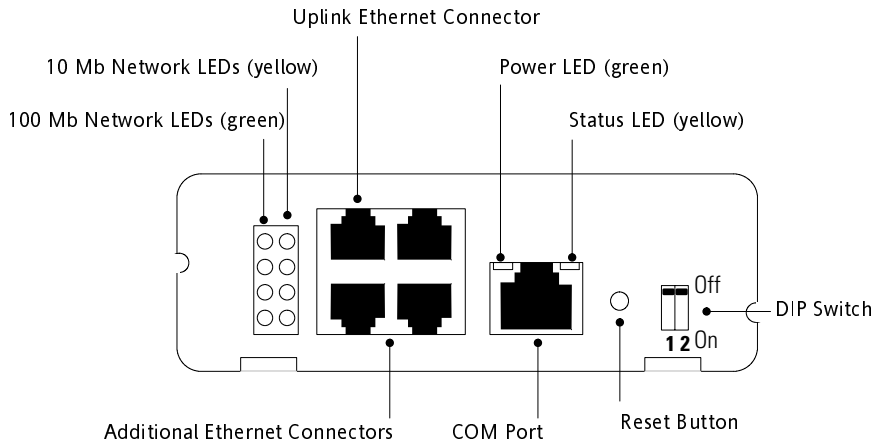


Figure 9. ConnectUPS-X Panel Details

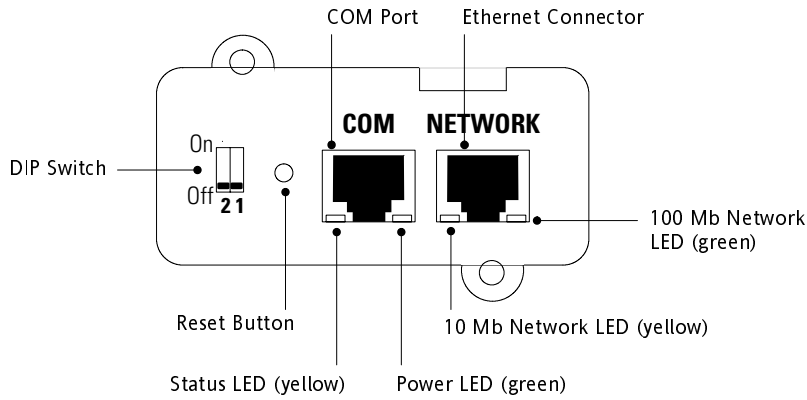


Figure 10. ConnectUPS-BD Panel Details

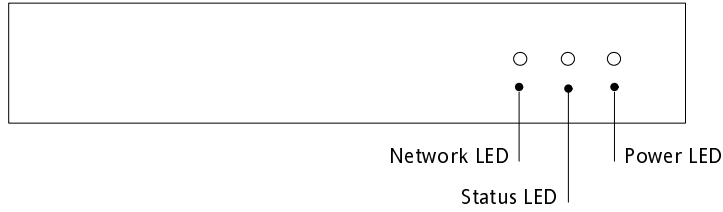


Figure 11. ConnectUPS-E Front Panel Details

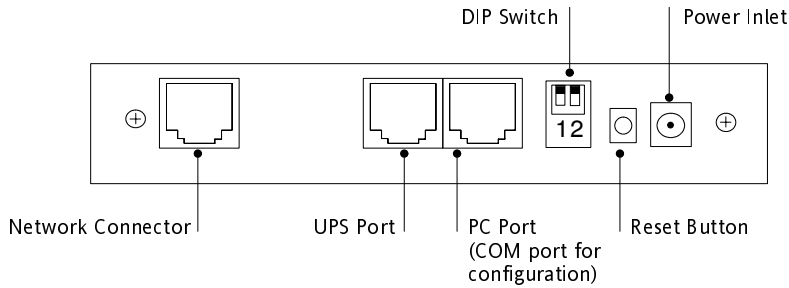


Figure 12. ConnectUPS-E Rear Panel Details

LED Description

The functions of the ConnectUPS Web/SNMP Card are indicated by the Status LED and either the 10 Mb or 100 Mb LEDs, as listed in the following tables.

Table 1. ConnectUPS-X and ConnectUPS-BD LEDs

Status LED	10 Mb or 100 Mb LED	Card Function Description
Flickering	On/Flickering	Normal operation with Ethernet traffic
On	On	ConnectUPS Web/SNMP Card error
Off	Off	UPS power low (no power to the ConnectUPS Web/SNMP Card)
Flashing	Flashing	No connection to UPS (alternate flashing as the ConnectUPS Web/SNMP Card restarts)

Table 2. ConnectUPS-E LEDs

Status LED	Network LED	ConnectUPS-E Function Description
Off	On	Normal operation
Off	Flashing	Ethernet traffic
Flashing	Off	IP address is default value
On	On	ConnectUPS-E error
Off	Off	UPS power low
Flashing	Flashing	No connection to UPS
On	Flashing	Setup mode

Chapter 3 | Local Configuration

Use the following procedure to access the card's configuration utility through a serial port.

Before You Start

To use the configuration utility for the card, you need:

- ▶ The serial cable labeled "PC" included with the ConnectUPS Card.
- ▶ A terminal with a serial communication port, or a computer with a terminal emulation program such as HyperTerminal®. The serial line should be set to 9600 baud, No parity, 8 data bits, 1 stop bit, and no flow control.

Connecting the Card

To connect the card to the terminal or computer and start the configuration utility:



NOTE *If you used the serial cable labeled "PC" in the ConnectUPS-E installation, temporarily remove the cable from the UPS and ConnectUPS Card. When configuration is complete, plug the serial cable back into the UPS (X101/male port) and the ConnectUPS-E UPS port.*

1. Plug the serial cable labeled "PC" into the COM port on the ConnectUPS Web/SNMP Card.
2. Plug the other end of the serial cable into the TTY port on the terminal or the COM port on your computer.
3. Open your terminal emulation program such as HyperTerminal and select the appropriate serial connection (such as COM1).

The serial line should be set to 9600 baud, No parity, 8 data bits, 1 stop bit, and no flow control.

