Mitsubishi
Netcom 2
User Manual
Version 5

Table of Contents

1. What is a Netcom?

A Netcom is a standalone UPS peripheral used for UPS monitoring, event management, SNMP interfacing, and critical event notification. It consists of a small computer with a serial interface for connecting to and communicating with a UPS, and an Ethernet interface for connecting to your local network. The Netcom has its own embedded web server to allow you to monitor the status of the UPS using a Web browser. Event management is also configured and performed on the Web Server. It supports the Simple Network Management Protocol (SNMP) for integration with a Network Management System and Telnet for configuration.

You can configure the Netcom to perform appropriate actions when an event is detected including email and remote computer shutdown. The optional **Remote shutdown agent** runs on one or more remote computers and communicates with the Netcom to allow remote shutdown of up to 500 computers powered by the UPS.

2. Who do I Contact For Technical Support?

Contact the Technical
Support group for help configuring and using Netcom or any Mitsubishi UPS product
Phone 724-778-5111
Fax 724-778-3146

3. What are the System Requirements for Netcom?

The Netcom runs as a standalone unit. It includes a 120-volt AC power source plug, and a DE9 to RJ45 communications cable for connecting to the UPS. A standard network cable for connecting to the local Ethernet network must be provided. The 9900, 2033G and 9800AE UPS have an optional internal power supply that can be purchased, please contact your local Sales Representative for more details.

3.1 Operating System Requirements
Installation procedure for shut down codes are located on the CD provided with the Netcom in a file named “Shut Down Manual. The user will need a copy of their sales order for the serial number of each shut down code.

The remote shutdown agents will run on the following operating systems:

3.2 UPSMAN WINDOWS Solution:

WINDOWS 7 (Professional or higher) x86/x64 CPU
WINDOWS Server 2008 CORE x64 CPU
WINDOWS Server 2008 R 2 (Standard, Enterprise, Datacenter, Webserver) x64 CPU
WINDOWS Server 2008 (Standard, Enterprise, Datacenter, Webserver) x64 CPU (Standard, Enterprise, Datacenter, Webserver)
WINDOWS VISTA (Business or higher) x86/x64 CPU
WINDOWS 2003 Server X86/X64 CPU
WINDOWS XP (Professional or higher) x86/x64 CPU
WINDOWS 2000 Server
WINDOWS 2000 SP4 x86 CPU

3.3 UPSMAN UNIX Solution:

SUN SOLARIS 8, 9, 10, 11 X86, X64 X32 & X64 & SPARC CPU
IBM AIX V. 5.3 RS 6000 RISC and PowerPC CPU
HP UNIX V 10.20, 11.0-11i HP PA-RISC CPU (not Itanium - only RCCMD !)
LINUX X86 - all X86/x64 CPU based LINUX versions, eg. United 1.x /SCO Linux
Server 4, LINUX SUSE 7-10.x & SLES, Fedora Linux, GENTOO Linux, RedHat 7.0-
9.0, RH 4, RH5.4x x32/x64, TurboLinux 6.1-6.5, 7.x, Debian 4-5.x, Caldera Open Linux 2.3, Open Linux 3.1.x, Ubuntu, CentOS X86/x64 and all other x86/x64 kernel 2 based LINUX, NOVELL OES-Linux

3.4 APPLE MAC X Solution:

MAC OS X 10.4x, 10.5x Leopard, 10.6 Snow Leopard

3.5 UNMS II Solution :

WINDOWS XP from Service Pack 2, WINDOWS Server 2003 SP2

Multiple network shutdowns
An RCCMD installation keycode opens access to RCCMD clients for all OS mentioned above.

3.6 RCCMD Solution (shut downs):

<u>Additional</u> to the above listed OS, the following listed RCCMD versions are available

From Mitsubishi. Please contact Mitsubishi for the following;

VMWARE Sphere ESX 4 i
VMWARE ESX Server 3.5x / 4 (VMWare certified)
CITRIX XEN Server 4.5 and 5.5 and higher (Citrix certified)
MICROSOFT HYPER-V 2008
CENTOS INTEL x86, x64 & IA64 CPU
LINUX PowerPC CPU
LINUX ITANIUM X64 CPU
LINUX SUSE 6.3x APX ALPHA CPU
HP UNIX 9 PA-RISC CPU
HP UNIX V 11.2x, 11.3x SPARC & ITANIUM 64 CPU
QNX 4 and QNX 6 on X86
MAC OS X 10.1-10.3
APPLE MAC OS 9.x or higher
NOVELL NetWare 3.10, 3.11, 3.20 ,4.10-4.20, 5.0, 5.1, 6.0, 6.1, 6.5
IBM OS/2 Version WARP 3.0, 4.0, LAN SERVER 3.0, 4.0, 5.0 X86 CPU
IBM AIX V. 3.25, 4.1, 4.3, 5.1, 5.2, 5.3 RS 6000 RISC and PowerPC CPU
IBM AIX V. 6 on PowerPC4, 970, Power5, Power 6 CPU
IBM AIX L (Linux) V. 6 on Power 6 CPU
SIEMENS SINIX 5.41 MX 300 Z X86 CPU
SCO OpenServer 5.x u. 6.x 4 X86 CPU
SILICON GRAPHICS IRIX V. 6.5x RISC MIPS CPU
WINDOWS 2008 X86/X64 Virtualserver HYPERVISOR
WINDOWS 2003 Server ITANIUM 64 CPU
WINDOWS 2000 SP4 x86 CPU
WINDOWS NT 4 SVP 6
WINDOWS NT 3.51 and NT 4 SVP3-6a X86 CPU
WINDOWS NT 3.51 ALPHA CPU
WINDOWS NT 3.15 MIPS CPU
WINDOWS 98SE & ME X86 CPU
DEC UNIX SVR 3 OSF/1 ALPHA CPU
DATA GENERAL UNIX X 86 CPU
DATA GENERAL UNIX MOTOROLA M88 CPU
MOTOROLA UNIX M88 CPU
SUN SOLARIS 7 (5.7) SPARC CPU
SUN OS 4 SPARC CPU
UNIXWARE 2, 7 on X86 CPU, UNIXWARE 7.x SVR 4 compatible X86 CPU
INTERACTIVE UNIX 3.2 X86 CPU
SIEMENS SINIX 5.41 – 5.45, RELIANT UNIX 5.45x RM RISC
HP/COMPAQ TRU64 V 5.x ALPHA CPU, Digital UNIX V 4.0-5.1 ALPHA CPU
FREE BSD UNIX SVR 4 X86 V 4.4x and 6.x

3.7 No longer supported UPSMAN versions (please choose RCCMD instead) :

DEC ULTRIX, HP UNIX 9 PA-RISC CPU, IBM OS/2 Version WARP 4.0 X86 CPU, IBM OS/2 Version LAN SERVER 3.0, 4.0, 5.0 INTEL CPU, IBM OS/2 SNMP sub-agent, IBM AIX V 3.25, IBM AIX 4.1, WINDOWS NT 3.51 INTEL CPU, WINDOWS NT 3.51 ALPHA CPU, NOVELL NetWare 3.11 and 3.12 INTEL CPU, INTERACTIVE UNIX 3.2, VMS 5.5 for VAX or ALPHA, SUN SOLARIS 2.5, LINUX SUSE 5.x and 6.x. WINDOWS NT 4.0 ALPHA CPU, DEC OPEN VMS on VAX CPU, V.5x, V.6x, V. 7x - UPSMAN V3, DEC OPEN VMS on ALPHA AXP CPU V.6x; APPLE MAC OS 9.4, DEC OPEN VMS on ALPHA CPU V 7.x, SIEMENS SINIX 5.41 – 5.45, RELIANT UNIX 5.45x RM RISC HP/COMPAQ TRUE 64 V 5.x ALPHA CPU, Digital UNIX V 4.0-5.1 ALPHA CPU,

3.8 Web Browser Requirements

Supported web browsers include:
Internet Explorer 6.0 or higher
The Netcom requires Macromedia Flash 6.0 or higher.

3.9 Special Requirements for Web Browsers

In some instances, the caching on a Web Browser can cause the current page not to be updated while navigating on the Netcom user interface. For example, while viewing the Event Log Page you might click on the **Variables** menu option but still see the **Event Log** page. If this happens, follow the steps to correctly configure the caching for your Web Browser to reload each page upon each visit. Below is the example procedure for Internet Explorer v6:

- Open Internet Explorer and select the **Tools** menu option.
- Select the **Internet Options** submenu.
- Under the **Temporary Internet files** section, click the **Settings** button.
- Click the **Every visit to the page** radio button.
- Click the **OK** button.
- Close the **Internet Options** dialog box.

3.10 Special Requirements for Firewall Access

Firewalls installed on the network must allow for the Netcom communication. Ensure that the web server port and all SNMP ports are allowed. When Windows XP

Service Pack 2 is installed on a computer it will turn on the personal firewall. Below are the steps to open up the web port for Netcom in Windows XP Firewall:

- Select **Start Menu** > **Control Panel**.
- Select **Network Connections** and right click on the connection that is being used.
- Click on **Properties** and click the **Advanced** tab in the Properties dialogue.
- Press the **Settings...** button to bring up the Firewall dialogue.
- Go to the **Exceptions** tab and click the **Add Port** button.
- For **Name** enter ***Netcom Web Port*** and for **Port Number** enter ***80***. Press the **OK** button.
- You now will be able to access the Netcom web port through the Windows XP Firewall.

4. How do I Configure the Netcom?

4.1 Installing the Netcom Utilities

The Netcom CD contains the following:

- SNMP MIB
- Netcom User Manual (PDF)
- Shut down installation procedure
- Netcom FAQ
- Firmware

To install the Netcom Utilities or access any of the documents, place the Netcom CD in the CD
drive. The Netcom Utilities CD should automatically start. Follow the instructions provided on
your screen.

4.2 Configuring the Netcom

The initial network settings can be made by connecting the Netcom to a serial communication program using the included configuration cable or cross over cable and laptop.

4.2.1 HyperTerminal Setup example (serial cable)

1. Connect the 9 pin connector to the PC and the 9 pin receptacle labeled “Serial RS232” on the Netcom.

2. Open a HyperTerminal session by selecting *(Installed location may vary)* **Start** > **All Programs** > **Accessories > Communications > HyperTerminal.**

3. Select an available communications port from the drop-down list.

4. Select the following port settings:

- Bits per second: 19200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow Control: None

5. Cycle power from the Netcom by pulling out the power connector and reinserting.

6. Wait for > and type **test**, this must be done within five seconds. This will disable the time out function and allow the IP address to be changed.

7. Type **setup** and enter.

8. The default IP address, IP mask, and IP gateway will be displayed.

9. Enter your IP address and press enter.

10. Enter your sub net mask and press enter.

11. Enter your IP gateway and press enter.

12. After the IP gateway is entered it will ask to save the changes, enter **y.**

13. When connecting to a 9700 or 2033A the protocol must be change, this is accomplished by typing “ups m”. After entering ups m the user will see “Mitsubishi protocol selected”, the user must type in “commit” to save the change.

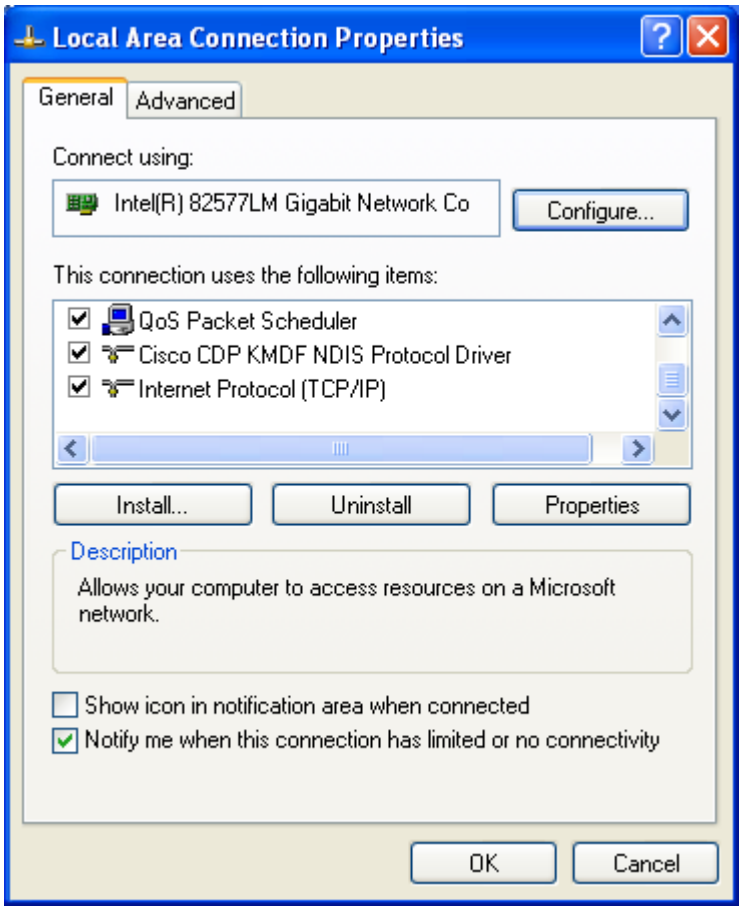
14. System will now reboot and is ready for Internet connectivity.

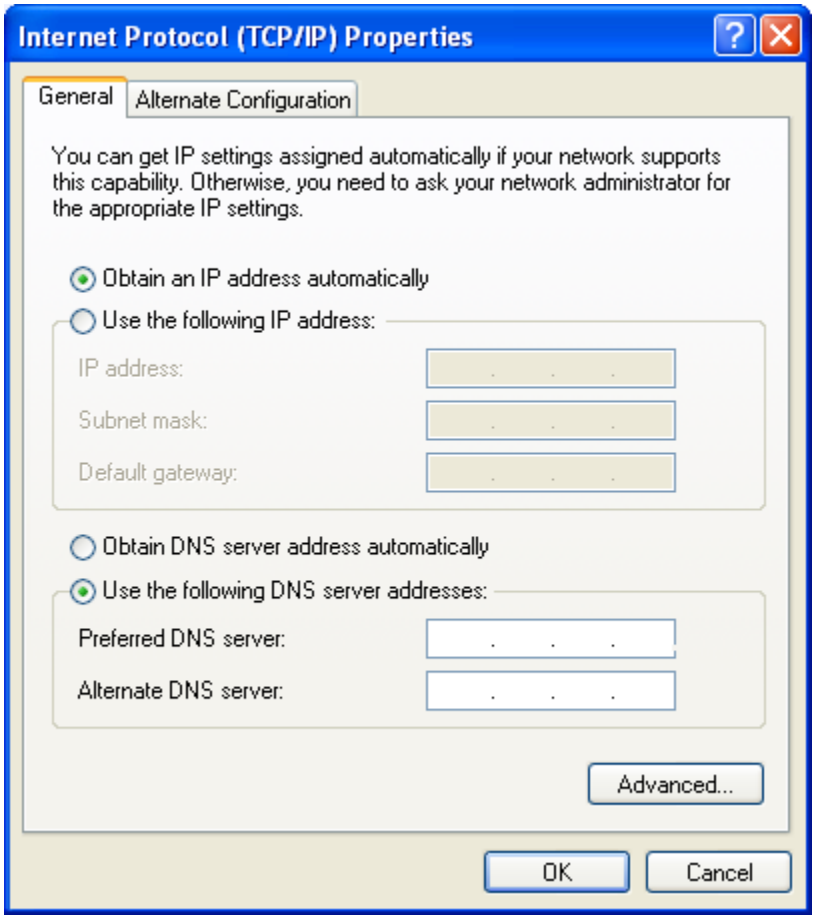
4.2.2 Configuring the IP address with Window XP.

1. Connect the cross over cable provided with the Netcom2 to your PC and the “Network” RJ45 port of the Netcom2.
2. Plug in the power supply included in the Netcom2 box to the +12VDC.

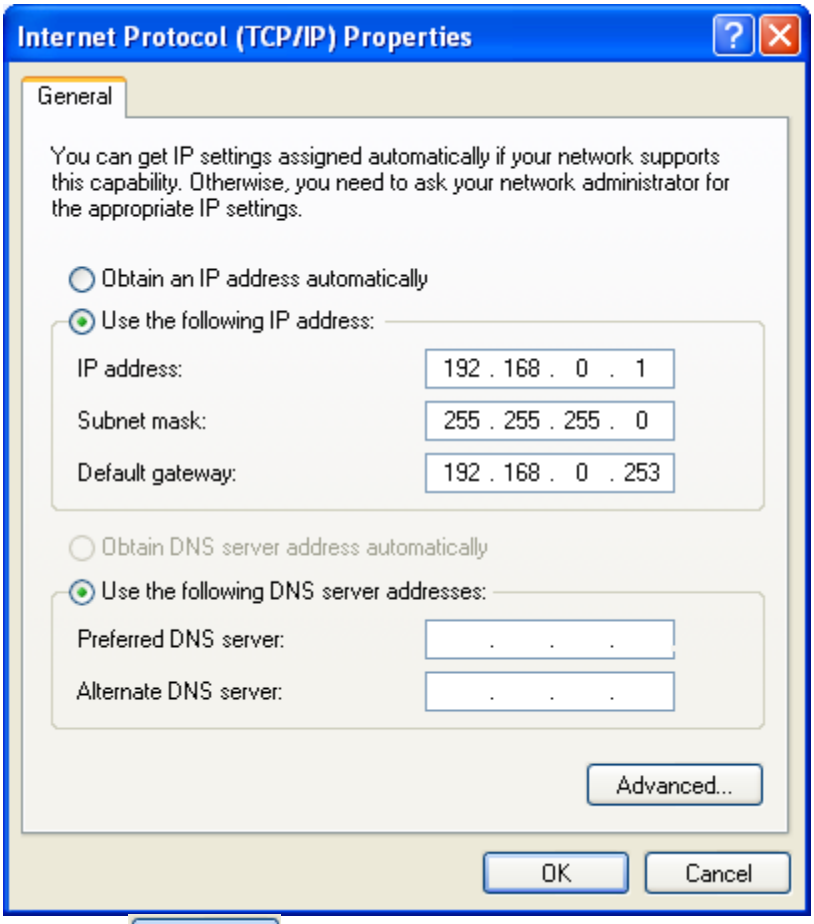
3. On the PC that the cross over cable is connected to, select 

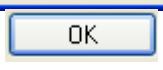
,**"Control Panel"**, "**Network Connections"**. Right click on **"Local Area Connection"** and select **"Properties"**.
4. Double click **"Internet Protocol (TCP/IP)".**

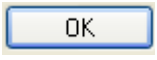




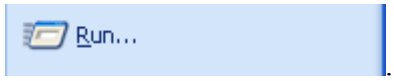
5. Select **"Use the Following IP address:"**
6. Enter; IP address: 196.168.0.1
   Subnet mask: 255.255.255.0
   Default gateway: 196.168.0.253

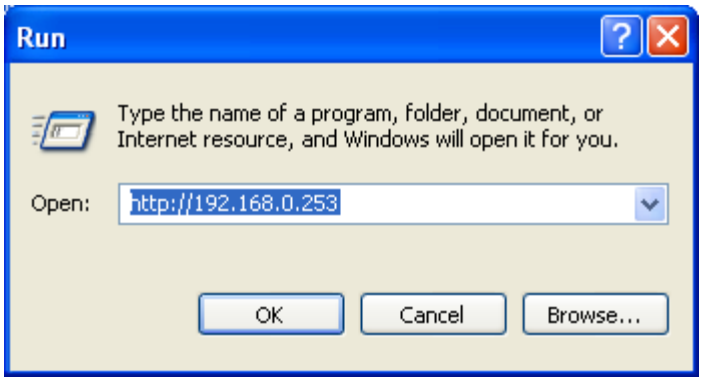


7. Click  on the **"Internet Protocol (TCP/IP) Properties"** screen.

8. Click  on the **"Local Area Connection Properties"** screen.

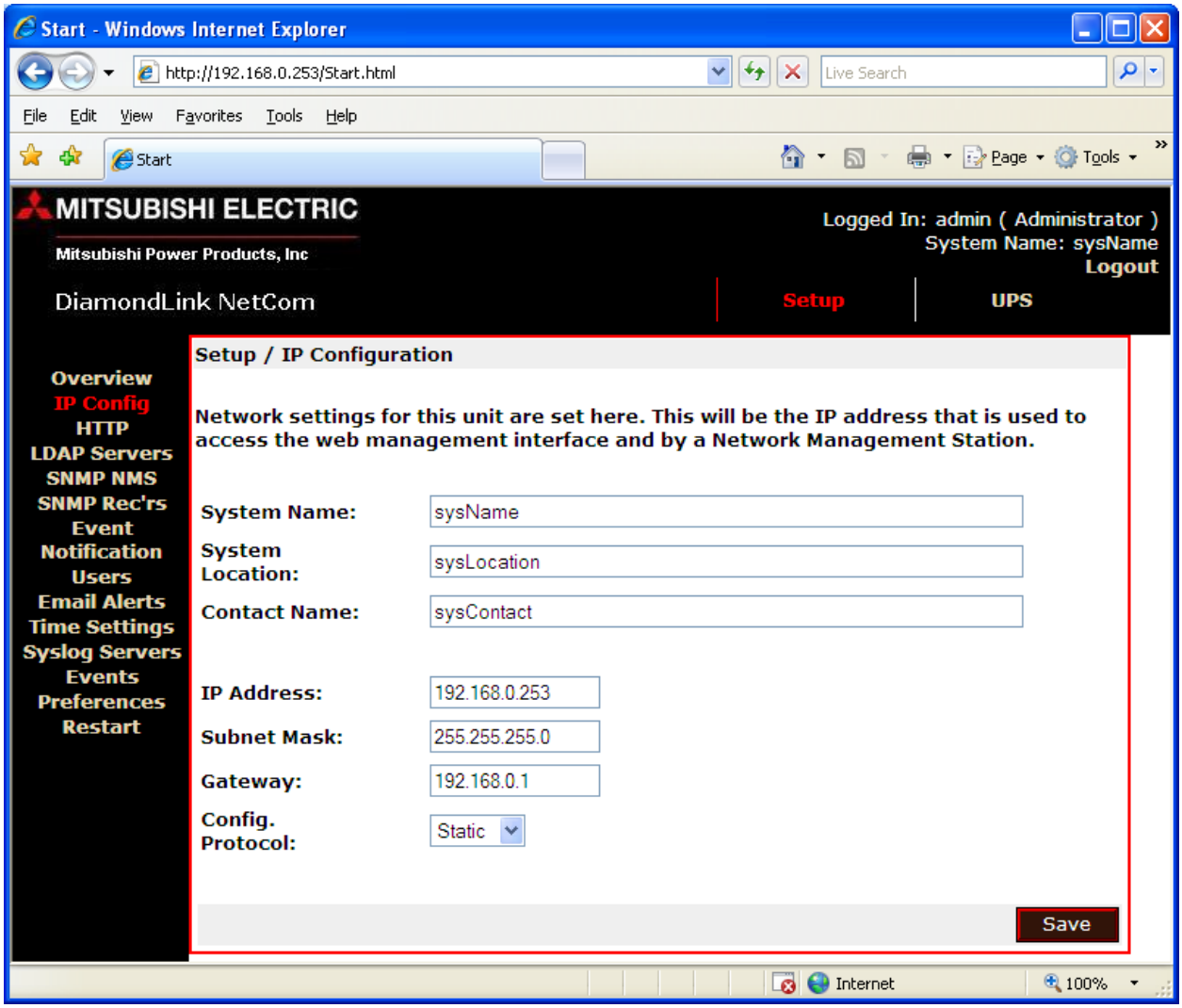
9. Click on  .

10. Select  .

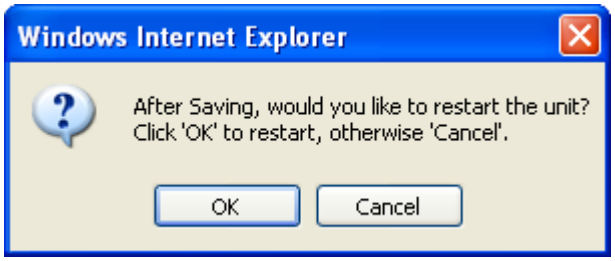
11. Enter: http://192.168.0.259,


and click OK.
12. The Netcom2 log in screen will appear.

13. If the Netcom log in screen does not appear perform the following;
    a. Verify the cross over cable is connected to the Netcom2 port labeled **“Network”**
    b. Verify the power light on the Netcom2 is green and the status light is blinking.
    c. Ping the entered IP address in the DOS prompt.
    d. Verify the “local area connection” is connected in the Network connections screen
14. The default login and password of a Netcom is;
    Username: admin
    Password: admin
15. From the home screen of the Netcom2 select **“IP config”.**
16. The user will be able to change the IP information from this screen. After the IP information has been entered the “Save” button must be selected for the information to be saved.



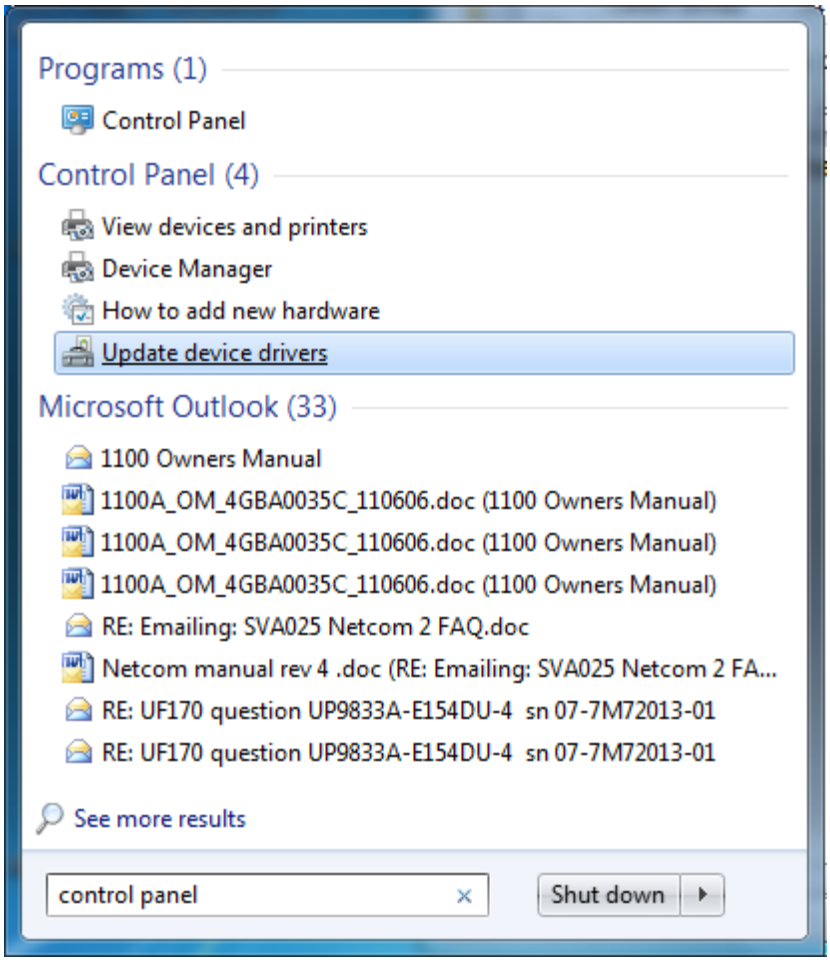
17. Once the **"Save"** button is selected you will be presented with the following screen. Selecting OK will write the IP address to the memory of the Netcom. You will no longer be able to communicate with the Netcom at the default IP address.



**If the Netcom2 is going to be connected to a 2033A or 9700 the protocol will have to be changed using the DB9 connector supplied with the Netcom2. Please refer to the step 4.2.1.

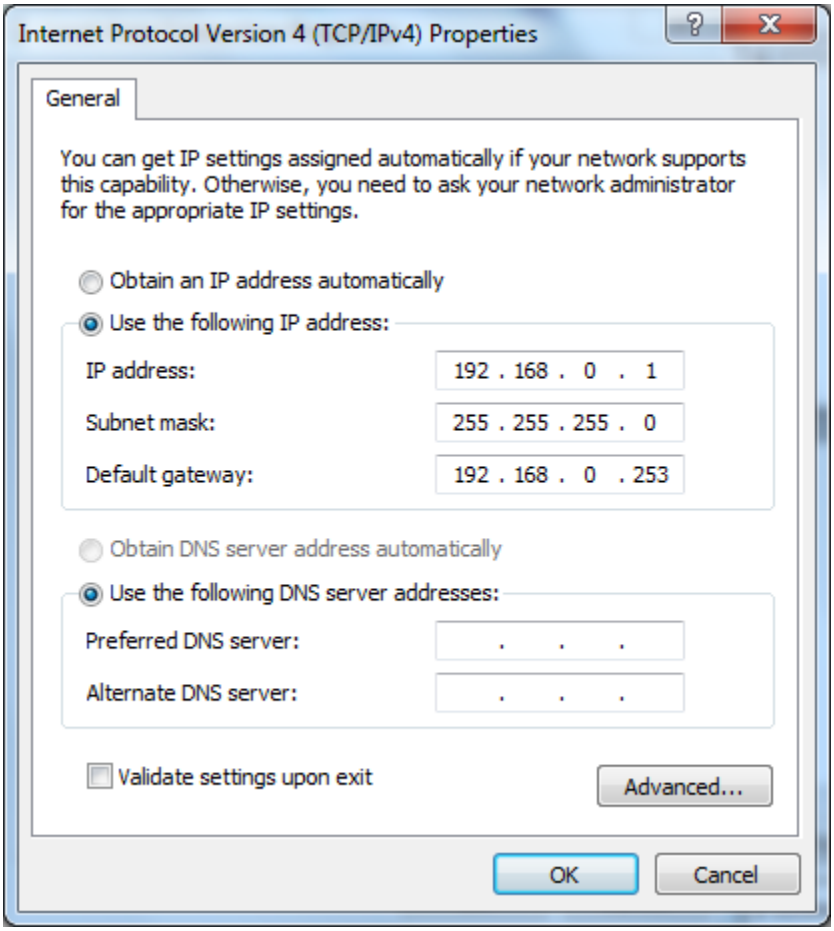
4.2.3 Configuring the IP address with Windows 7

1. Connect the cross over cable provided with the Netcom2 to your PC and the RJ45 port labeled "Network" on the Netcom2.
2. Plug the power supply included with the Netcom2 into a wall outlet and the port labeled +12VDC.
3. On the PC that the cross over cable is connected to the Netcom, select  , and in the **"Search programs and files"** type in "Control Panel".



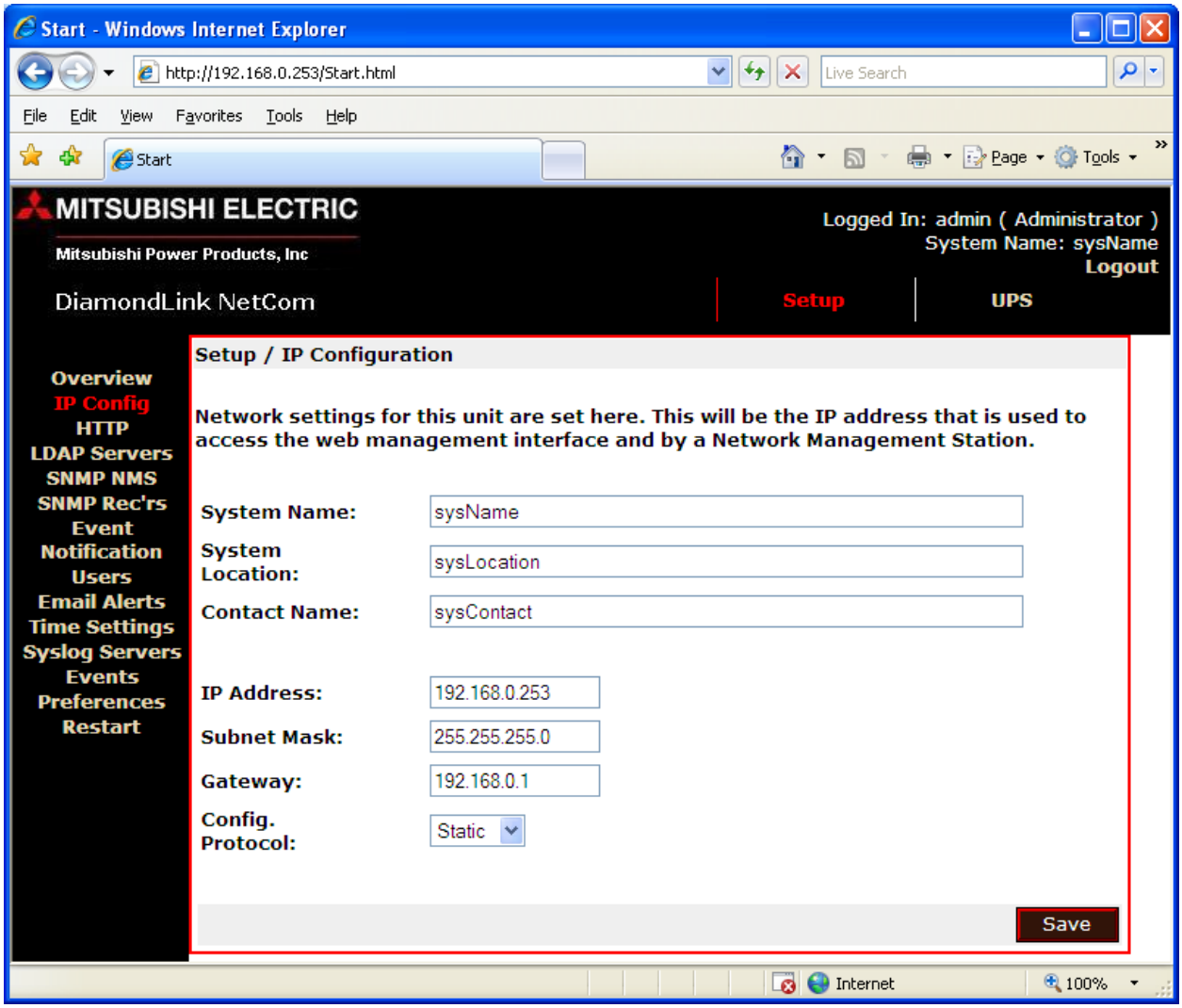
4. Select Control Panel.
5. Under "Network and Internet" select "view network and status tasks".
6. In the "Network and sharing center" double click on the "local Area Connection".
7. In the "local Area Connection Status" select Properties.
8. Double click on Internet Protocol Version 4 (TCP/IPv4) .
9. Select the **"Use the Following IP address"** radio button.
10. Enter the following information;

    IP Address: 192.168.0.1
    Subnet Masks: 255.255.255.0
    Default gateway: 192.168.0.253

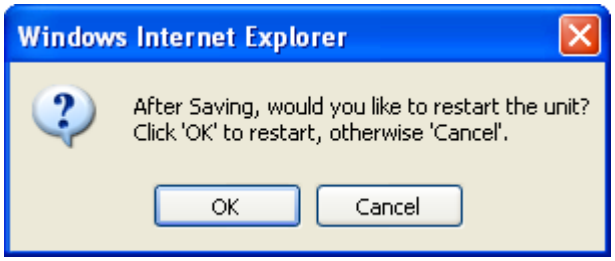


11. Click ok.
12. Click ok, on the Local Area Connection Properties.
13. Select  , in the **"Search programs and files"** enter **"run"**.
14. Select run.
15. Enter: http://192.168.0.253
16. If the Netcom log in screen is present skip to step 17, if the screen does not appear perform the following;
    e. Verify the cross over cable is connected to the Netcom2 port labeled **"Network"**
    f. Verify the power light on the Netcom2 is green and the status light is blinking.
    g. Ping the entered IP address in the DOS prompt
    h. Verify the **"local area connection"** is connected in the Network connections screen
17. The default login and password of a Netcom is;
    Username: admin
    Password: admin
18. From the home screen of the Netcom2 select **"IP config"**

19. The user will be able to change the IP information from this screen. After the IP information has been entered the **"Save"** button must be selected for the information to be saved.



20. Once the **"Save"** button is selected you will be presented with the following screen. Selecting OK will write the IP address to the memory of the Netcom. You will no longer be able to communicate with the Netcom at the default IP address.



21. If the Netcom2 is going to be connected to a 2033A or 9700 the protocol will have to be changed using the DB9 connector supplied with the Netcom2. Please refer to the step XX.

5. How do I Update the Netcom Firmware?

Configuration Upgrade.

The Netcom2 is shipped with firmware installed, if needed the latest firmware version is available for download at;
www.meppi.com/Products/UninterruptiblePowerSupplies/Communication.

The firmware version installed in the Netcom2 can be found in the log in screen under the user name and password.

5.1. Open “SineticaTFTPclient.exe” on the Netcom CD.

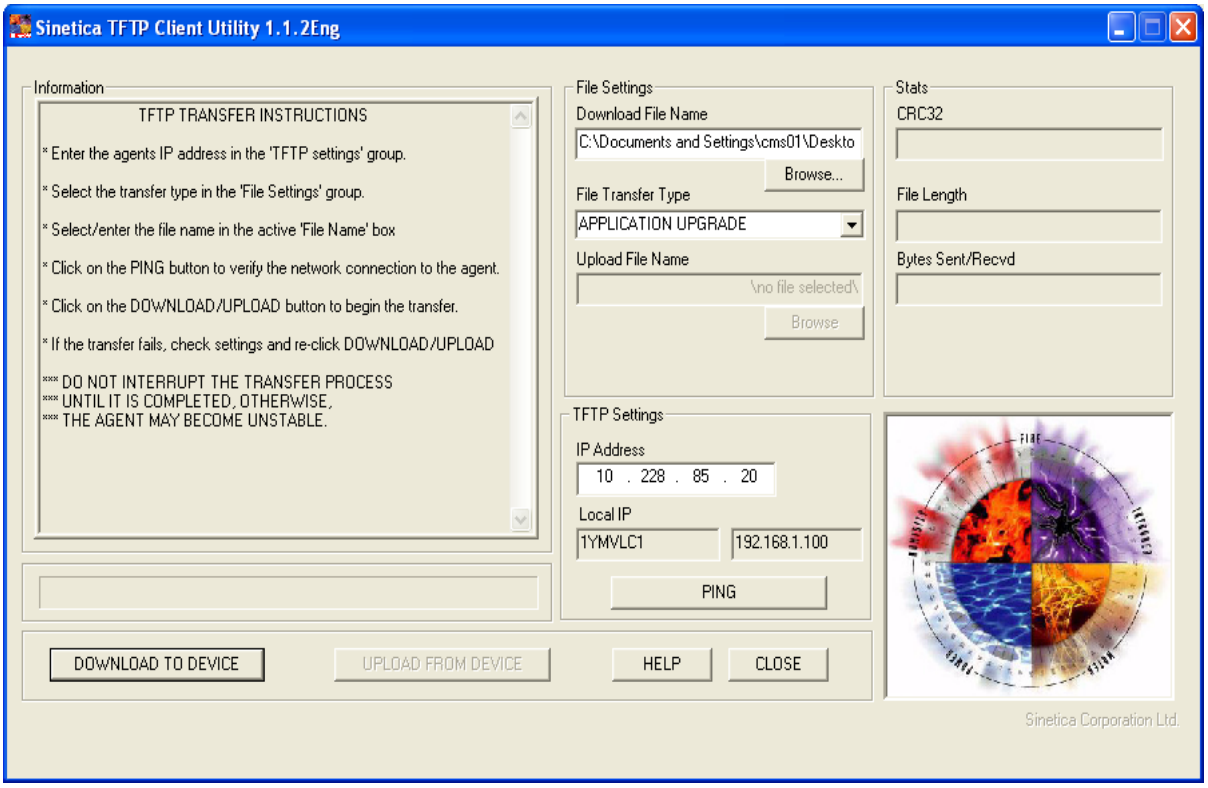


Figure 5.1

5.2. In the **'File Settings'** group select **'APPLICATION UPGRADE'** from the 'File Transfer Type' drop down list.

5.3. In the **'Download File Name'** edit box select the name of the file, XX.XX.X.bin, supplied on the Netcom 2 CD.

5.4. In the ‘TFTP Settings’ group enter the required IP address of the unit to be upgraded in the ‘IP Address’ box.

5.5. Click the 'DOWNLOAD TO DEVICE' button. A blue task bar will flow from left to right and data information will be displayed in the information box. When “connection closed” appears the firmware installation will be complete.