4. Verify that the UPS is turned on.

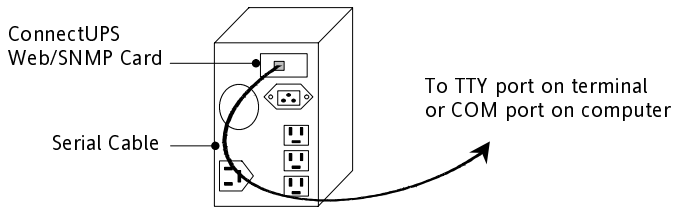


Figure 13. Cable Connection from COM Port (Internal Card shown)

5. After a few seconds, press [Enter]. The Password screen appears (see Figure 14).

If the screen does not appear, press [Enter] again.

If you still do not see the Password screen, check the following conditions:

- ▶ Verify the serial line is set to 9600 baud, No parity, 8 data bits, 1 stop bit, and no flow control.
 - ▶ If the serial line settings are correct, check the cabling to verify all connections are secure.
 - ▶ Verify that your terminal program is on the correct communication port for the serial connection.
 - ▶ Verify that the ConnectUPS Web/SNMP Card has power (one or more LEDs on the card should be illuminated). The UPS should be turned on.
6. Type your *password* (the default password is *admin*) and press [Enter]. The Main Menu screen appears.


```
+=====
|           [ ConnectUPS Web/SNMP Card Configuration Utility ]
+=====
Enter Password: *****
+=====
|           [ ConnectUPS Web/SNMP Card Configuration Utility ]
+=====
  1. Web/SNMP Card Settings
  2. Reset Configuration to default
  3. Restart Web/SNMP Card
  4. UPS Pass-Through
  0. Exit
Please Enter Your Choice =>_
```

Figure 14. ConnectUPS Web/SNMP Card Main Menu Screen

Configuring the Card

To configure the card:

1. Type **1** to enter the Web/SNMP Card Settings screen (see Figure 15).

```
+=====
|           [ ConnectUPS Web/SNMP Card Configuration Utility ]
+=====
 1. Web/SNMP Card Settings
 2. Reset Configuration to default
 3. Restart Web/SNMP Card
 4. UPS Pass-Through
 0. Exit
```

Please Enter Your Choice =>1

```
+=====
|           [ ConnectUPS Web/SNMP Card Configuration Utility ]
+=====
 1. Set the IP Address, Gateway Address and MIB System Group
 2. Set Web/SNMP Card Control Group
 3. Set Write Access Managers
 4. Set Trap Receivers
 5. Set IP Addresses of Primary and Secondary Date Server
 6. UPS Event Actions
 7. Set UPS Information
 8. Set Superuser Name and Password
 9. Email Notification
10. Set Website Links
11. Card Settings and Event Log Summary
12. Set External Contact Monitoring
 0. Back to Main Menu
```

Please Enter Your Choice =>_

Figure 15. Web/SNMP Card Settings Screen

2. Type **1** to enter the Set the IP Address, Gateway Address and MIB System Group screen. Enter the appropriate settings for your network (see page 23).

3. Change any other options as needed for your particular configuration by typing the corresponding number shown in the menu (2 through 10). Each setting is described in the following sections.
4. Type 0 to return to the Main Menu.
5. Type 0 to exit the ConnectUPS Web/SNMP Card configuration. The ConnectUPS Web/SNMP Card automatically saves all settings after exiting the configuration utility (see Figure 16).



NOTE *The ConnectUPS Web/SNMP Card may take up to two minutes to establish communication with the UPS. Please wait before attempting communication with the card from a Web browser or network management system (NMS).*

NOTE Telnet Operation – *Once the card is reachable on the network, you can use a Telnet utility to adjust any of the configuration settings. The menus are identical to those seen during serial configuration and are password-protected for Superuser access only.*

```
+=====
|           [ ConnectUPS Web/SNMP Card Configuration Utility ]
+=====
  1. Set the IP Address, Gateway Address and MIB System Group
  2. Set Web/SNMP Card Control Group
  3. Set Write Access Managers
  4. Set Trap Receivers
  5. Set IP Addresses of Primary and Secondary Date Server
  6. UPS Event Actions
  7. Set UPS information
  8. Set Superuser Name and Password
  9. Email Notification
 10. Set Website Links
 11. Card Settings and Event Log Summary
 12. Set External Contact Monitoring
  0. Back to Main Menu

Please Enter Your Choice =>0
```

```
+=====
|           [ ConnectUPS Web/SNMP Card Configuration Utility ]
+=====
  1. Web/SNMP Card Settings
  2. Reset Configuration to default
  3. Restart Web/SNMP Card
  4. UPS Pass-Through
  0. Exit

Please Enter Your Choice =>0
```

Figure 16. Exiting the Configuration Utility

Set the IP Address, Gateway Address and MIB System Group

Use this function (option 1) to set the IP address, the gateway address, or the management information base (MIB) parameters of the card, as listed in Table 3.

Table 3. Parameters with Examples

No.	Function	Description	Example
1	IP Address	IP address of the card	192.72.173.188
2	Gateway Address	Default IP address of the network gateway	192.72.173.254
3	Network Mask	Subnet mask setting	255.255.255.0
4	sysContact	System contact string of MIB (up to 127 characters)	Powerware
5	sysName	System name parameter for MIB (up to 127 characters)	ConnectUPS Web/SNMP Card
6	sysLocation	System location parameter for MIB (up to 127 characters)	TEST LAB

Set Web/SNMP Card Control Group

For those users who intend to use BOOTP/DHCP, Telnet, or secure HTTP in order to configure, control, update, or manage the card, certain control parameters must be enabled or disabled. Use this function to modify those parameters (option 2).



NOTE *To prevent unauthorized viewing of the Web pages presented by the ConnectUPS Web/SNMP Card, use this function to enable HTTP Security Control.*

NOTE *To obtain an IP address using BOOTP/DHCP (instead of serial configuration), set DIP Switch 2 on the front panel to the ON position (OFF is the default).*

Set Write Access Managers

For those users who intend to use an SNMP-compatible NMS to manage the ConnectUPS Web/SNMP Card, the IP address of the management station must be added to the list on the ConnectUPS Web/SNMP Card in order to receive read (get) or write (set) access rights. Community strings may be different for read or write access. Use this function to add or delete the IP address of the management station (option 3).