5.6. The new configuration data will be written to the EEPROM in the Netcom2 unit

5.7. If the Netcom is going to be communicating with a 2033A or 9700 the protocol will have to be selected. This is done in the HyperTerminal session in section

6. Netcom Web Server

Before attempting to connect to the Netcom2 for the first time check the following;

1. An IP address has been assigned
2. The supplied RJ45 to DB9 cable is connected to the port labeled UPS and connected to the UPS communication port (contact Mitsubishi or your local service group)
3. The intranet cable is connected to the Network plug and the amber and green lights are flashing
4. Power is applied to the Netcom and the power and status lights are on.
5. The proper protocol has been selected; 9700 and 2033A UPS require MIT all other require SEC.

7.1 Login Page

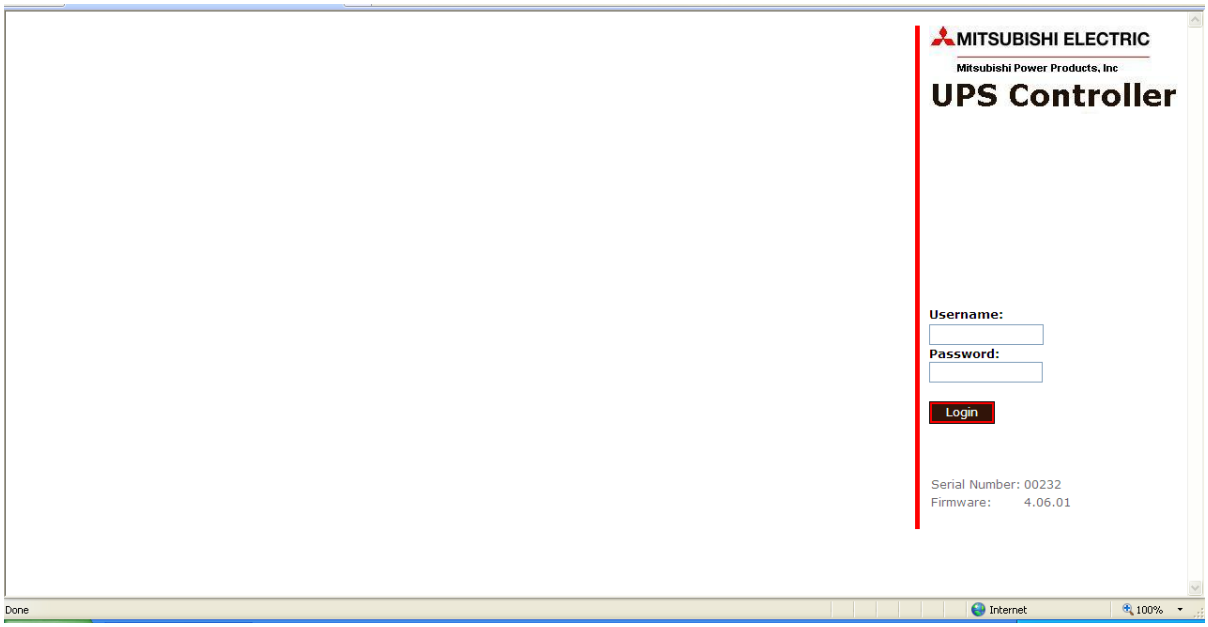


Figure 7

After connecting to the Netcom Figure 2 will be displayed, the default password for the Netcom is:

Username: **admin**
Password: **admin**

The Netcom2 Firmware version is located under the Serial number; the most current software version can be downloaded at Meppi.com.

The default password and login for the Netcom is admin, admin. If the password is changed and lost the following steps will need to be completed to reset the password;

1. Establish a Hyper-terminal session as described in Section 4 of this manual.
2. Connect a terminal to the serial port.
3. Reboot the Netcom.
4. At the serial prompt enter “test” within 5s.
5. At the serial prompt enter “pwdrst”.
6. At the serial prompt enter “x”.
7. When the system starts (status indicator flashing at 4Hz) login using “admin”/”admin”
8. Change and save system user configuration as needed.
9. Reboot

7.2 UPS Status Page/ UPS/ Overview

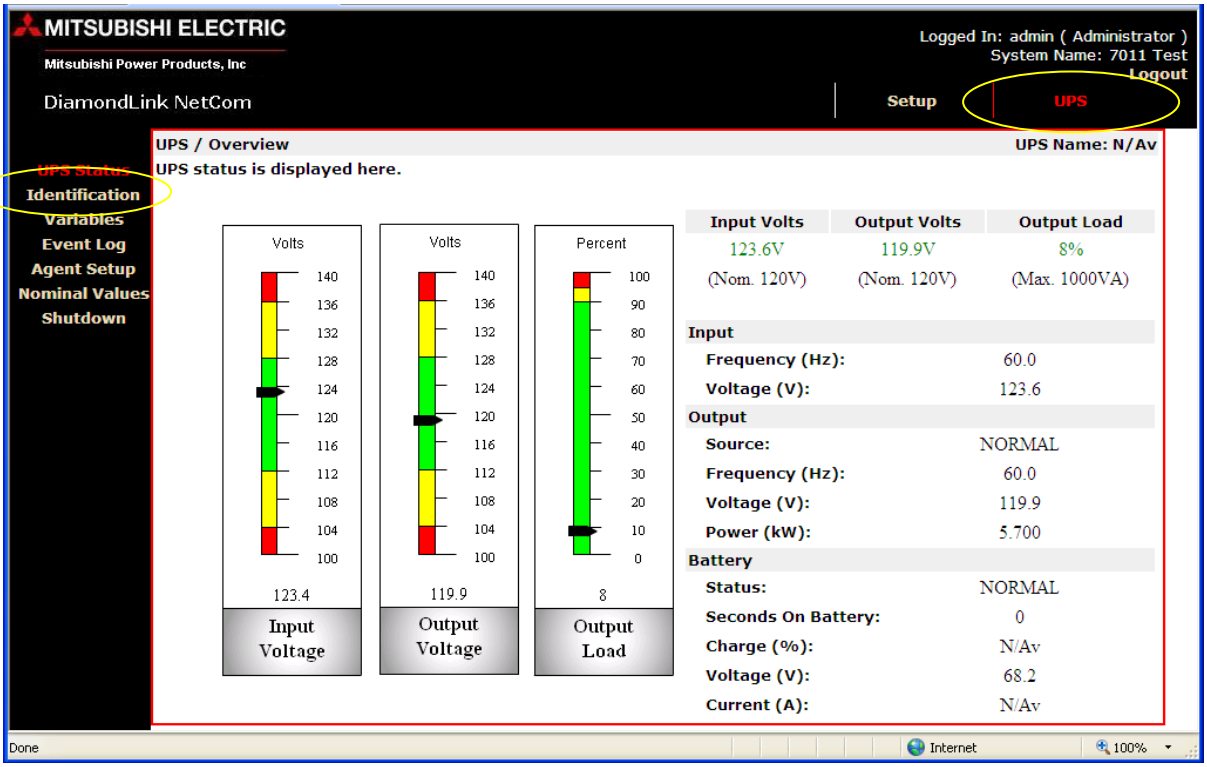


Figure 7.1

When the Netcom is initially powered on the user will be taken to the over view screen, pictured below in figure 7.2. The user must select **Setup** at the top of the screen and select **Preferences** on the left side of the screen to be directed to figure 7.2.

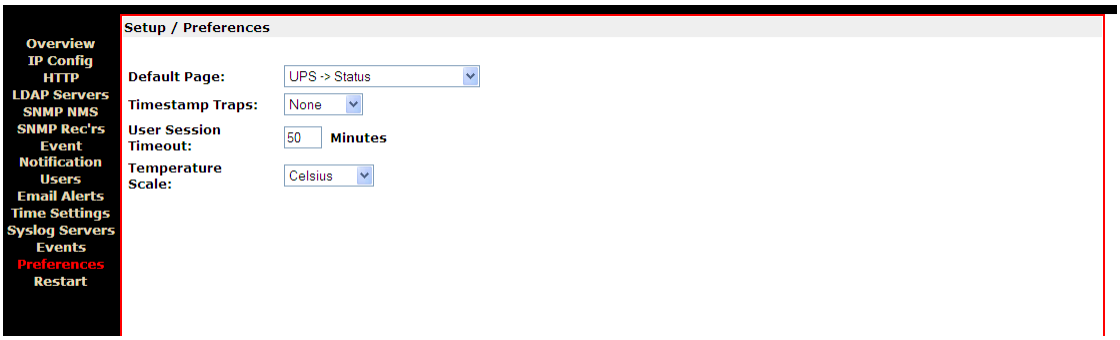


Figure 7.2

Under the default, select **UPS ->Status** this will set the status page to default. The user can also select the time before the Netcom2 times out by selecting the **User Session Timeout:** drop down.

If the **Input Volts, Output volts, or Output load** is any color other than green the values are out of limits. This can be corrected by entering the correct values in the **Nominal Values** page or the values are out of the UPS's operating range.

If the **Input Volts, Output volts, or Output load** graphs are to the max this also is an indication of incorrect values entered in the **Nominal Values** page.

7.3 Identification/UPS Identification Page

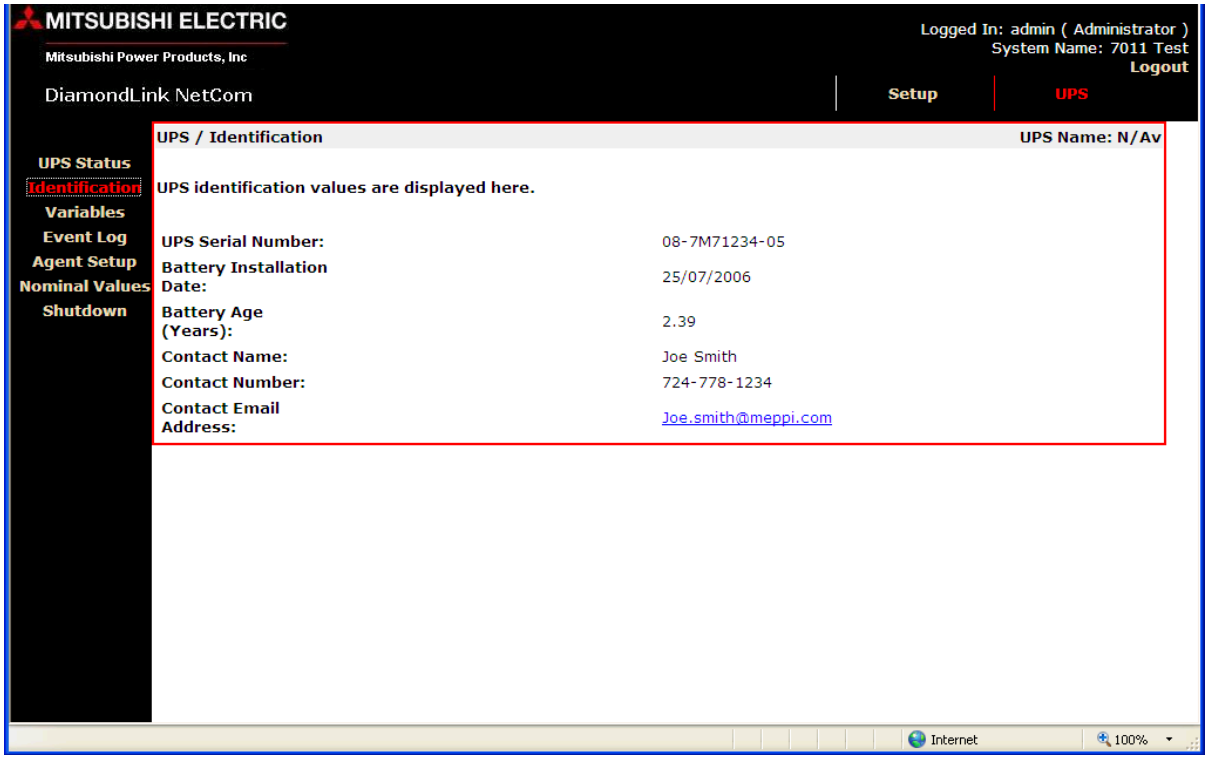


Figure 7.3

Click on the **Identification** menu option to display the UPS serial number, contact name, contact email, contact phone number and battery information. This information is input at the **Agent Setup** menu (see figure 7.7).

7.4 Variables/Variables Page

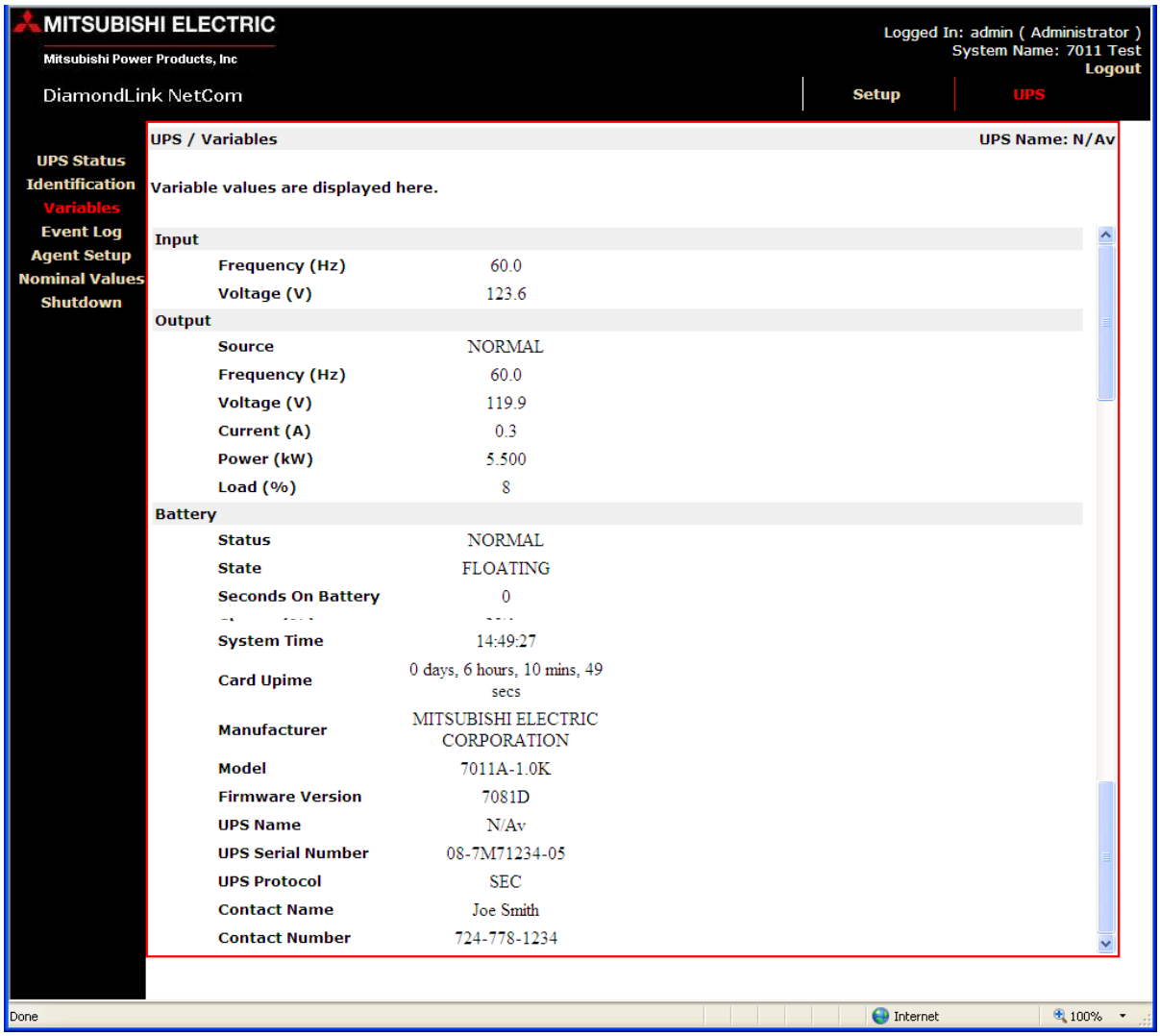


Figure 7.4

Click the **Variables** page to display the variables page. This page displays a list of the available UPS variables. The variables displayed may vary depending on the unit that is being monitored.

7.5 Event Log/View Events Page

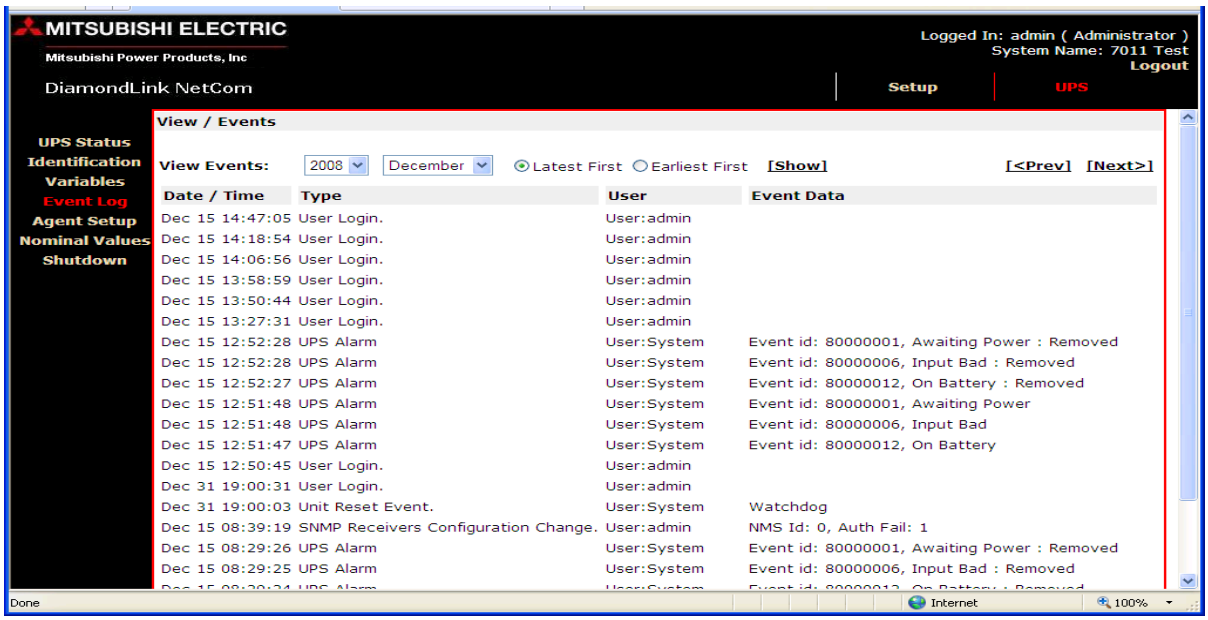


Figure 7.5

Click on the **Event Log** menu option to display the **View/Events** page. The event log will hold the latest events received from the UPS.
The events can be sorted by month, year and order of occurrence by selecting the **View Event**.

When an event occurs, it will be written to the event log with a date/time stamp. When the event is cleared (alarm removed), it will be written to the event log in the format "*event* removed", where *event* is the name of the event being cleared. Click the **Clear Log** button to clear the event log.