Set Trap Receivers

For those users who intend to use an SNMP-compatible NMS to manage the ConnectUPS Web/SNMP Card, the IP address of the machine intended to be the trap receiver must be added to the list on the ConnectUPS Web/SNMP Card. Use this function to add or delete the IP address of the trap receivers (option 4). This information is accessible via the HTTP interface for easy modification after the card is on the network.

Set IP Addresses of Primary and Secondary Date Server

Use this function to set the IP addresses of the primary and secondary date servers (option 5). This information is accessible via the HTTP interface for easy modification after the card is on the network.

Computer systems with the ConnectUPS Web/SNMP Card-compatible NetWatch client software are periodically monitored by the ConnectUPS Web/SNMP Card to maintain a consistent date and time with your network. The computers' IP address must be listed as the Primary or Secondary Date Server.

UPS Event Actions

Use this function to configure actions that the ConnectUPS Web/SNMP Card performs during AC Fail and Low Battery events (option 6). This information is accessible via the HTTP interface for easy modification after the card is on the network.

Set UPS Information

Use this function to enter additional information about the UPS including date of installation and date of last battery replacement (option **7**). In addition, set timing values relating to the shutdown and restart of the UPS via this function. This information is accessible via the HTTP interface for easy modification after the card is on the network.

Set Superuser Name and Password

Use this function to set or change the user name and password of the administrator who will use a Web browser to configure the ConnectUPS Web/SNMP Card (option **8**).

Email Notification

Use this function to inform selected e-mail accounts of events and changes in the status as they occur in the UPS or to provide a daily status message at a predetermined time (option **9**). This information is accessible via the HTTP interface for easy modification after the card is on the network.

Set Website Links

Use this function to set links to different Web sites (option **10**). Links appear on the Web pages of the ConnectUPS Web/SNMP Card. This information is accessible via the HTTP interface for easy modification after the card is on the network.

Card Settings and Event Log Summary

Use this function to display each configuration menu and the current settings (option **11**). The card's current data and event logs are also displayed.

This data may be accessed via a terminal program using the configuration cable or through a Telnet connect. Displaying and capturing the configuration items and log entries is helpful in service-related situations.

Set External Contact Monitoring

With the ConnectUPS Web/SNMP Card (firmware v3.00), two separate contact closures are supported. Examples of contact devices include rack-door switches, water, and fire detectors. Select option **12** to configure this feature.

```

+=====
|           [ ConnectUPS Web/SNMP Card Configuration Utility ]
+=====
1. External Contact #1 Name: External Contact #1 Status
2. External Contact #1 Type: Disabled
3. External Contact #2 Name: External Contact #2 Status
4. External Contact #2 Type: Normally Closed
0. Return to previous menu

Please Enter Your Choice =>_

```

Figure 17. External Contact Monitoring Screen

By changing the External Contact Name (maps to PowerMIB *xupsContactDescr*), you can define the label text of the contact status field as displayed on the Summary page. The defaults are “External Contact #1 Status” and “External Contact #2 Status.”

The External Contact Type selection has three possible values:

- ▶ **Disabled** (Default) - maps to PowerMIB *xupsContactType* = *notUsed(4)*
- ▶ **Normally Open** - maps to PowerMIB *xupsContactType* = *normallyOpen(1)*
- ▶ **Normally Closed** - maps to PowerMIB *xupsContactType* = *normallyClosed(2)*

Continue to “External Contact Monitoring Feature” on page 44 for required cabling and MIB variable information.

Back to Main Menu

Type **0** to return to the Main Menu screen (see Figure 16 on page 22).

Chapter 4 | Remote Configuration

Use the following procedure to access the card's configuration utility through a Web browser.



NOTE *Verify that an active 10/100BaseT cable is connected to the card's network connector (the Uplink Ethernet connector on the ConnectUPS-X).*

Add a Routing Condition in the Computer

If the IP address of the computer is on the same network with the ConnectUPS Web/SNMP Card, you can run the Web browser directly.

If the IP address of the computer is not on the same network with the ConnectUPS Web/SNMP Card (only required while configuring the card), you can use the Add Routing command.

1. Turn on the computer and set up the TCP/IP protocol if needed.
2. Enter the following command to add a routing condition:

Route add 192.168.7.18 192.72.173.20

where 192.168.7.18 is the default IP address of the card and 192.72.173.20 is an example IP address for the computer.



NOTE *Refer to your operating system documentation for additional details on how to add a routing condition.*

Running the Web Browser

Locate a computer (PC, host, or server) that has a Web browser (Internet Explorer or Netscape recommended) and is connected to a network.

1. Run the Web browser and connect to the ConnectUPS Web/SNMP Card IP address (the default is 192.168.7.18).
2. The home page of the ConnectUPS Web/SNMP Card appears (see Figure 18).

POWERWARE		ConnectUPS™ Web/SNMP Card	
Summary	UPS History	Configuration	Control
Registered Clients	Help	Help	Help
Summary			
Identification			
UPS Model	PW9125 1250		
UPS Firmware Version	FP: 1.04 INV: 0.01		
VA Rating	1250 VA		
User Assigned Name	UPS Web Card		
Card's IP Address	10.222.50.41		
Current Status			
Overall Status	SYSTEM NORMAL		
External Contact #1 Status	Disabled		
External Contact #2 Status	Disabled		
Remote Temperature (Degrees C)	28		
Remote Humidity (%)	28		
Last Battery Test Status	Unavailable		
Last Logged Events	06/02/2003 09:57:55 UPS event log cleared		
Input			
Voltage In (VAC)	118		
Current In (AC Amps)	2.2		
Frequency (Hertz)	60.3		
Output			
Voltage Out (VAC)	120		
Current Out (AC Amps)	0.0		
Frequency (Hertz)	60.3		
True Power (Watts)	0		
Apparent Power (VA)	0		
UPS Load (%)	0		
Battery			
Battery Status	Normal		
Voltage (VDC)	51.2		
Statistics			
UPS Internal Temperature (Degrees C)	28		
Number of Registered NetWatch Clients	0		
ConnectUPS Up-Time	1 days 5 hours 31 mins 52.62 secs.		
Date (mm/dd/yyyy)	06/04/2003		
Time (hh:mm:ss)	18:59:09		
Links			
Advantage - Register Here Download ConnectUPS MultiView			
Become Superuser			

Figure 18. Sample ConnectUPS Web/SNMP Card Home Page

Setup Network Configuration

1. Select **Configuration** from the menu at the top of the home page, then **Web/SNMP Card Configuration** to set the ConnectUPS Web/SNMP Card parameters (see Figure 19).
2. Click **Become Superuser** and log in with the *Username* and *Password* (the default user name and password is *admin*).