7.6 Agent Setup/UPS/Configuration Page

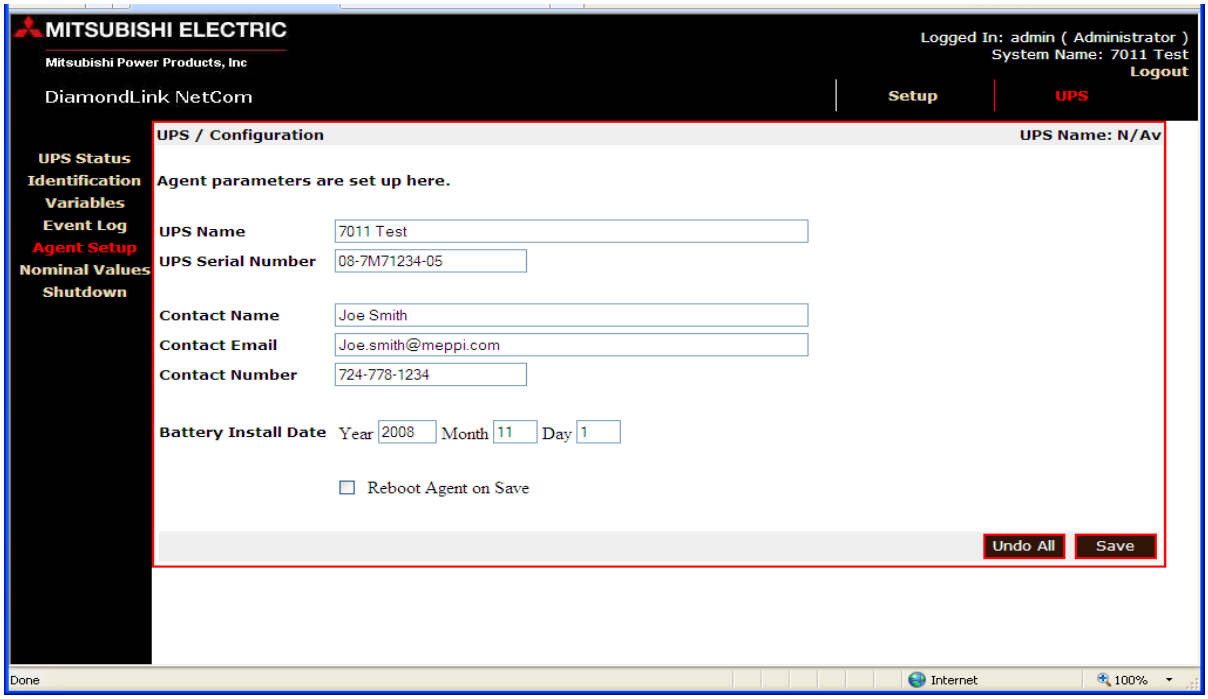


Figure 7.6

The **Agent Setup** (Netcom) page is where the UPS name, serial number, contact name, contact email, and contact phone number can be inserted. The battery install date is inserted into this field for battery age calculation that is available on the **UPS/Identification page.** The battery install date will also vary depending on the date that is selected in the **SETUP/ Time Settings** page.

The **UPS Name** that is inputted in this screen is the name that will appear on email alerts.

7.7 Nominal Values/UPS Nominal Values Page

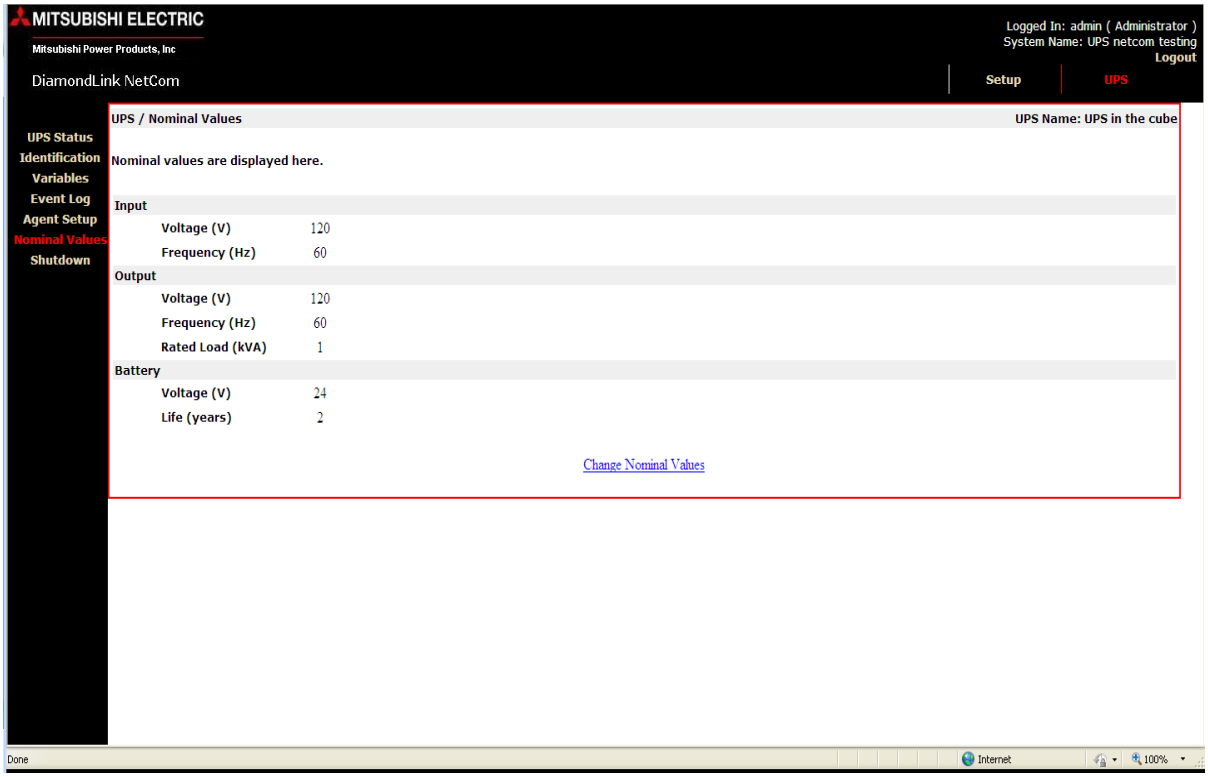


Figure 7.7

The **UPS/Nominal Values** page is where the UPS nominal values can be changed. This information can be found in the UPS Owners/Technical for nominal values. If these values are not set to the current UPS values the **UPS Status** values will not read correctly and the bar graphs will not indicate proper voltage.

When the words **Change Nominal Values** is selected the user is directed to figure 7.8. The UPS nominal values are entered into this screen and saved.

The battery voltage is a preset value and can not be changed.

7.8 Nominal Values/UPS Nominal Values Setup

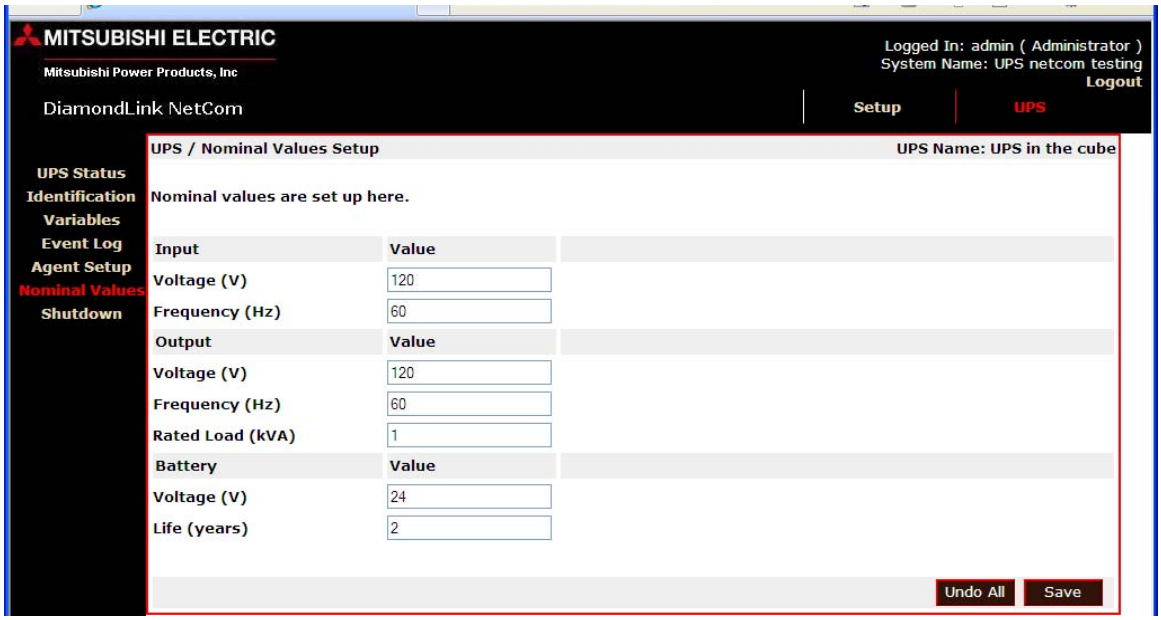


Figure 7.8

7.9 Shutdown/UPS Shutdown Setup Page

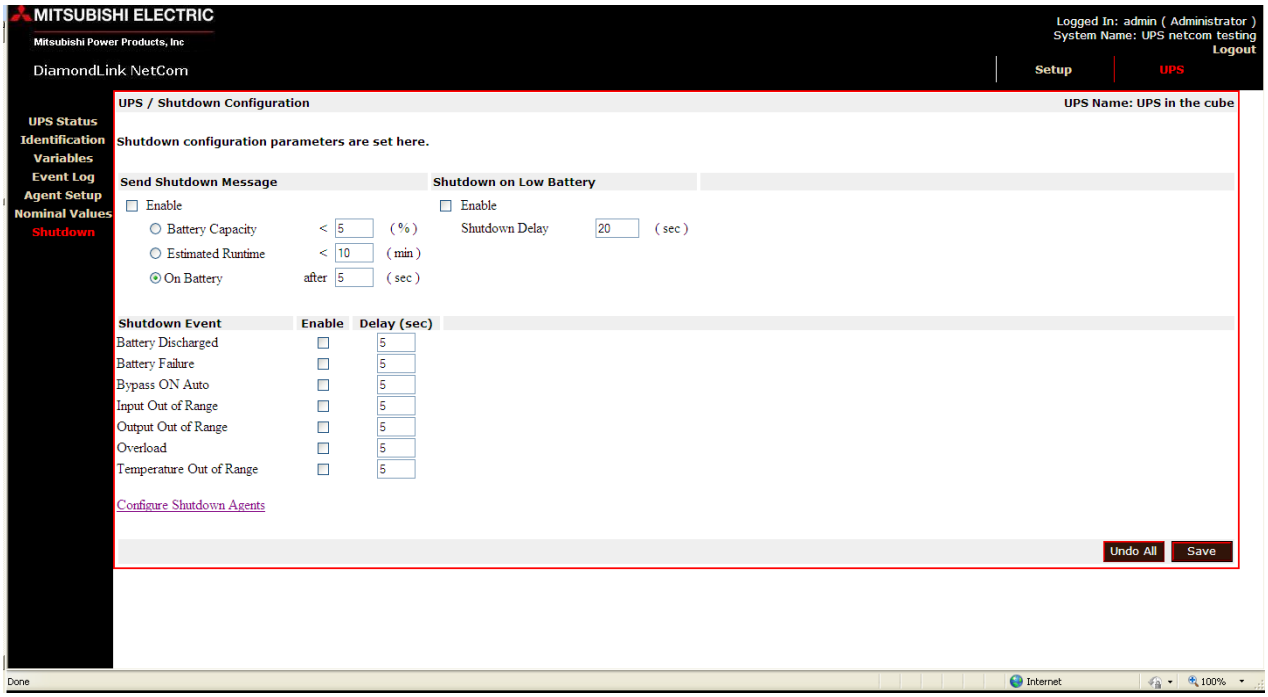


Figure 7.9

Figure 7.9 is an example of the **UPS/Shutdown Configuration** page. In this page the user can select the UPS activity that will trigger a shut down message, by enabling a parameter the user can send a shut down on;

1. Battery Capacity percentage, when the UPS detects the percentage of battery remaining a shutdown will be initiated after the time limit has elapsed.
2. Estimated Runtime, when the UPS detects the estimated run time has been reached a shut down message will be initiated after the time limit has elapsed.
3. On Battery, when the UPS is on batteries for the preset duration a shutdown message will be sent after the preset time has elapsed.
4. Low Battery Alarm, when the low battery alarm has been detected by the UPS a shut down message will be sent after the preset time limit has elapsed.
5. Battery Discharge, when the unit is discharging the battery string a shut down message will be sent after the present time has elapsed
6. Battery Failure, when the UPS has detected a battery failure a shut down message will be sent.
7. Bypass ON Auto, when the UPS is transferred to bypass either manually or automatically a shut down message will be sent after the preset time limit has elapsed.
8. Output Out of Range, when the UPS Output voltage deviates from the UPS's operating parameters a shut down message will be sent after the preset time limit has elapsed.

9. Input Out of Range, when the UPS input voltage deviates from the UPS's operating parameters a shut down message will be sent after the preset time limit has been reached.
10. Overload, when the unit is overload and the preset timer has expired a shut down message will be sent.
11. Temperature Out of Range, when the UPS experiences temperature that exceed the operating standards and the timer has elapsed a shut down message will be sent.

Each parameter has a time limit or percentage attached to it. If the parameter is reached but does not remain for the duration of the time or percentage limit a shutdown will NOT be initiated.

The Configure Shutdown Agents when selected.

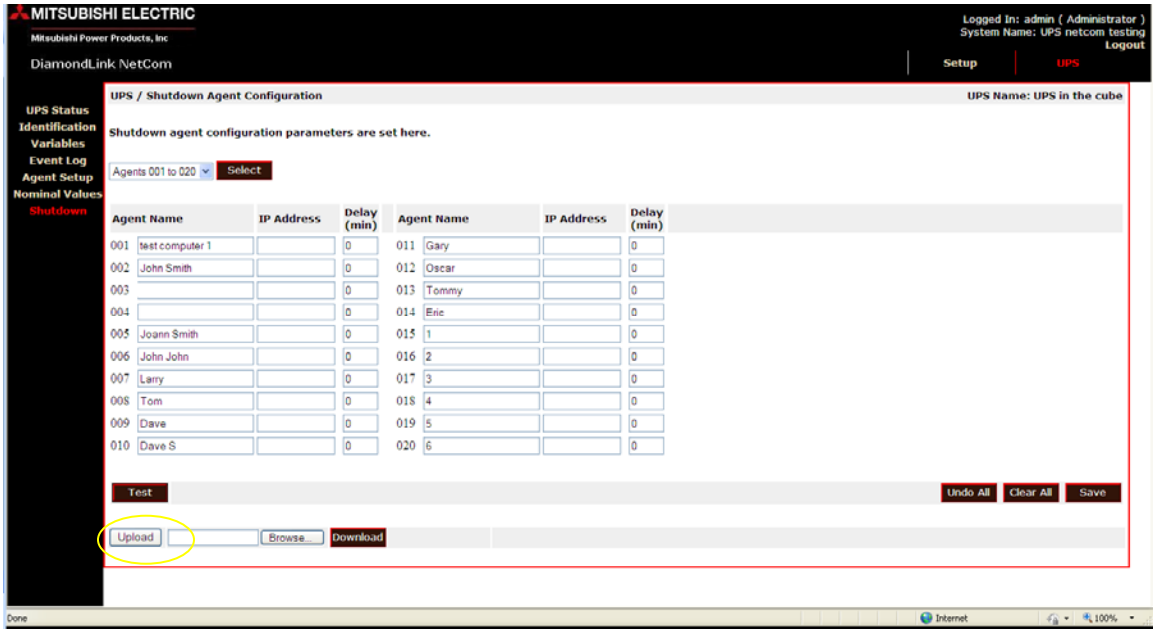


Figure 7.10

The **UPS/Shutdown** setup can be accessed by selecting **Configure Shutdown Agents**. Figure 7.10 is an example of the page. In this page the user can input up to 500 devices.

The user will input the devices IP address, name and time delay that is selectable in minutes. The **Agent IP Address** is the IP address of the item that will be shut down when the shut down message is sent. The computer/server must have a shut down agent installed prior to testing the shut down.

After the user enters the devices that are going to be shut down by the Netcom a test can be performed by selecting the test button (THIS WILL SHUT DOWN ALL DEVICES ENTERED). The user can also download the shutdown entries to a CSV file. This file can be modified and uploaded back into the device using the update feature on the bottom left of the page.

 ***Note: Not all UPS support the estimated runtime variable.***

-On Battery – Click the **On Battery** radio button. When the UPS goes on battery, a shutdown message will be sent to all listed systems.

7.11 Overview/Network Setup Page

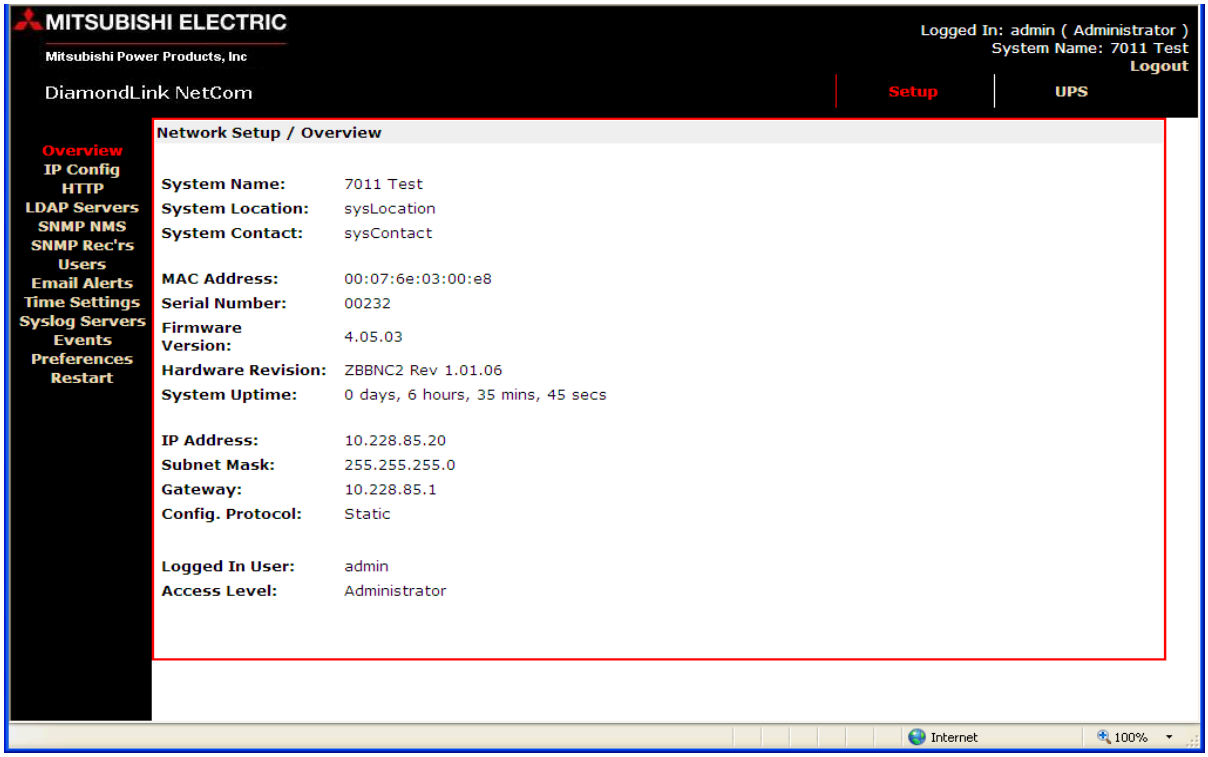


Figure 7.11

The Network **Setup/Overview** page displays the systems name, MAC address, serial number, firmware version, System uptime, IP information and user information.