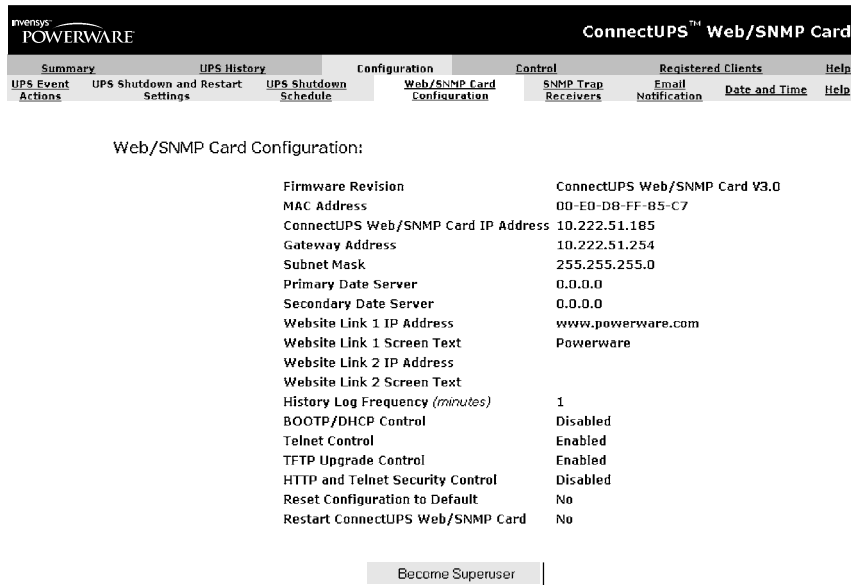


Figure 19. Sample ConnectUPS Web/SNMP Card Configuration Page

3. Select and edit the **ConnectUPS Web/SNMP Card IP Address**.
4. Select and edit the **Gateway Address** for the network.
5. Select and edit the **Subnet Mask** of the network.
6. Select **Set Values** to save the new settings.



NOTE *If you changed the IP address in Step 3, you must restart the browser using the new IP address (see page 28) to restore communication with the ConnectUPS Web/SNMP Card. Repeat Steps 1 and 2 to continue the configuration.*

7. Select **Date and Time** from the menu at the top of the page.
8. Enter the appropriate date and time information in the specified format.
9. Select **Set Values** to save the date and time settings.

The ConnectUPS Web/SNMP Card is now configured for operation on your network. Refer to the remainder of this user's guide and the online help for detailed information about each menu selection.

Chapter 5 | UPS Power Management

You can manage the UPS from a Web browser or from an SNMP network management system.

UPS Management from a Web Browser

When using a Web browser to access the ConnectUPS Web/SNMP Card, the majority of UPS-related information is available by selecting any of the following menu options:

- ▶ Summary
- ▶ UPS History
- ▶ Configuration
- ▶ Control
- ▶ Registered Clients
- ▶ Help

Each menu and submenu selection has online help available.

Viewing Status@aGlance

Status@aGlance is a page that provides a simple, intuitive way to view UPS status information and is accessed through a Status@aGlance link on the Summary page. It changes the background color of the page to reflect the UPS status:

- ▶ green indicates normal UPS operation
- ▶ yellow indicates the UPS is responding to a problem (the UPS is on battery during a power outage; the UPS has one or more alarms present; or the UPS has been bypassed)
- ▶ red indicates a low battery condition and shutdown is imminent
- ▶ black indicates a loss of communication between the UPS and the ConnectUPS Web/SNMP Card

If you leave the browser pointed to this page, it automatically updates when new UPS information is available. To return to the Summary page, point and click the mouse pointer anywhere within the colored background area.

Powerware MultiView Software

The Status@aGlance pages of several ConnectUPS Web/SNMP Cards may be monitored simultaneously by installing the Powerware MultiView software on a PC with Microsoft Windows 95/98/Me/NT/2000/XP.

The software is included on the CD-ROM supplied with the ConnectUPS Web/SNMP Card or it can be downloaded from the link on the ConnectUPS Web/SNMP Card Summary page.

The Powerware MultiView software works in tandem with Internet Explorer to discover and display multiple browser windows, each representing a different ConnectUPS Web/SNMP Card. You also have the flexibility to pick other Web pages as presented by the ConnectUPS Web/SNMP Card during configuration. Powerware MultiView software can also monitor the Status@aGlance feature within the LanSafe v5 power management software.

Becoming a Superuser

Several menus allow UPS and ConnectUPS Web/SNMP Card parameters to be modified by the user. However, many of these are password-protected for the Superuser. To become a Superuser, you must log in with a user name and provide a password. Both are configurable by serial or Telnet connection. The default user name and password is *admin*.



NOTE *Once you have become a Superuser, it is important to completely exit the browser if you wish to set the security level back to the standard read-only level.*

Turning the UPS On and Off

The ConnectUPS Web/SNMP Card supports the ability to remotely turn off the UPS and its supported load. It also supports the ability to reboot the UPS (cycling output power off and then back on), as well as the ability to schedule shutdowns and startups on a predetermined basis.

Selecting **Control** from the menu at the top of the home page provides a page that allows the Superuser to turn off the UPS. In addition, you may initiate a battery test and enable or disable any scheduled shutdowns or startups as specified in the UPS shutdown schedule table (accessed from the Configuration menu).



CAUTION

- ▶ Selecting **Turn UPS Off** turns off the output of the UPS. Any equipment powered by the UPS shuts down immediately. Prepare the protected equipment for the shutdown.
- ▶ If you select **Turn UPS Off** with **Load Segment to Restart following the Return of AC Power** set to **NO**, you will have to manually restart the UPS after the shutdown occurs.

Forcing the UPS to Shut Down

1. Select **Configuration** from the menu at the top of the home page, then **UPS Event Actions**.
2. Log in as a Superuser.
3. Select **UPS Shutdown and Restart Settings**.
4. Verify **Load Segment to Turn Off following OS Shutdown** is set to **YES**.
5. Set the appropriate **Delay Before Segment Turns Off following the start of the Client's OS Shutdown** in seconds to ensure that any NetWatch clients and their respective operating systems have enough time to complete their shutdown. The default is 180 seconds, but you may wish to increase or decrease this value as appropriate for your system.

6. To turn off the UPS and have it stay off (requiring local interaction to turn it back on), change **Load Segment to Restart following the Return of AC Power** to **NO**.

If you want to effectively reboot the UPS and the associated load, then set **Load Segment to Restart following the Return of AC Power** to **YES** and set **Delay Before Segment Restart** to a valid delay value to allow the UPS to restart after the specified delay.

7. After choosing the desired values, select **Set Values** to update the card with the new information.
8. Select **Control** from the ConnectUPS Web/SNMP Card menu at the top of the home page and select **Load Segment "ALL"** or the appropriate load segment **"NUMBER(S)"**. Then select **Turn UPS Off**.
9. To initiate the shutdown sequence, select **Set Values** which instructs the ConnectUPS Web/SNMP Card to send the appropriate information to the UPS and any clients running the NetWatch client software.

Planning a Scheduled UPS Shutdown and Restart

You may use the ConnectUPS Web/SNMP Card to schedule the day of the week and time of a shutdown and a startup. The ability to schedule shutdowns and startups is UPS dependent (consult your UPS documentation for more information).

1. Select **Configuration** from the menu at the top of the home page, then **UPS Shutdown Schedule**.
2. Log in as a Superuser.
3. You may configure up to seven event pairs. Enter the upcoming **Shutdown Day** and **Shutdown Time**, and if needed, the **Restart Day** and **Restart Time**. Times are in 24-hour format based on the date and time set within the ConnectUPS Web/SNMP Card.
4. Select **Set Values** to update the card.
5. Once the values are set, select **Control** from the menu at the top of the home page.

6. Then select **Enable UPS Shutdown Schedule**, followed by **Set Values** to start the process. Any shutdown/restart events repeat until you change the table or select **Disable UPS Shutdown Schedule**.



NOTE *Before scheduling any shutdowns or startups, you must configure the date and time within the ConnectUPS Web/SNMP Card.*

Configuring E-mail Notification

You may use the ConnectUPS Web/SNMP Card to inform selected e-mail accounts of events and changes in status as they occur in the UPS or to provide a daily status message at a predetermined time.

1. Select **Configuration** from the menu at the top of the home page, then **Email Notification**.
2. Become a Superuser and then enter the IP address or Hostname of an SMTP mail server that will be used to send the e-mail messages.
3. If you entered a host name for the **Mail Server**, you must enter the IP address of your network DNS Server in the **DNS Address** block.
4. To receive a daily status report, enter the time of day to send the e-mail (in 24-hour format).
5. Enter the **Mail Account**, **Description**, **Mail Type**, **Event Level**, and **Event Type** for each recipient. The Mail Account must be a valid e-mail address. Refer to the online help file for more details on each of these fields.
6. Select **Set Values** to save your changes.
7. Test your settings by pressing the **Send Test** button.

The ConnectUPS Web/SNMP Card uses the Identification Information field data and the card's IP address to create the sender's e-mail address (default example: UPS.Web.Card@192.168.7.18).

You can change the Identification Information field to a more recognizable sender user name by accessing the Identification

page with your browser. This is especially helpful if you have more than one ConnectUPS Web/SNMP Card and intend to receive e-mails at a central location.

If your SMTP server requires a qualified domain name instead of an IP address or requires a qualified user name in the sender's email address, additional configuration items are available with a serial or Telnet connection (see "Local Configuration" on page 17). SMTP configuration options are available through **Email Notification** on the Web/SNMP Card Settings menu. Under most circumstances, changes are not required for these options.



NOTE *To completely clear the contents of any configuration item, enter a tilde (~) and press the Enter key.*

- ▶ **SMTP Port Number** – SMTP server access is typically gained via port 25. For installations where a different port number is used, configure the port number using this option.
- ▶ **Substitute Domain Name for Sender's Email Address** – The default domain name for the sender's e-mail address is the ConnectUPS Web/SNMP Card's IP address. You can enter a qualified domain name with this option.
- ▶ **Optional SMTP Username** – The ConnectUPS Web/SNMP Card's Identification Information field data is used as the user name for the SMTP server as well as in the sender's e-mail address. Use this option to configure a qualified user name.

Note that the text used in the Identification Information field remains unaffected; this text is also used to display additional information when browsing the card.

- ▶ **Optional SMTP Password** – Under certain circumstances, a password may be required to obtain access to a SMTP server. If your server requires a password, enter it here.

When changing any e-mail configuration items, it is strongly recommended to use the **Send Test** function to test your changes. Any e-mail errors are logged in the ConnectUPS Web/SNMP Card Event Log. Review the Event Log within a few minutes of testing the e-mail to see if any errors are logged.

Performing a Manual UPS Battery Test

You can use the ConnectUPS Web/SNMP Card to manually perform a UPS battery test. The ability to test the UPS is model dependent (consult your UPS documentation for more information).

1. To manually start a battery test on a specific UPS, select **Control** from the menu at the top of the home page.
2. Become a Superuser and then select **Initiate Battery Test**, followed by **Set Values** to start the process.

Viewing the UPS History Logs

Selecting **UPS History** from the menu at the top of the home page allows you to choose the current **UPS Data Log** and **UPS Event Log**. The data log provides numerical data logged once a minute from the UPS. The event log contains text messages regarding the status of the UPS and the ConnectUPS Web/SNMP Card. Past data and event logs are also accessible, as well as a data log applet that displays the data in a graphical format.

UPS Management from an SNMP NMS

To access the ConnectUPS Web/SNMP Card via SNMP, use the following steps:

1. Use these Community strings:

GET Community string: *public*

SET Community string: *private*

By default, the ConnectUPS Web/SNMP Card's Write Access Managers table is configured for read-only SNMP access to any NMS with a *public* community string. An NMS with a *private* community string has read/write SNMP access.



NOTE *For security, it is recommended to change the Write Access Managers table using specific IP addresses and nonstandard community strings.*

2. The *xups.mib* and *stdupsv1.mib* files (on the supplied CD-ROM) contain the MIB for the ConnectUPS Web/SNMP Card. Add these files to the MIB database of your SNMP management software (such as HP OpenView,[™] IBM[®] Director, and Sun NetManager).
3. Using the facilities provided by the SNMP management software, you can access the individual MIB objects. Refer to the MIB files on the supplied CD-ROM for more information.