7.12 IP Config/Setup/IP Configuration Page

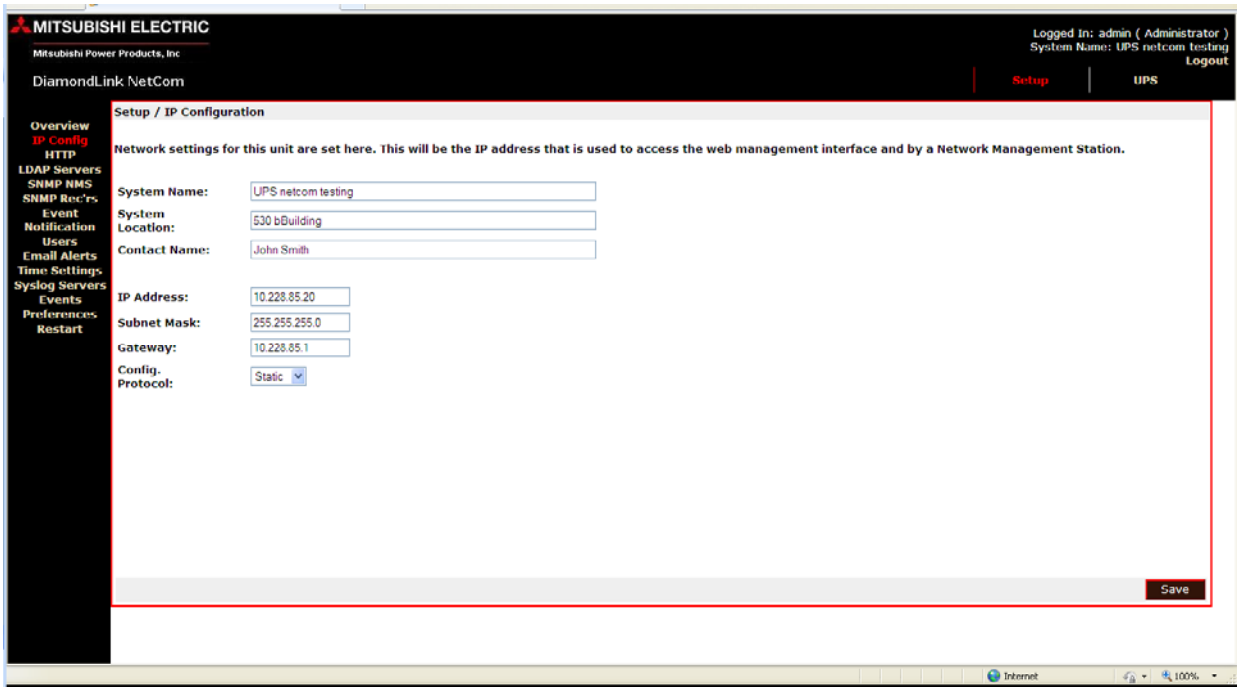


Figure 7.12

At the **Setup/ IP Configuration** page the System name, IP address, Subnet Mask, Gateway, and Config Protocol can be change. The name that will appear in the upper right hand of ALL screens is set in the **System Name** box. Check with your IT administrator for recommended settings. The Config Protocol can be set to static, Dynamic Host Configuration Protocol (DHCP) or Bootstrap Protocol (Bootp) by using the drop down box. The IP address can be set from this screen, however once the IP address is set and any screen is saved the user will not be able to access the Netcom2 from the set IP address, the Netcom2 will be set to the new IP address.

7.13 HTTP/HTTP Setup Page

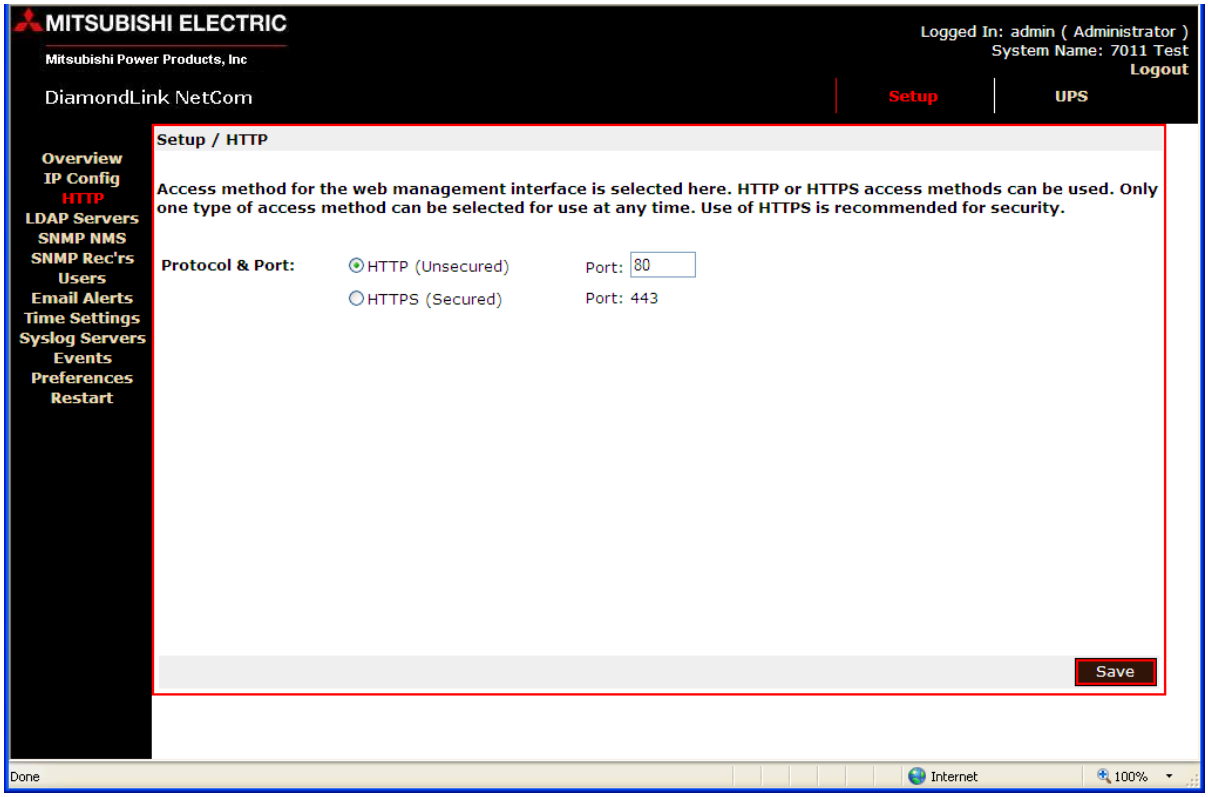


Figure 7.13

The HTTP protocol function can be set by selecting the radio button. The unsecured port can be changed, but check with your IT administration and Network firewalls for proper settings.

7.14 LDAP Servers/Setup/LDAP Servers Page

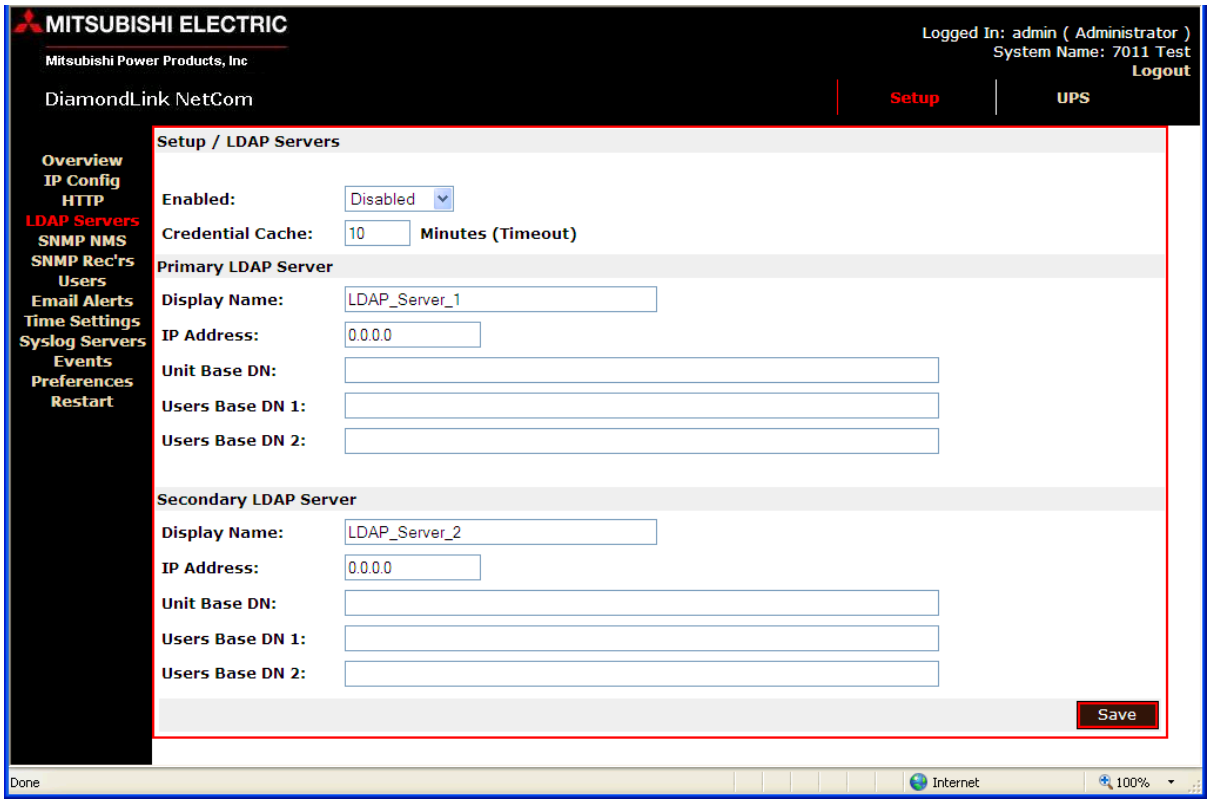


Figure 7.14

Lightweight Directory Access Protocol (LDAP) has four options that are enabled by the drop down box and two optional servers. The drop down box has Disable, Primary, Secondary, and both. Your IT administration will be able to provide the necessary information for this function to be used if needed.

7.15 SNMP NMS/Setup SNMP Page

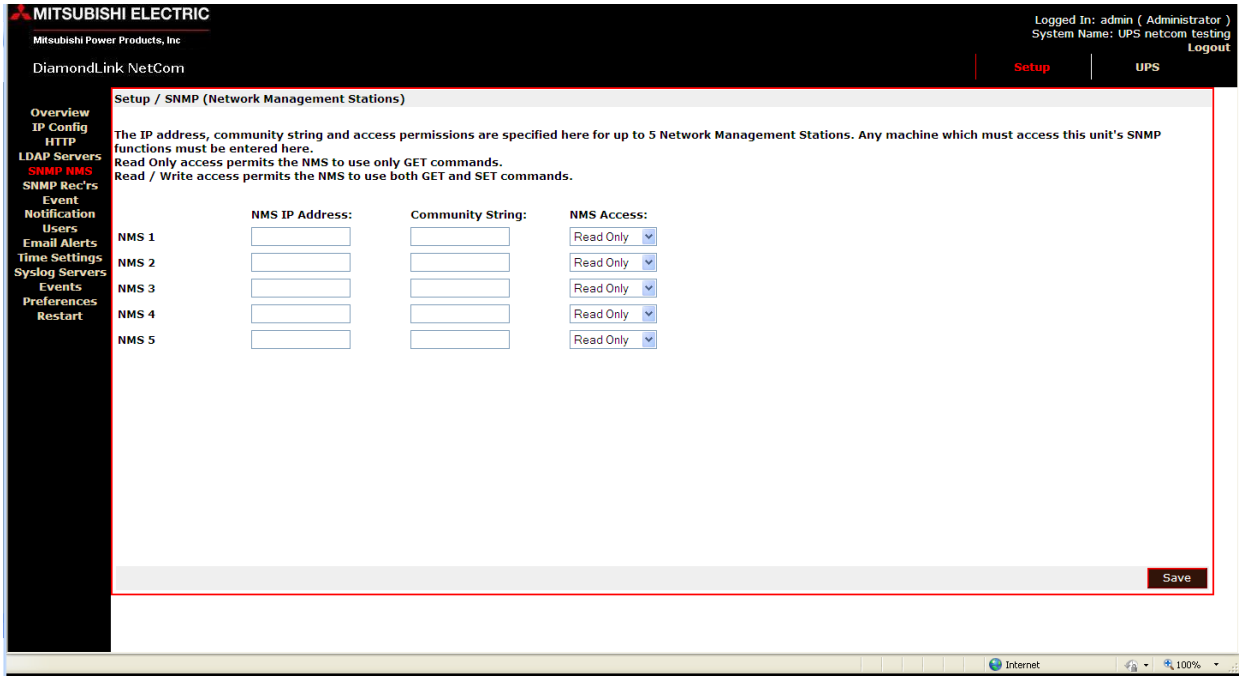


Figure 7.15

The **Setup/SNMP NMS** function is used to set up the network management station that will be viewing the UPS information using GETs and SETs. The Get operation is used by the NMS to obtain the necessary information and the SETs command are used to configure the management device for the information. The network management stations that must access the units SNMP function must be entered at this page. For each Network Management Station the following must be entered.

- NMS IP Address- Enter the IP address for the NMS
- Community – Enter the SNMP community string the NMS will use. Contact your system administrator for details
- NMS- The read only access permits the network management station to use only GET commands. The Read/Write access permits the network management station to use both GET and SET commands.

Note: A copy of the Netcom MIB files can be found on the Netcom CD, www.meppi.com, or in Appendix B of this manual.

7.16 SNMP Rec'rs/SNMP Receivers Page

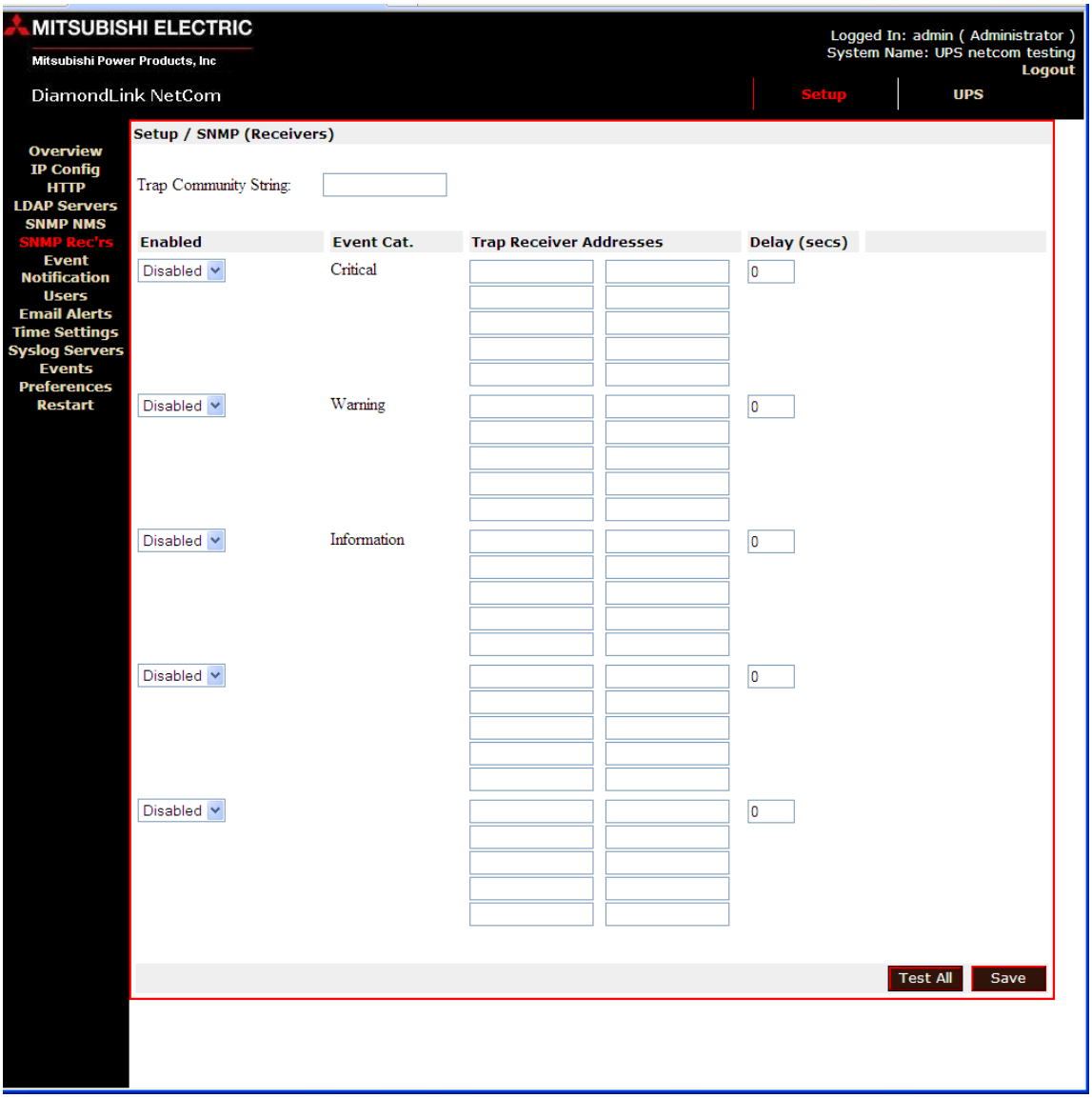


Figure 7.16

The **Setup/SNMP Rec'rs** page is used to set up the community receivers. The IP address, community string and access permissions are specified here for up to ten Network Management Stations. Any machine which will be required to receive SNMP traps sent from this unit must be entered here. **This page will change be changed if entries are made on the Event Notification page.**
Receive traps Enabled setting allows the specified NMS to receive the units standard range of traps. The Test All function will allow the user to test the setup.

7.17 Event Notification/Event Notification

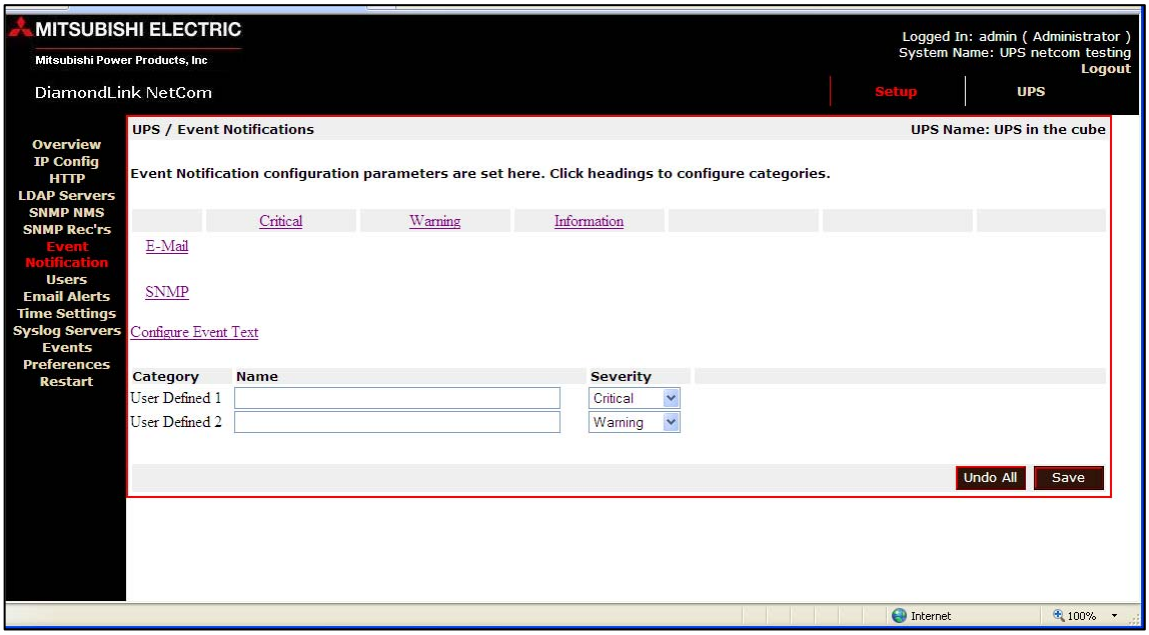


Figure 7.17

The **UPS/Event Notifications** screen can be customized by the user is several ways. The user can build their own categories in the **User Defined 1** and **User Defined 2** fields. Once a name/group is entered in the selected user define field and the page is saved the name/group will populate next to the information box.

When a name/group is selected the user will be directed to figure 7.18.