Viewing UPS Monitoring Parameters

The ConnectUPS Web/SNMP Card supports several MIB groups that separate specific UPS parameters into related areas. The groups used in the MIB for the card include:

- ▶ Ident
- ▶ Battery
- ▶ Input
- ▶ Output
- ▶ Config
- ▶ Control
- ▶ Test
- ▶ Alarms
- ▶ Bypass
- ▶ Traps

Forcing the UPS to Shut Down

The ConnectUPS Web/SNMP Card supports MIB groups containing objects that enable the user to shut down and restart the UPS.

Receiving Event Traps

The ConnectUPS Web/SNMP Card supports several event-related traps, that can be reported to the SNMP network management software. Refer to the MIB files found on the supplied CD-ROM for more information.

Automatic Shutdown of UPS-Protected Computers

NetWatch client software supports remote UPS monitoring and automatic shutdown of UPS-protected computer systems and is available on the supplied CD-ROM or from www.powerware.com.

Clients are available for the following operating systems:

- ▶ Microsoft Windows 95/98/Me/NT/2000/XP
- ▶ Novell NetWare
- ▶ UNIX (various versions, including Linux)
- ▶ Mac OS X

Each NetWatch client uses its IP address to register with a specified ConnectUPS Web/SNMP Card via the network. Once a client has registered, any change in UPS status is communicated to NetWatch. Depending on the operating system, NetWatch typically alerts the user(s) whenever the UPS begins supplying AC power from its batteries (for example, the AC line fails). Then, if AC line power does not return and the remaining battery time is low, NetWatch takes over and completes an operating system shutdown prior to the UPS running out of battery power.

Settings found in the UPS Event Actions and UPS Shutdown page and the Restart Settings page are related to the automatic shutdown of the UPS-protected computer system using NetWatch. By default, the ConnectUPS Web/SNMP Card initiates an automatic operating system shutdown only during a low battery condition. The ConnectUPS Web/SNMP Card (firmware v2.03 and higher) no longer instructs the UPS to power off after the operating system shutdown.

Appendix

The appendix contains the card specifications, DIP switch and jumper settings, upgrading the firmware, external contact monitoring feature, service and support, and the warranty.

Table 4. Technical Specifications

CPU	AC1101
Memory	1024k × 8 Static DRAM 1024k × 8 Flash ROM
LAN Controller	AC1102
Network Connection	10/100BaseT RJ-45 network connector (ConnectUPS-X provides 3 additional connectors for your devices)
UPS Protocol	Powerware UPS communication protocol
Network Protocol	HTTP over TCP/IP SNMP over UDP/IP SMTP, ARP, RARP, and TFTP BOOTP, DHCP
Supported MIB	Powerware PowerMIB (XUPS.MIB) RFC-1628 Standard UPS (STDUPSV1.MIB)
OS Supported for Shutdown	Microsoft Windows 95/98/Me/NT/2000/XP Novell NetWare UNIX (various versions, including Linux) Mac OS X
Operating Temperature	0–40°C (32–104°F)
Operating Humidity	10–80%, noncondensing
Power Input	9 Vdc unregulated ConnectUPS-E requires 12 Vdc
Power Consumption	3.5 watts maximum
Size (L x W x H)	ConnectUPS-X: 12 cm x 11.4 cm x 3.9 cm (4.7" x 4.5" x 1.5") ConnectUPS-BD: 13.4 cm x 8.1 cm x 3.3 cm (5.3" x 3.2" x 1.3") ConnectUPS-E: 13.4 cm x 9 cm x 3 cm (5.3" x 3.5" x 1.2")
Weight	200 gm (7 oz)
EMC Statements	Class B: FCC Part 15, ICES-003, CE

DIP Switch Description

DIP switch definitions for the ConnectUPS Web/SNMP Cards are listed in Table 5.

Table 5. DIP Switch Modes

SW1	SW2	Description
Off	Off	Operational Mode (default)
Off	On	BOOTP/DHCP Enable Mode (overrides the serial/Telnet configuration)
On	Off	Reserved
On	On	Reserved

Jumper 1 (JP1) Settings

The JP1 jumper is found on all three models (ConnectUPS-X, ConnectUPS-BD, and ConnectUPS-E). The JP1 pins are NOT jumpered by factory-default. Table 6 shows the jumper definitions.

Table 6. JP1 Definitions

Jumper Setting	Definition
1 and 2	Allows <i>admin</i> to be entered as the password when the programmed Superuser password has been forgotten
3 and 4	Disables all changes to the card's configuration

NOTE On the ConnectUPS-BD, jumper positions 5 and 6, 7 and 8 are undefined; DO NOT jumper these positions.

Upgrading the Card Firmware

During the upgrade process, the ConnectUPS Web/SNMP Card is inaccessible, but restarts automatically within a minute after completing the upgrade.

To upgrade the firmware, use the following steps:

1. Locate a networked PC with Microsoft Windows 95/98/Me/NT/2000/XP.
2. Copy the supplied Firmware Upgrade Utility (*upgrade100.exe*) program to the PC.
3. Run the Upgrade Utility from Microsoft Windows by selecting **Start, Run**, and then entering the path and filename *upgrade100.exe*.
4. Assuming that the network (TCP/IP) connection for the PC can reach the card needing the firmware upgrade, select **Discover** which instructs the utility to attempt to find all reachable 10/100 ConnectUPS Web/SNMP Cards on the network. The table displays all cards that are found.
Discover searches only the current subnet. To upgrade a card that is reachable, but not on the subnet, click the **Add** button and provide the requested information.
5. Activate the checkbox by the ConnectUPS Web/SNMP Card(s) to be upgraded (up to four cards at a time under most network conditions).
6. Highlight the ConnectUPS Web/SNMP Card IP address to select the individual card. Click **Modify** and enter the Superuser name and password. Repeat this step for each card that will be upgraded.
7. Select **Open** next to **Filename** and select the binary upgrade file that was previously downloaded or otherwise received and copied to the PC.
Select **Upgrade** to start the process. After the process starts, do not cancel or interrupt the upgrade process. Otherwise, the ConnectUPS Web/SNMP Card receives a corrupted image, preventing the card from operating correctly.
8. When the Upgrade Utility completes, exit the program by selecting **Quit** and then answering **Yes** to the confirmation.

External Contact Monitoring Feature

The status of the two user-provided contact devices is monitored via pins on the ConnectUPS Card COM (configuration) port and reported several different ways:

- ▶ **SNMP** - via the PowerMIB, the card sends traps indicating the active or inactive state of the contact.
- ▶ **E-mail notification** - if this feature has been configured on the ConnectUPS Card, the specified recipients receive an e-mail whenever the contact status changes. The body of the e-mail contains the Contact Number, Contact Type, Contact State, and Contact Description.

If these recipients have been configured to receive notification of “All” event levels via e-mail, they also receive notification whenever the contact monitoring is enabled or disabled and when the contact monitoring cable is installed or removed.

- ▶ **ConnectUPS Card Web pages** - The Summary and Status@aGlance pages reflect the change in state of the contact. The Event Log is updated with all External Contact Monitoring-related messages, including the Contact Number to assist with identification of the contact.

Cabling

In order to use the Contact Monitoring features, you need to construct a cable with an RJ-45 connector that will plug into the ConnectUPS Web/SNMP Card COM (configuration) port.

You can use a CAT5 Ethernet cable and remove the other RJ-45 connector. Only four of the eight wires present in the cable are required to connect the two contact devices. See Figure 20 and Table 7 to construct the cable.

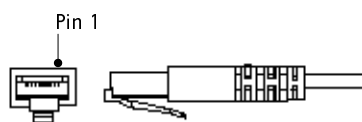


Figure 20. RJ-45 Connector

Table 7. RJ-45 Pin Functions

Function	RJ-45 Pin Number and Signal Name	
Signal Source	2 (DTR)	
Cable Sense Input	5 (DCD)	Connect to Pin 2 so that the ConnectUPS Card can sense the installed cable.
Contact Input 1	7 (DSR)	Connect to Pin 2 so that the ConnectUPS Card can sense the first user-supplied contact device.
Contact Input 2	8 (CTS)	Connect to Pin 2 so that the ConnectUPS Card can sense the second user-supplied contact device.

SNMP Specifics for all Supported Contacts

The trap that is generated by the ConnectUPS to indicate the change from normal state of either contact is the *xupstdContactActiveNotice*. This is PowerMIB trap number 30.

The trap text is “The Contact indicated by *xupsContactIndex* is in its Active State.” The severity level of this trap is MAJOR.

Table 8. xupstdContactActiveNotice Trap Variables

Variable	Description	Comments
<i>xupsContactIndex</i>	the number of the supported contact	
<i>xupsContactType</i>	normallyOpen(1) or normallyClosed(2)	Since the monitoring of the contact is assumed to be enabled if you receive the trap, the Type notUsed(4) would never be sent. Since Type anyChange(3) is not supported by the ConnectUPS, it is also not a valid type.
<i>xupsContactState</i>	the current “notice” state of the contact	Valid States for the trap would be openWithNotice(3) or closedWithNotice(4). Open(1) and closed(2) are assumed to be the “normal” (at rest) states of the contacts being monitored and would not be valid during the sending of this trap.
<i>xupsContactDescr</i>	the user-friendly External Contact Name for the appropriate contact	The default for each contact being monitored is “External Contact #_ Status” where the ‘_’ is the number (index) of the contact.

The trap that is generated by the ConnectUPS to indicate the return to the normal state of either contact is *xupstdContactInactiveNotice*. This is PowerMIB trap number 31.

The trap text is “The Contact indicated by *xupsContactIndex* has changed to its Inactive state.” The severity level of this trap is INFORMATIONAL.

Table 9. xupstdContactInactiveNotice Trap Variables

Variable	Description	Comments
xupsContactIndex	the number of the supported contact	
xupsContactType	normallyOpen(1) or normallyClosed(2)	Since the monitoring of the contact is assumed to be enabled if you receive the trap, the Type notUsed(4) would never be sent. Since Type anyChange(3) is not supported by the ConnectUPS, it is also not a valid type.
xupsContactState	the current “normal” state of the contact	Valid States for the trap would be open(1) and closed(2) since these are the normal (at rest) states of the contacts being monitored. OpenWithNotice(3) or closedWithNotice(4) are the “notice” states for the contacts being monitored and would not be valid during the sending of this trap.
xupsContactDescr	the user-friendly External Contact Name for the appropriate contact	The default for each contact being monitored is “External Contact #_ Status” where the ‘_’ is the number (index) of the contact.

E-mail Notification Specifics for all Supported Contacts

If the e-mail recipient has been configured to receive PowerMIB-related events and the Event Level is set to **Major**, they will receive the following e-mails whenever the state of the contact being monitored changes from its normal state:

Table 10. Event Level Major E-mail Examples

Subject Line	Message	Example
UPS Event #30	MAJOR: <i>[xupsContactDescr]</i> is Active	MAJOR: Contact #1 Status is Active
UPS Event #31	INFORMATIONAL: <i>[xupsContactDescr]</i> is Inactive	INFORMATIONAL: Contact #1 Status is Inactive

If the e-mail recipient has been configured to receive PowerMIB-related events and the Event Level is set to **All**, they will also receive:

Table 11. Event Level All E-mail Examples

Subject Line	Messages
ConnectUPS Agent Event	External Contact <i>[xupsContactIndex]</i> Monitoring Enabled External Contact <i>[xupsContactIndex]</i> Monitoring Disabled External Contact Monitoring Cable Installed External Contact Monitoring Cable Removed

Event Log Specifics

If the External Contact Monitoring feature is enabled, the following events will be written to the log as necessary:

```
[xupsContactDescr] Monitoring Enabled  
[xupsContactDescr] Monitoring Disabled  
External Contact Monitoring Cable Installed  
External Contact Monitoring Cable Removed  
[xupsContactDescr] is Active  
[xupsContactDescr] is Inactive
```

HTML Summary Page Specifics

For each contact being monitored (enabled by the user), the appropriate status line is displayed on the card's Summary page. If the contact is enabled, the default text is the *xupsContactDescr* for that contact.