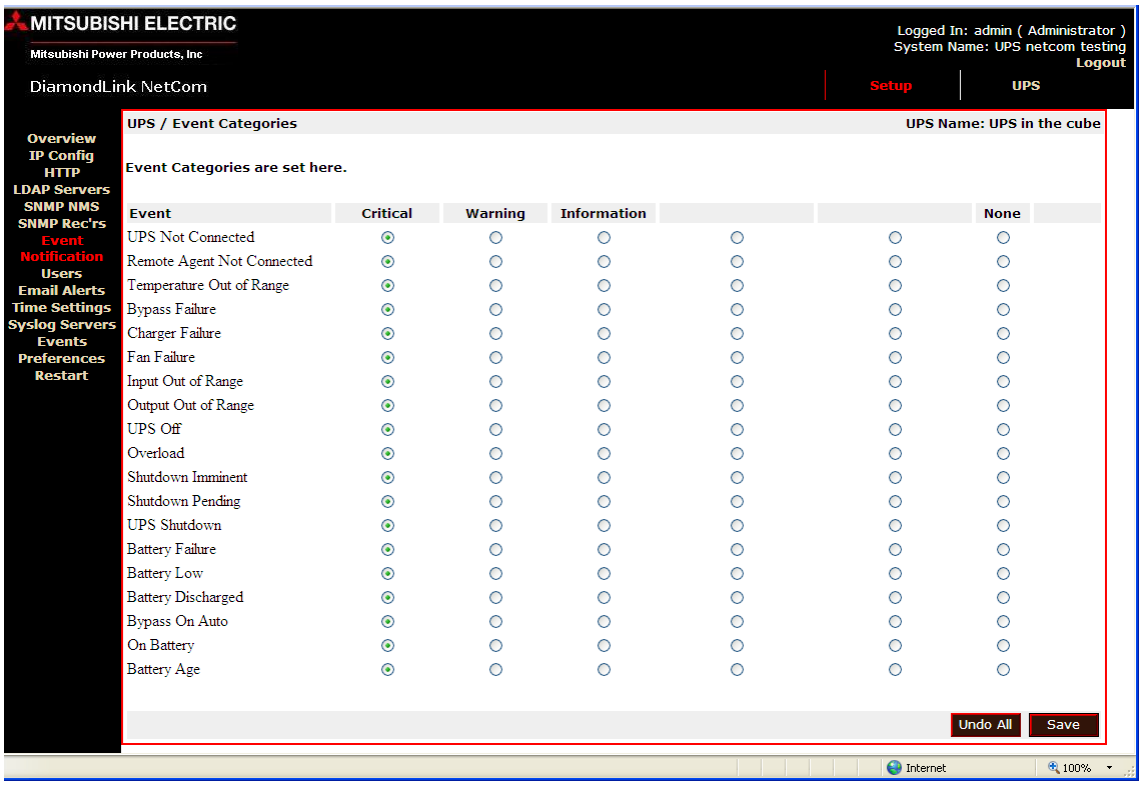


Figure 7.18

In this screen the user can assign event codes to one group by selecting the radio buttons. An event can only be assigned to one group, if the **None** is selected the alarm will not be sent out to any group. After assigning and event to a group click the save button.

If the word **E-mail** is selected the user will be directed to the Setup Email Alerts page displayed in figure 7.19.

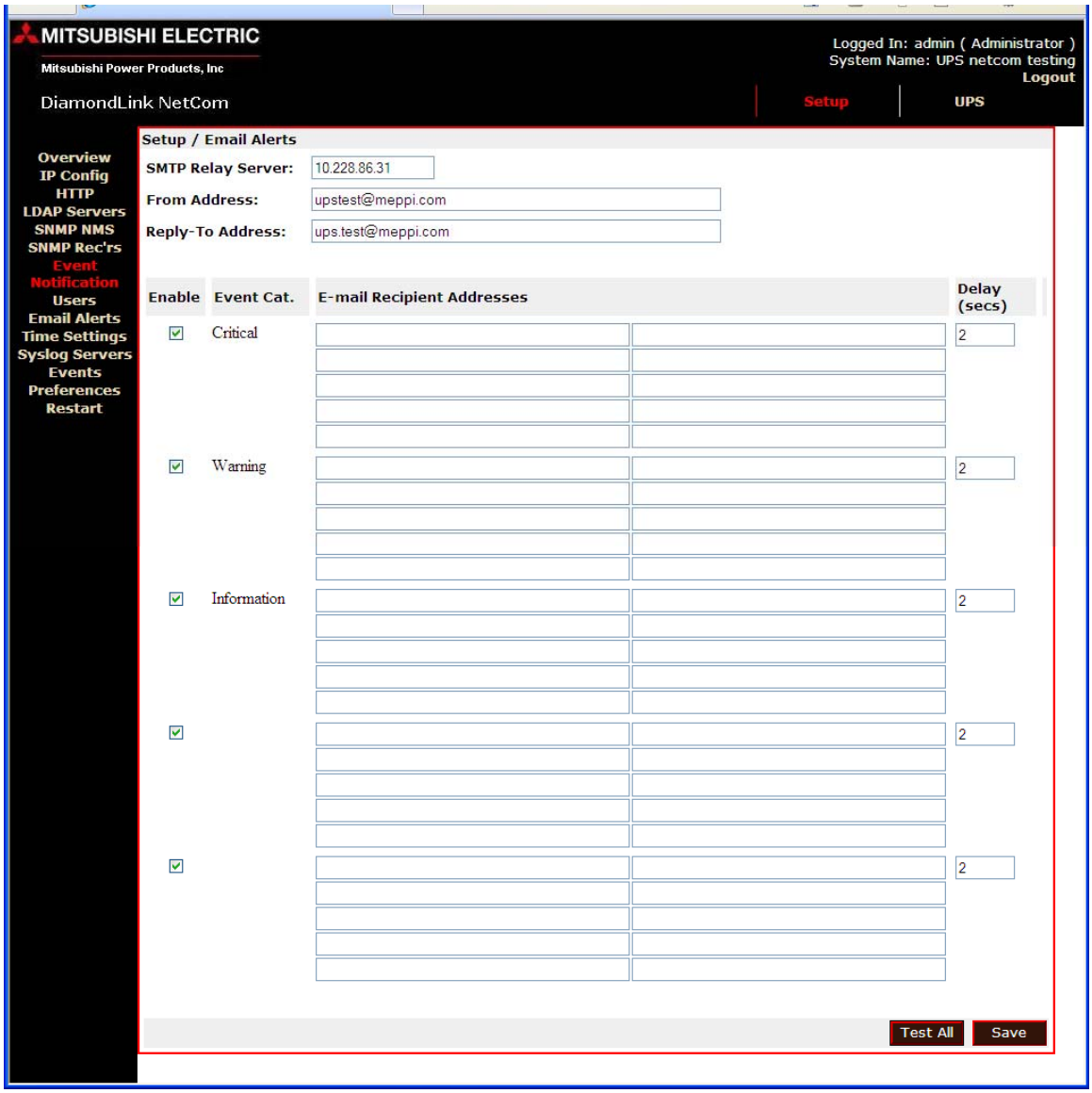


Figure 7.19

In this screen the user can enter the email addresses of the individual/groups emails. Any changes made to this screen will affect the **Email Alerts** and **SNMP (receivers)** pages. The SMTP server address must be entered and the Enable check box must be selected for e-mails. The delay timer will start when an e-mail able event occurs; if the event clears before the timer expires an email will NOT be sent.

The **Test All** button on the bottom right will send a test email to all email addresses added to the screen.

When the user selects the word **SNMP** they will be directed to figure 7.20.

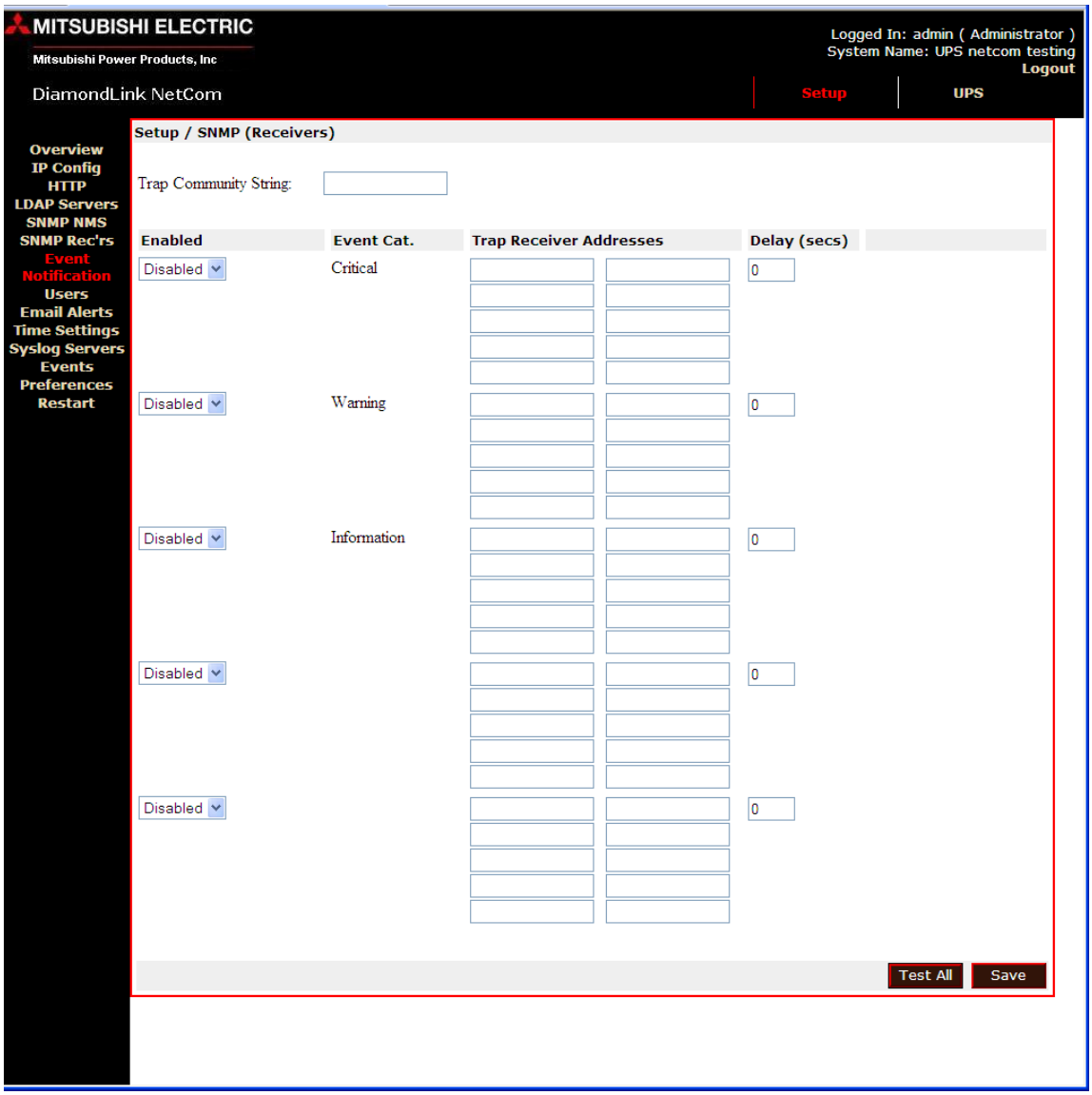


Figure 7.20

In figure 7.20 the user has the ability to input 10 trap receivers per event category. The trap community string must be entered for messages to be transmitted. The categories are selected in figure one of this section and an event can only be used in one category. After all receivers are entered, enabled and saved a test call can be made by selecting the **Test All** button. The delay timer will start when an e-mail able event occurs; if the event clears before the timer expires an email will NOT be sent.

When the user selects the word **Configure Event Text** they will be directed to figure 7.21.

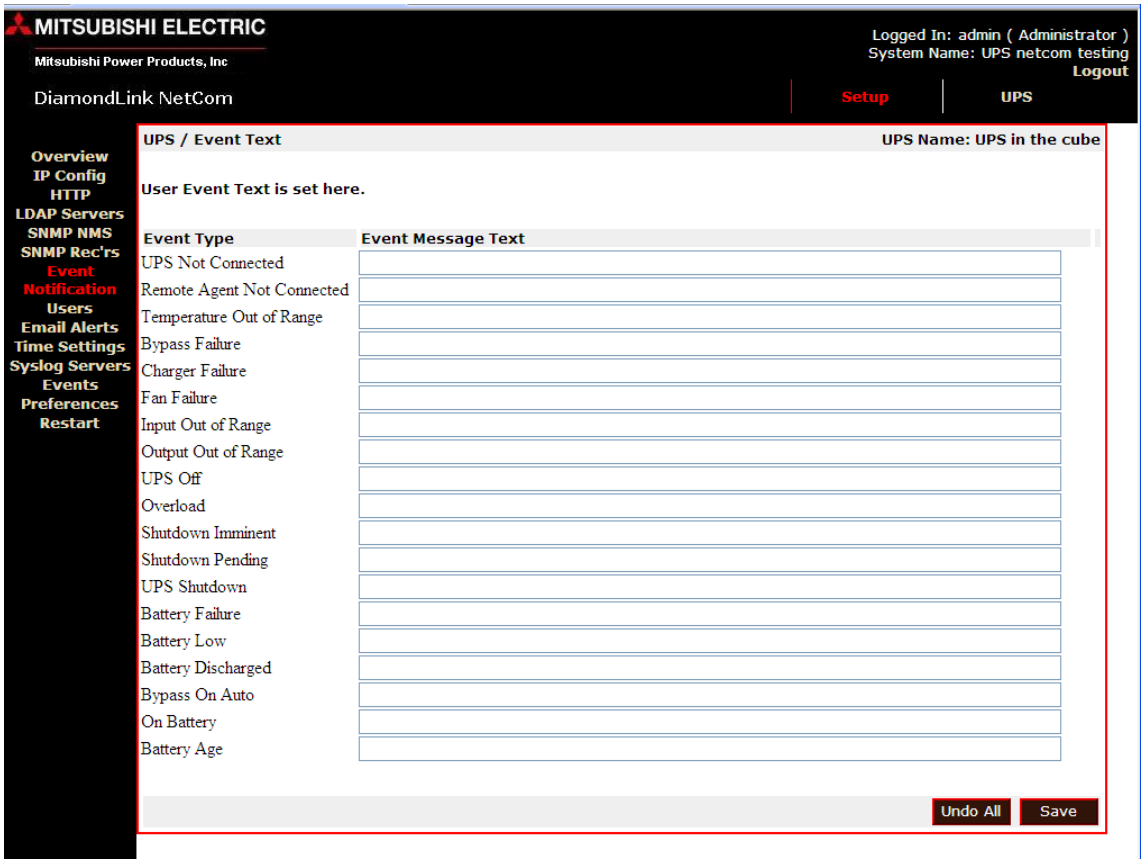


Figure 7.21

In figure 7.21 the user has the ability to redefine the event messages that are displayed in the body of the email. After changes are entered or changed the save button must be selected. If the event name is not change the default event type will be sent out.

7.19 Users/Setup/Users

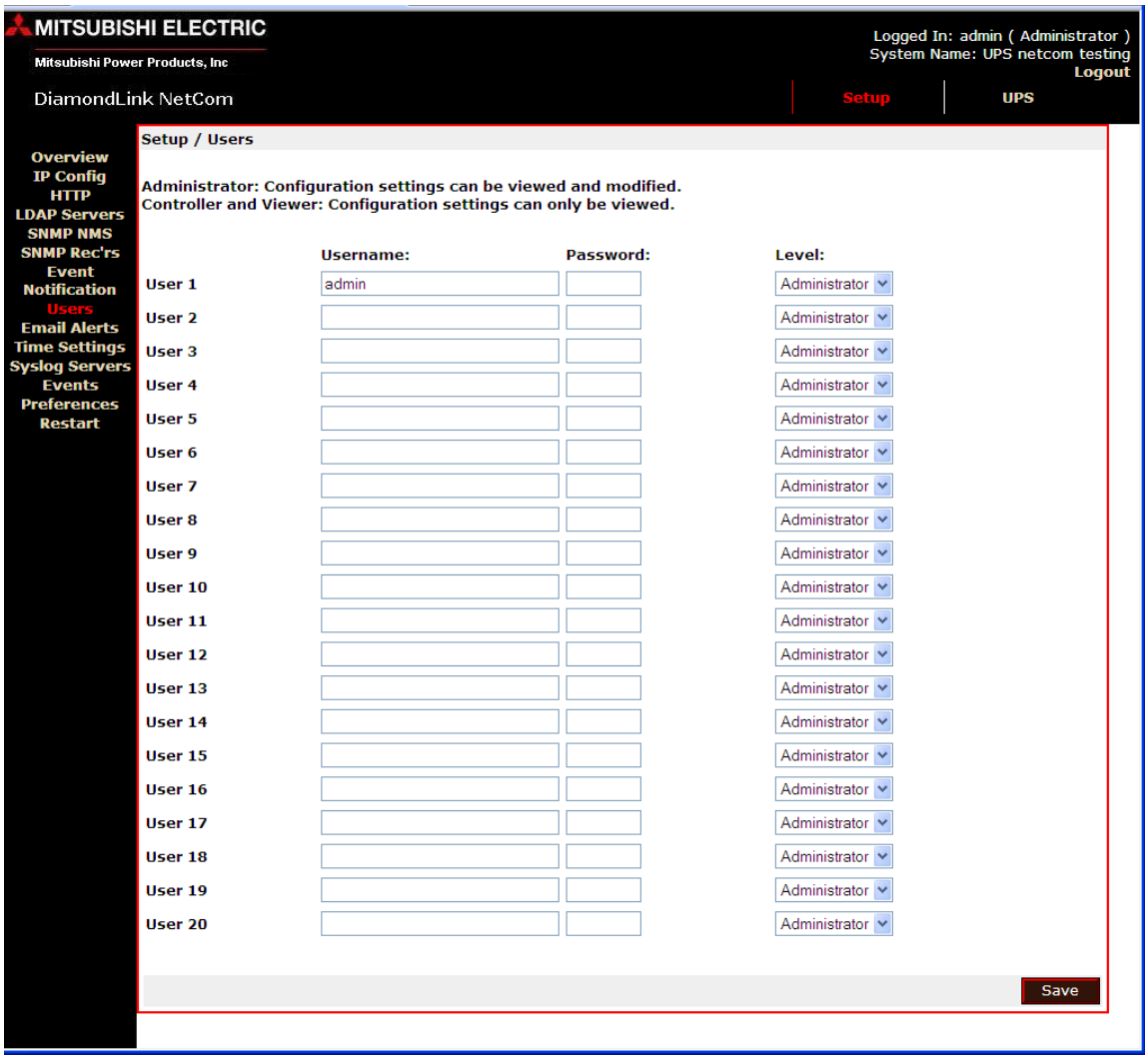


Figure 7.22

The Netcom has three security levels that can be selected; Administrator, controller, and viewer.
Administrator allows the user full access to the Netcom and the ability to make changes and send test emails and shutdowns.
Controller and Viewer allow the user to view the information only.

7.20 Email Alerts/ Setup/ Email Alerts

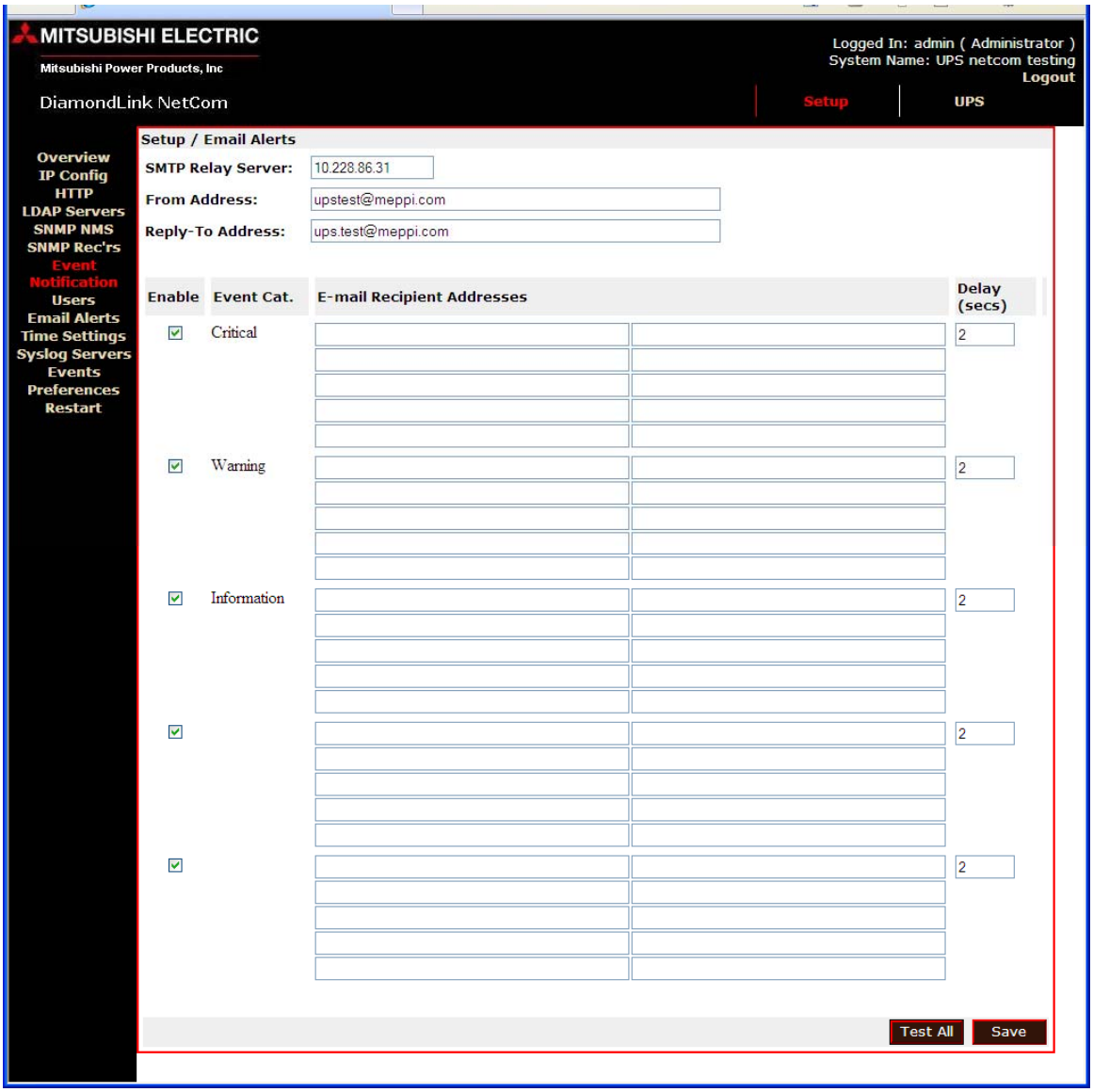


Figure 7.23

In this screen the user can enter the email addresses of the individual/groups emails. Any changes made to this screen will affect the **Email Alerts** and **SNMP (receivers)** pages. The SMTP server address must be entered and the Enable check box must be selected for e-mails. The delay timer will start when an e-mail able event occurs; if the event clears before the timer expires an email will NOT be sent.