Table 12. Summary Page HTML Text

Default Text	Valid States	Description
External Contact #1 Status	Active	External contact notice exists
External Contact #2 Status	Inactive	External contact notice does not exist
	Disabled	External contact monitoring has been disabled (contact monitoring cable installed, but user has not enabled the particular contact to be monitored)

NOTE If the user removes the contact monitoring cable from the card, the status line is dynamically removed from this page.

Service and Support

If you have any questions or problems with the UPS, call your **Local Distributor** or the **Help Desk** at one of the following telephone numbers and ask for a ConnectUPS Web/SNMP Card technical representative.

In the United States: **1-800-356-5737** or **1-608-565-2100**
Europe, Middle East, Africa: **+44-17 53 608 700**
Asia: **+852-2830-3030**
Australia: **+61-3-9706-5022**

Please have the following information ready when you call the Help Desk:

- ▶ Model number
- ▶ Serial number
- ▶ Version number (if available)
- ▶ Date of failure or problem
- ▶ Symptoms of failure or problem
- ▶ Customer return address and contact information

If repair is required, you will be given a Returned Material Authorization (RMA) Number. This number must appear on the outside of the package and on the Bill Of Lading (if applicable). Use the original packaging or request packaging from the Help Desk or distributor. Units damaged in shipment as a result of improper packaging are not covered under warranty. A replacement or repair unit will be shipped, freight prepaid for all warrantied units.



NOTE *For critical applications, immediate replacement may be available. Call the **Help Desk** for the dealer or distributor nearest you.*

Two-Year Limited Warranty (US and Canada Only)

Powerware Corporation warrants the electronics of the ConnectUPS Web/SNMP Card to be free from defects in material and workmanship for a period of two years from Date of Purchase. If, in Powerware Corporation's opinion, the electronics fails to meet its published specifications due to a defect in material and workmanship covered by this warranty, Powerware Corporation will repair or replace the warranted Unit at no cost to the customer for parts and labor.

Equipment supplied by Powerware Corporation, but not manufactured by Powerware Corporation, is warranted solely by the manufacturer of such equipment. Powerware Corporation does not warrant equipment not manufactured by Powerware Corporation.

This warranty does not apply to any Unit that has been subject to neglect, accident, abuse, misuse, misapplication, incorrect connection or that has been subject to repair or alteration not authorized in writing by Powerware Corporation's personnel. THIS WARRANTY IS THE PURCHASER'S (USER'S) SOLE REMEDY AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTY, AND THERE ARE NO OTHER EXPRESSED OR IMPLIED GUARANTEES OR WARRANTIES (INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE). In no case will Powerware Corporation's liability under this contract exceed the value of the Unit furnished.

In no event shall Powerware Corporation be liable for any indirect, incidental, special or consequential damages. Powerware Corporation shall not be responsible for failure to provide service or parts due to causes beyond Powerware Corporation's reasonable control. THIS LIMITED WARRANTY IS VOID UNLESS USER RETURNS TO POWERWARE CORPORATION THE INCLUDED WARRANTY REGISTRATION CARD WITHIN THIRTY (30) DAYS OF DELIVERY.

Any advice furnished the Purchaser (User) before or after delivery in regard to use or application of Powerware Corporation equipment is furnished without charges and on the basis that it represents Powerware Corporation's best judgement under the circumstances. The use of any such advice by the Purchaser (User) is solely and entirely at his or her own risk.

This limited warranty applies only to equipment installed in the fifty United States of America and Canada. In other countries, consult your local distributor.

Extended Service Coverage

A full complement of warranty extensions and enhancements are available from Powerware Corporation for your UPS. Information pertaining to these services should be available in the shipping container along with this manual. If not, or if you would like more information, call the Powerware Corporation **Help Desk** and ask about warranty services.

International Limited Warranty

Powerware Corporation warrants the electronics modules manufactured by Powerware Corporation ("Unit") and batteries originally packaged in the Unit or in battery packs manufactured by Powerware Corporation against defect in material or workmanship until the earlier of (1) 18 months from date of shipment or (2) 12 months from date of initial start-up is performed by Powerware Corporation field personnel or field personnel authorized by Powerware Corporation to carry out such service efforts on its behalf and provided that, startup occurs no later than 6 months after shipment. If the unit does not function in accordance with its published specification, the user should give Powerware Corporation prompt notice thereof and if requested by Powerware Corporation, the user shall return the warranted Unit or parts thereof to the plant or service station designated by Powerware Corporation for inspection by Powerware Corporation. Any Unit which may require repair and/or replacement of parts as the result of defects in workmanship or material within the stated warranty period, will be replaced or repaired at Powerware Corporation's option without charge for replacement parts. The cost of shipment, duties or all other expenses associated with shipment of repaired or replaced items is for the account of the user.

Powerware Corporation will not be responsible or liable for work done or expense incurred in connection with repair or replacement except as expressly authorized by Powerware Corporation, Raleigh, NC, USA in writing. If a service engineer is required, labor, at current published rates, and all travel and living expenses are for the account of the user.

Powerware Corporation does not warrant equipment not manufactured by Powerware Corporation including any battery not originally packaged with the Unit or in battery packs manufactured by Powerware Corporation. The manufacturer of all such equipment shall solely warrant that equipment and Powerware Corporation shall have no responsibility or liability thereof.

IT IS AGREED THAT Powerware Corporation, ITS PARENT COMPANY, OR ANY OF THEIR AFFILIATES, SHALL HAVE NO LIABILITY FOR INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, AND THAT THERE IS NO WARRANTY, EITHER EXPRESSED OR IMPLIED BY LAW OR THE PARTIES HERETO, OTHER THAN THOSE EXPRESSLY SET FORTH HEREIN. THIS WARRANTY DOES NOT COVER DAMAGE TO THE UNIT CAUSED BY MISUSE, ABUSE, NEGLIGENCE, UNAUTHORIZED MODIFICATIONS, IMPROPER MAINTENANCE, ACCIDENTS OR OTHER ABNORMAL CONDITIONS.

Force Majeure

Powerware Corporation shall not be liable for any delays or defaults hereunder by reason of fire, floods, acts of God, labor troubles, accidents to machinery, delays of carriers or suppliers, inability of suppliers to supply, the impositions of priorities, restrictions or other acts of government, or other causes beyond its reasonable control.

This Warranty shall be governed by the laws of the State of North Carolina, USA in all respects.



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