The **Test All** button on the bottom right will send a test email to all email addresses added to the screen.

7.21 Time Setting/ Setup/ Time Settings

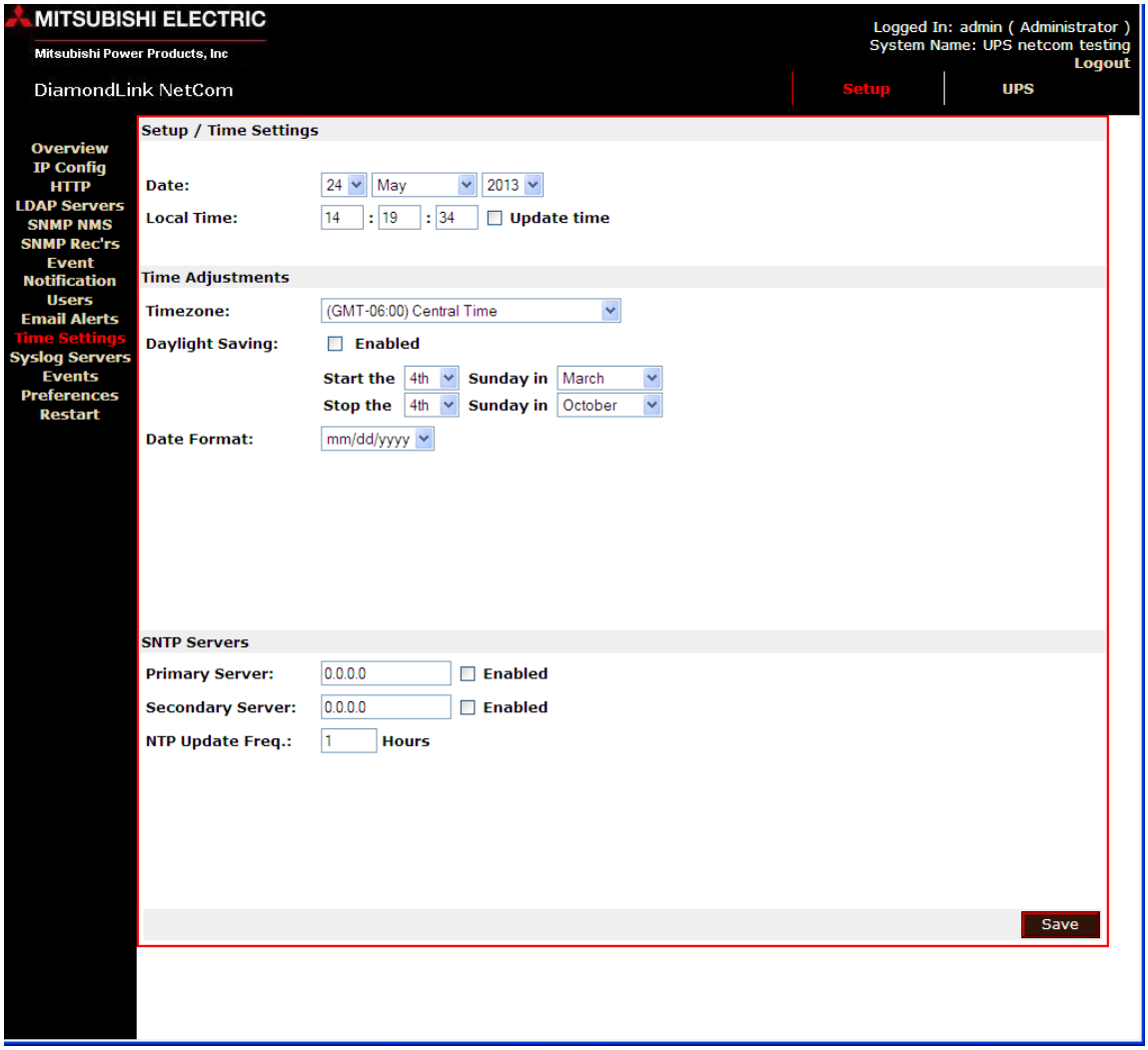


Figure 7.24

This screen is used to set the time and date.

7.22 Syslog Servers/ Setup/ Syslog Servers

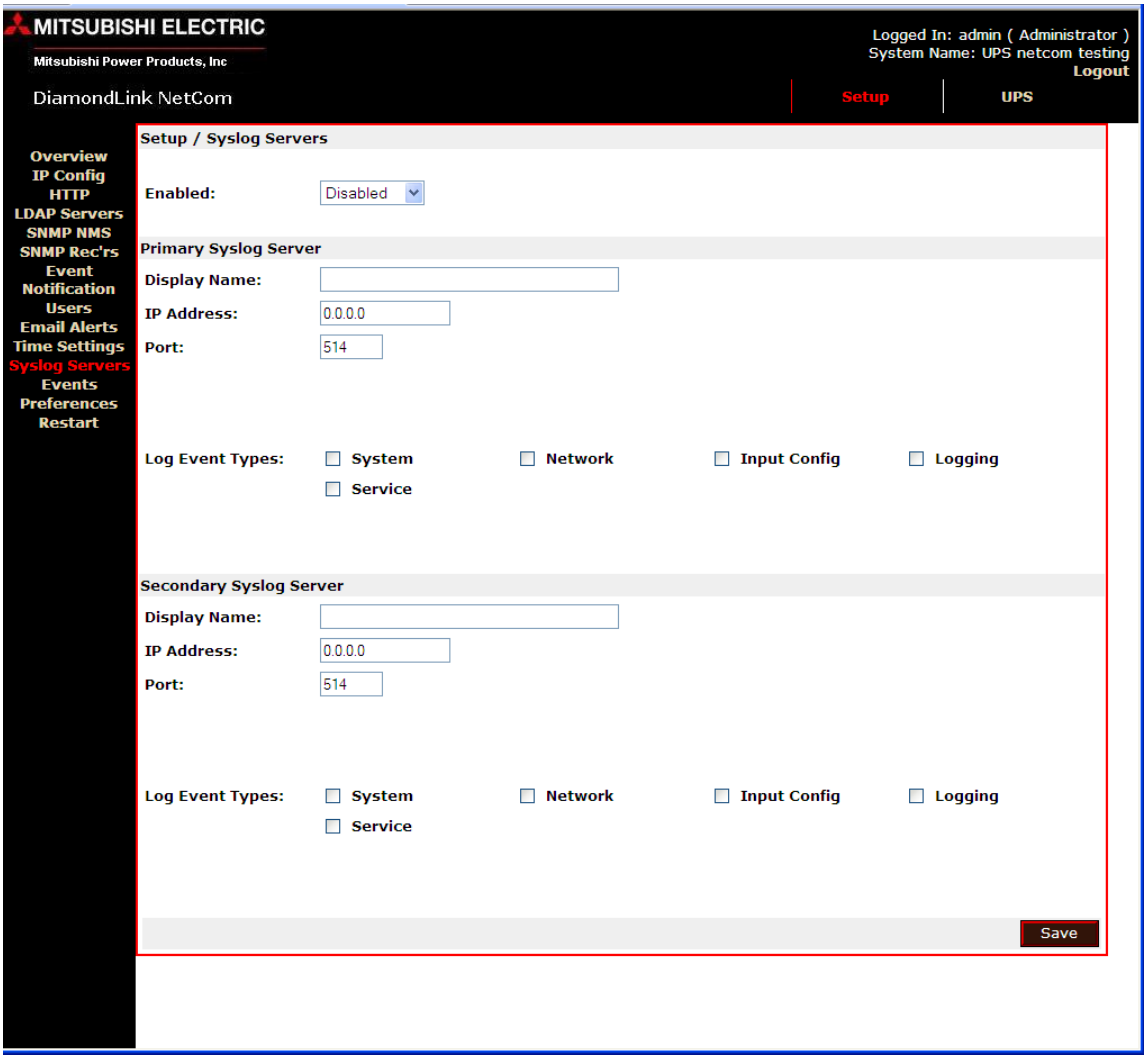


Figure 7.25

The Syslog Servers it not currently used in the Netcom2 and is not currently supported by Mitsubishi.

7.23 Events/ View/ Events

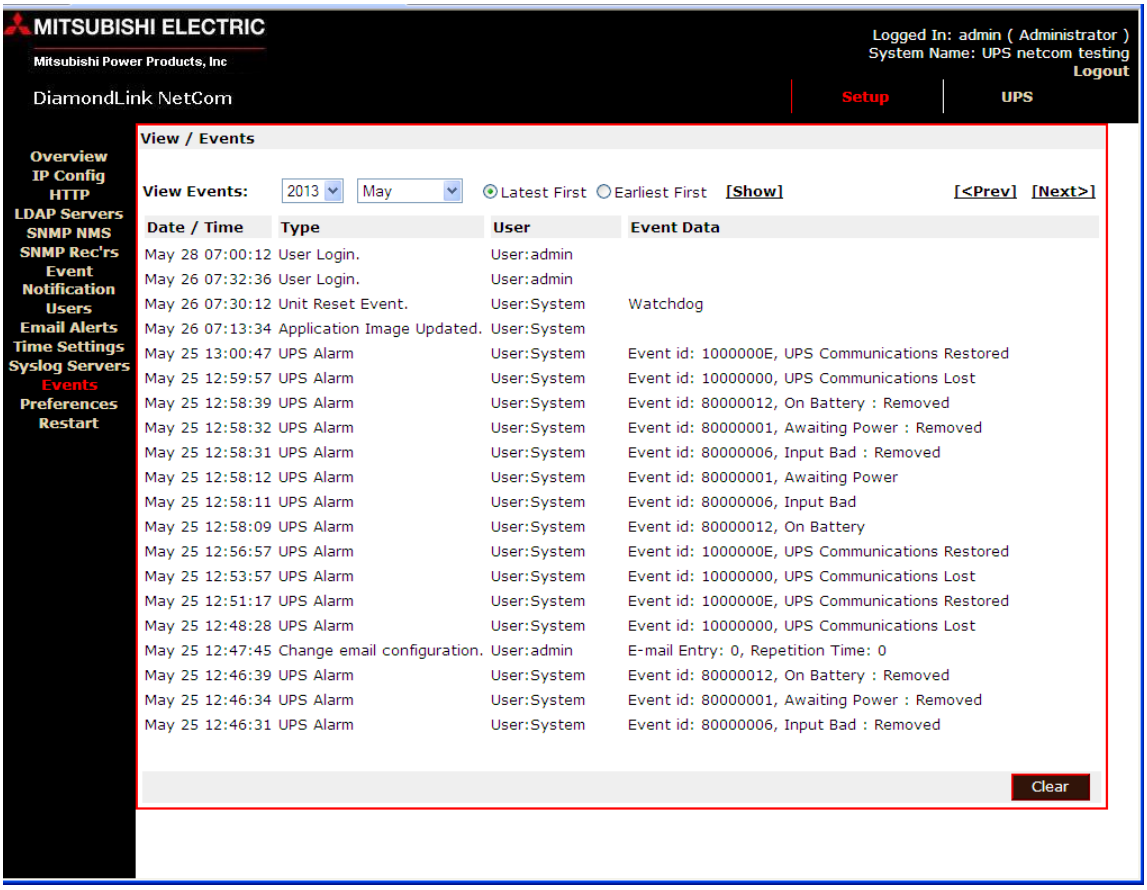


Figure 7.26

In the events page the user can view the past UPS events that were recorded by the Netcom. The user has the ability to view a specific month in a year by using the drop down boxes.

7.24 Preferences/ Preferences Page

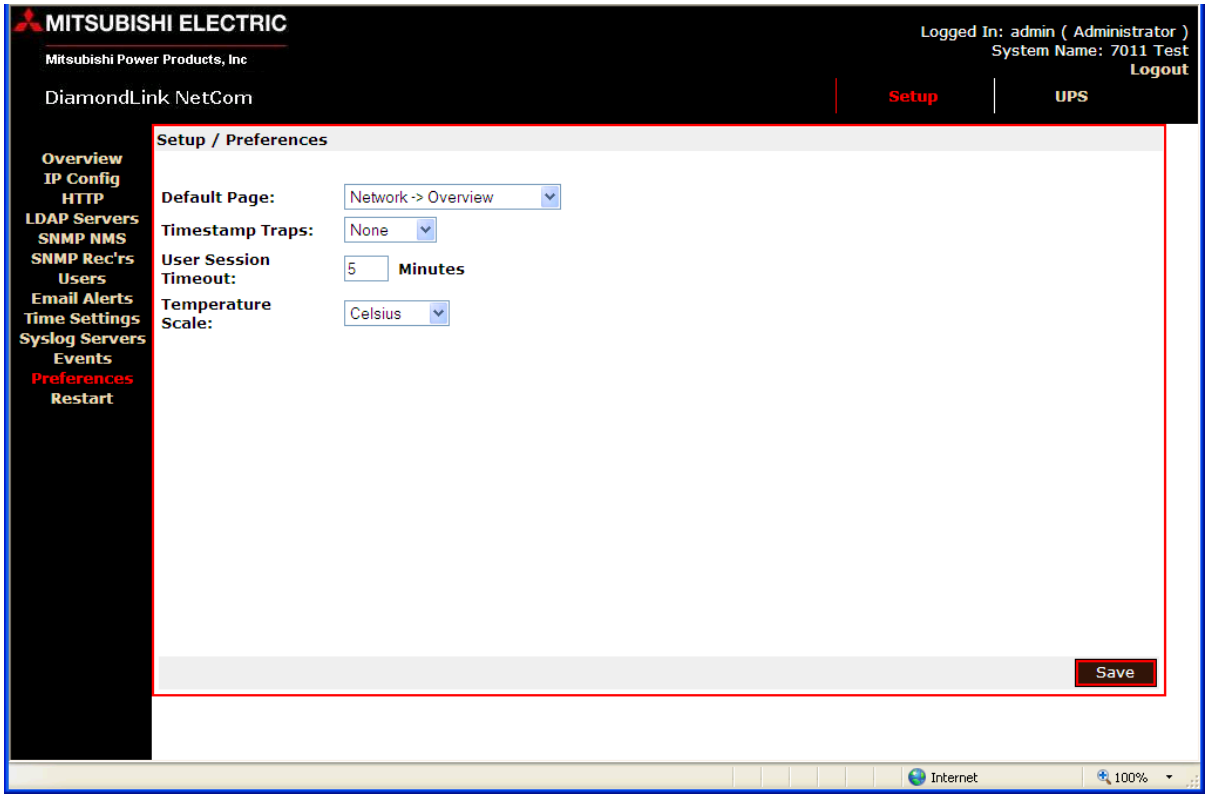


Figure 7.27

The Setup/Preferences page is used to set the default page of the Netcom. This page allows the user to set the page that will be displayed after the initial log in session. The default page and user session timeout options are set using the drop down box.

The temperature scale option is a function not used by the UPS.

7.25 Restart/Restart Page

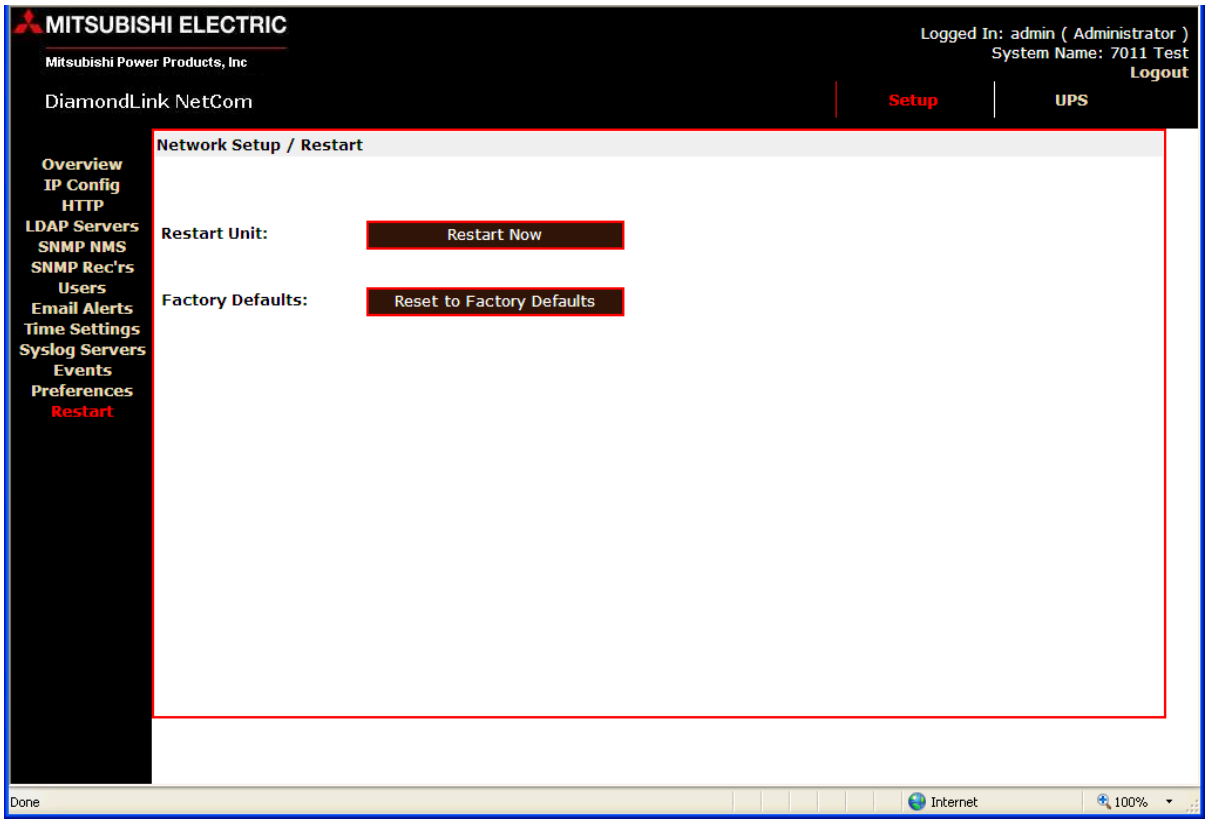


Figure 7.28

The restart function will reset the unit's runtime and will restart the Netcom. The *reset to factory defaults* will reset many of the Netcom's setting, if this option must be performed record all values. The IP address will have to be reset when resetting to factory defaults, but the Netcom will allow access one time after the reset to set the IP information.

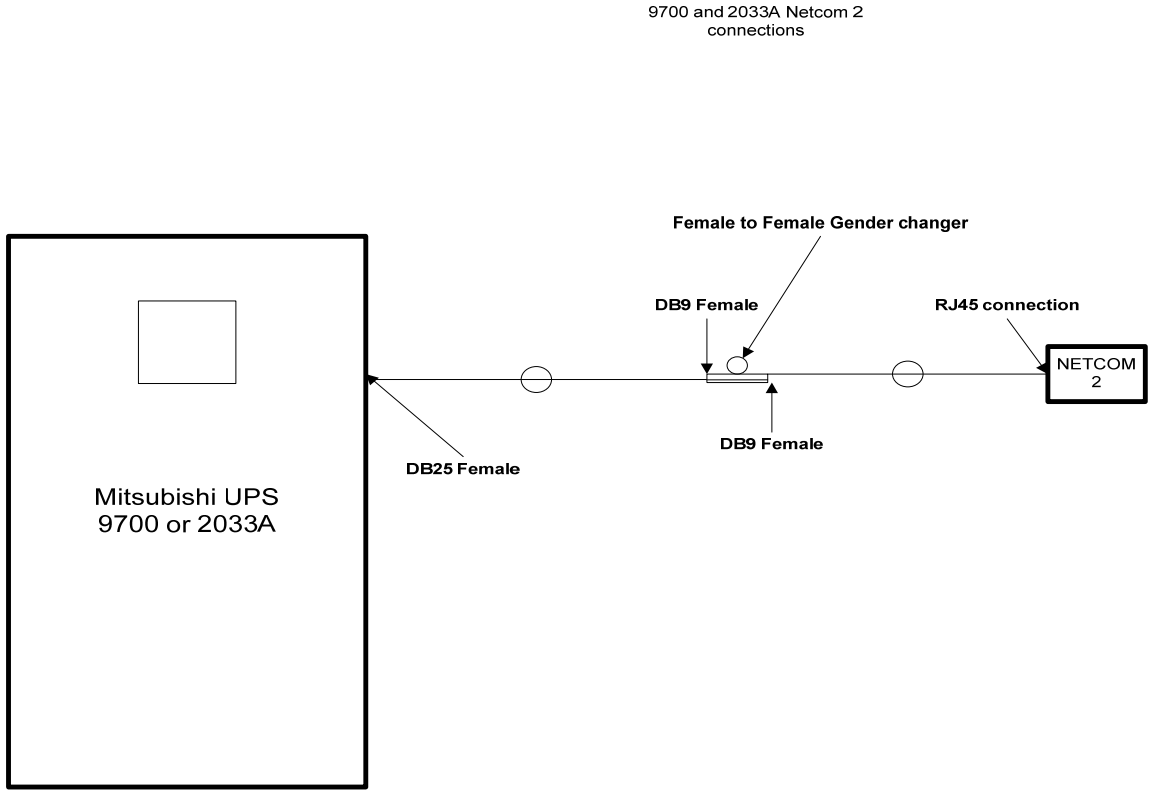
APPENDIX A RJ45 to DB9 pin out

Appendix A: RJ45 to DE9 connection

RS232 Wiring Connections: Netcom-2 to PC Com Port.

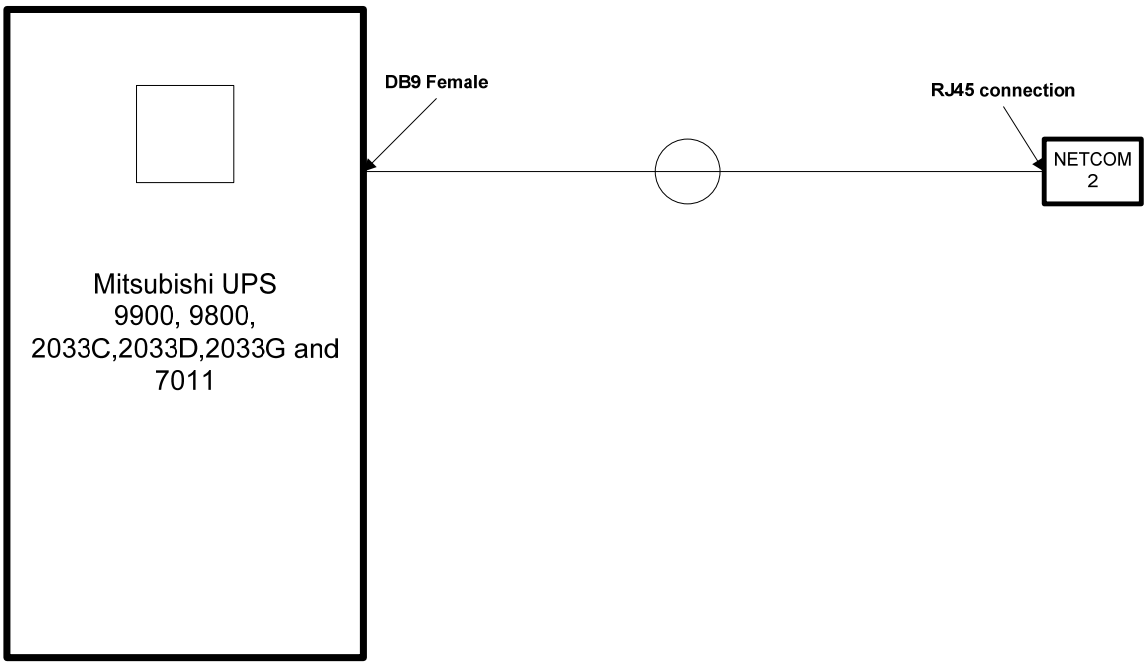
Netcom-2				**PC**
RJ45				**D sub**
Ground	**1**	< ---------- >	**5**	
RS232 RxD (i/p)	**2**	< ----------	**3**	TxD (o/p) RS232
Do Not Connect	**3**			
Do Not Connect	**4**			
Do Not Connect	**5**			
Do Not Connect	**6**			
RS232 TxD (o/p)	**7**	---------- >	**2**	RxD (i/p) RS232
Ground	**8**	< ---------- >	**5**	

APPENDIX B 9700 and 2033A connection



APPENDIX C SEC connections

9800, 9900, 2033G,
2033C, 2033D, and 7011
Netcom 2 connections



APPENDIX D MIBS

Appendix B: MIB file

```
-- Mitsubishi.mib  - MIB file for Mitsubishi UPSs

UPS-MIB DEFINITIONS ::= BEGIN

IMPORTS
        TRAP-TYPE
                FROM RFC-1215
        DisplayString
                FROM RFC1213-MIB
        OBJECT-TYPE
                FROM RFC-1212
        Gauge, Counter, TimeTicks, mgmt
                FROM RFC1155-SMI
            ;

PositiveInteger         ::= INTEGER
NonNegativeInteger      ::= INTEGER
TimeStamp               ::= TimeTicks
TimeInterval            ::= INTEGER (0..2147483647)
TestAndIncr             ::= INTEGER (0..2147483647)
AutonomousType          ::= DisplayString

Tag               OBJECT IDENTIFIER ::= { enterprises 13891 }
MitsubishiUPS     OBJECT IDENTIFIER ::= { Tag 101 }

upsIdent OBJECT IDENTIFIER ::= { MitsubishiUPS 1 }

upsIdentManufacturer OBJECT-TYPE
    SYNTAX  DisplayString
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The name of the UPS manufacturer."
    ::= { upsIdent 1 }

upsIdentModel OBJECT-TYPE
    SYNTAX  DisplayString
    ACCESS  read-only
    STATUS  mandatory
```

```
    DESCRIPTION
           "The UPS Model designation."
    ::= { upsIdent 2 }

upsIdentUPSSoftwareVersion OBJECT-TYPE
    SYNTAX  DisplayString
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The UPS firmware/software version(s).  This variable
            may or may not have the same value as
            upsIdentAgentSoftwareVersion in some implementations."
    ::= { upsIdent 3 }

upsIdentAgentSoftwareVersion OBJECT-TYPE
    SYNTAX  DisplayString
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
            "The UPS agent software version.  This variable may or may
             not have the same value as upsIdentUPSSoftwareVersion in
             some implementations."
    ::= { upsIdent 4 }

upsIdentName OBJECT-TYPE
    SYNTAX  DisplayString
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "A string identifying the UPS.  This object should be
            set by the administrator."
    ::= { upsIdent 5 }

upsIdentAttachedDevices OBJECT-TYPE
    SYNTAX  DisplayString
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "A string identifying the devices attached to the output
            of the UPS.  This object should be set by the
administrator."
    ::= { upsIdent 6 }

upsBattery OBJECT IDENTIFIER ::= { MitsubishiUPS 2 }

upsBatteryStatus OBJECT-TYPE
    SYNTAX  INTEGER
    {
        unknown(1),
        batteryNormal(2),
        batteryLow(3),
        batteryDepleted(4)
    }
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
```

```
           "The indication of the capacity remaining in the UPS
batteries.
            A value of batteryNormal indicates a normal battery
condition.
            A value of batteryLow indicates the remaining battery run-
time
            will not maintain the output load for an extended period of
time.
            A value of batteryDepleted indicates that the UPS will be
unable
            to sustain the present load when and if the utility power
is lost."
    ::= { upsBattery 1 }

upsSecondsOnBattery OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS seconds
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "If the unit is on battery power, the elapsed time in
seconds
            since the UPS last switched to battery power, or the time
since
            the network management system was last restarted, whichever
is less.
            Zero shall be returned if the unit is not on battery
power."
    ::= { upsBattery 2 }

upsEstimatedMinutesRemaining OBJECT-TYPE
    SYNTAX  PositiveInteger     -- UNITS minutes
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "An estimate of the time in minutes until the battery is
depleted
            under the present load conditions if the utility power is
off and
            remains off, or if it were to be lost and remain off."
    ::= { upsBattery 3 }

upsEstimatedChargeRemaining OBJECT-TYPE
    SYNTAX  INTEGER     -- UNITS percent
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "An estimate of the battery charge remaining expressed as a
            percent of full charge."
    ::= { upsBattery 4 }

upsBatteryVoltage OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 Volt DC
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The magnitude of the present battery voltage (0.1 Volt
DC)."
```

```
    ::= { upsBattery 5 }

upsBatteryCurrent OBJECT-TYPE
    SYNTAX  INTEGER (-2147483648..2147483647)   -- UNITS 0.1 Amp DC
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present battery current (0.1 Amp DC)."
    ::= { upsBattery 6 }

upsBatteryTemperature OBJECT-TYPE
    SYNTAX  INTEGER (-2147483648..2147483647)   -- UNITS degrees
Centigrade
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The ambient temperature at or near the UPS Battery casing
(degrees Centigrade)."
    ::= { upsBattery 7 }

upsInput OBJECT IDENTIFIER ::= { MitsubishiUPS 3 }

upsInputLineBads OBJECT-TYPE
    SYNTAX  Counter
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "A count of the number of times the input entered an
            out-of-tolerance condition as defined by the manufacturer.
            This count is incremented by one each time the input
            transitions from zero out-of-tolerance lines to one or more
            input lines out-of-tolerance."
    ::= { upsInput 1 }

upsInputNumLines OBJECT-TYPE
    SYNTAX  NonNegativeInteger
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The number of input lines utilized in this device.  This
            variable indicates the number of rows in the input table."
    ::= { upsInput 2 }

upsInputTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF UpsInputEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
           "A list of input table entries.  The number of entries
            is given by the value of upsInputNumLines."
    ::= { upsInput 3 }

upsInputEntry OBJECT-TYPE
    SYNTAX  UpsInputEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
```

```
            "An entry containing information applicable to a
             particular input line."
    INDEX   { upsInputLineIndex }
    ::= { upsInputTable  1 }

UpsInputEntry ::=
    SEQUENCE
    {
        upsInputLineIndex PositiveInteger,
        upsInputFrequency NonNegativeInteger,
        upsInputVoltage   NonNegativeInteger,
        upsInputCurrent   NonNegativeInteger,
        upsInputTruePower NonNegativeInteger
    }

upsInputLineIndex OBJECT-TYPE
    SYNTAX  PositiveInteger
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The input line identifier."
    ::= { upsInputEntry 1 }

upsInputFrequency OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 Hertz
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present input frequency (0.1 Hertz)."
    ::= { upsInputEntry 2 }

upsInputVoltage OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 RMS Volt
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The magnitude of the present input voltage (0.1 RMS Volt)."
    ::= { upsInputEntry 3 }

upsInputCurrent OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 RMS Amp
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The magnitude of the present input current (0.1 RMS Amp)."
    ::= { upsInputEntry 4 }

upsInputTruePower OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS Watts
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The magnitude of the present input true power (watts)."
    ::= { upsInputEntry 5 }

upsOutput OBJECT IDENTIFIER ::= { MitsubishiUPS 4 }
```

```
upsOutputSource OBJECT-TYPE
    SYNTAX  INTEGER
    {
        other(1),
        none(2),
        normal(3),
        bypass(4),
        battery(5),
        booster(6),
        reducer(7)
    }
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present source of output power.  A value of none (2)
indicates
            there is no source of output power (and therefore no output
power),
            for example, the system has opened the output breaker."
    ::= { upsOutput 1 }

upsOutputFrequency OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 Hertz
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present output frequency (0.1 Hertz)."
    ::= { upsOutput 2 }

upsOutputNumLines OBJECT-TYPE
    SYNTAX  NonNegativeInteger
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The number of output lines utilized in this device.  This
            variable indicates the number of rows in the output table."
    ::= { upsOutput 3 }

upsOutputTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF UpsOutputEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
           "A list of output table entries.  The number of
            entries is given by the value of upsOutputNumLines."
    ::= { upsOutput 4 }

upsOutputEntry OBJECT-TYPE
    SYNTAX  UpsOutputEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
           "An entry containing information applicable to a
            particular output line."
    INDEX   { upsOutputLineIndex }
    ::= { upsOutputTable 1 }
```

```
UpsOutputEntry ::=
    SEQUENCE
    {
        upsOutputLineIndex          PositiveInteger,
        upsOutputVoltage            NonNegativeInteger,
        upsOutputCurrent            NonNegativeInteger,
        upsOutputPower              NonNegativeInteger,
        upsOutputPercentLoad        INTEGER
    }

upsOutputLineIndex OBJECT-TYPE
    SYNTAX  PositiveInteger
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The output line identifier."
    ::= { upsOutputEntry 1 }

upsOutputVoltage OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 RMS Volts
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present output voltage (0.1 RMS Volt)."
    ::= { upsOutputEntry 2 }

upsOutputCurrent OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 RMS Amp
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present output current (0.1 RMS Amp)."
    ::= { upsOutputEntry 3 }

upsOutputPower OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS Watts
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present output true power (watts)."
    ::= { upsOutputEntry 4 }

upsOutputPercentLoad OBJECT-TYPE
    SYNTAX  INTEGER     -- UNITS percent
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The percentage of the UPS power capacity presently being
            used on this output line (the greater of the percent load
            of true power capacity and the percent load of VA."
    ::= { upsOutputEntry 5 }

upsBypass OBJECT IDENTIFIER ::= { MitsubishiUPS 5 }

upsBypassFrequency OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 Hertz
    ACCESS  read-only
```

```
    STATUS  mandatory
    DESCRIPTION
           "The present bypass frequency."
    ::= { upsBypass 1 }

upsBypassNumLines OBJECT-TYPE
    SYNTAX  NonNegativeInteger
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The number of bypass lines utilized in this device.  This
            entry indicates the number of rows in the bypass table."
    ::= { upsBypass 2 }

upsBypassTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF UpsBypassEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
           "A list of bypass table entries.  The number of entries
            is given by the value of upsBypassNumLines."
    ::= { upsBypass 3 }

upsBypassEntry OBJECT-TYPE
    SYNTAX  UpsBypassEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
           "An entry containing information applicable to a
            particular bypass input."
    INDEX   { upsBypassLineIndex }
    ::= { upsBypassTable 1 }

UpsBypassEntry ::=
    SEQUENCE
    {
        upsBypassLineIndex          PositiveInteger,
        upsBypassVoltage            NonNegativeInteger,
        upsBypassCurrent            NonNegativeInteger,
        upsBypassPower              NonNegativeInteger
    }

upsBypassLineIndex OBJECT-TYPE
    SYNTAX  PositiveInteger
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The bypass line identifier."
    ::= { upsBypassEntry 1 }

upsBypassVoltage OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 RMS Volts
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present bypass voltage (0.1 RMS Volt)."
    ::= { upsBypassEntry 2 }
```

```
upsBypassCurrent OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 RMS Amp
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present bypass current (0.1 RMS Amp)."
    ::= { upsBypassEntry 3 }

upsBypassPower OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS Watts
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present true power conveyed by the bypass (watts)."
    ::= { upsBypassEntry 4 }

upsAlarm OBJECT IDENTIFIER ::= { MitsubishiUPS 6 }

upsAlarmsPresent OBJECT-TYPE
    SYNTAX  Gauge
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The present number of active alarm conditions."
    ::= { upsAlarm 1 }

upsAlarmTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF UpsAlarmEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
           "A list of alarm table entries.  Alarms are named by
            an OBJECT IDENTIFIER, upsAlarmDescr, to allow a single
            table to reflect well known alarms plus alarms defined
            by a particular implementation, i.e., as documented in
            the private enterprise MIB definition for the device.
            No two rows will have the same value of upsAlarmDescr,
            since alarms define conditions.  In order to meet this
            requirement, care should be taken in the definition of
            alarm conditions to insure that a system cannot enter
            the same condition multiple times simultaneously.

            The number of rows in the table at any given time is
            reflected by the value of upsAlarmsPresent."
    ::= { upsAlarm 2 }

upsAlarmEntry OBJECT-TYPE
    SYNTAX  UpsAlarmEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
           "An entry containing information applicable to a
            particular alarm."
    INDEX   { upsAlarmId }
    ::= { upsAlarmTable 1 }
```

```
UpsAlarmEntry ::=
    SEQUENCE
    {
        upsAlarmId            PositiveInteger,
        upsAlarmDescr         AutonomousType,
        upsAlarmTime          TimeStamp
    }

upsAlarmId OBJECT-TYPE
    SYNTAX  PositiveInteger
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "A unique identifier for an alarm condition.  This
            value must remain constant."
    ::= { upsAlarmEntry  1 }

upsAlarmDescr OBJECT-TYPE
    SYNTAX  AutonomousType
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "A reference to an alarm description object.  The object
            referenced should not be accessible, but rather be used
            to provide a unique description of the alarm condition."
    ::= { upsAlarmEntry 2 }

upsAlarmTime OBJECT-TYPE
    SYNTAX  TimeStamp
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The value of sysUpTime when the alarm condition was
            detected.  If the alarm condition was detected at the
            time of agent startup and presumably existed before
            agent startup, the value of upsAlarmTime shall equal 0."
    ::= { upsAlarmEntry 3 }

  upsAlarmID OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "A unique identifier for an alarm condition.  This
               value must remain constant."
      ::= { upsAlarm 4 }

  upsAlarmDESCR OBJECT-TYPE
      SYNTAX DisplayString (SIZE(0..63))
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "A reference to an alarm description object.  The object
               references should not be accessible, but rather be used
               to provide a unique description of the alarm condition."
      ::= { upsAlarm 5 }
```

```
upsWellKnownAlarms OBJECT IDENTIFIER ::= { upsAlarm 3 }

upsAlarmBatteryBad OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "One or more batteries have been determined to require
               replacement."
      ::= { upsWellKnownAlarms 1 }

upsAlarmOnBattery OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "The UPS is drawing power from the batteries."
      ::= { upsWellKnownAlarms 2 }

  upsAlarmLowBattery OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
               "The remaining battery run-time is less than or equal
                to upsConfigLowBattTime."
      ::= { upsWellKnownAlarms 3 }

  upsAlarmDepletedBattery OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "The UPS will be unable to sustain the present load
               when and if the utility power is lost."
      ::= { upsWellKnownAlarms 4 }

  upsAlarmTempBad OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "A temperature is out of tolerance."
      ::= { upsWellKnownAlarms 5 }

   upsAlarmInputBad OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
       DESCRIPTION
               "An input condition is out of tolerance."
       ::= { upsWellKnownAlarms  6 }

   upsAlarmOutputBad OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
```

```
       DESCRIPTION
               "An output condition (other than OutputOverload) is
               out of tolerance."
       ::= { upsWellKnownAlarms  7 }

  upsAlarmOutputOverload OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "The output load exceeds the UPS output capacity."
      ::= { upsWellKnownAlarms 8 }

    upsAlarmOnBypass OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
       DESCRIPTION
               "The Bypass is presently engaged on the UPS."
       ::= { upsWellKnownAlarms  9 }

   upsAlarmBypassBad OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
       DESCRIPTION
               "The Bypass is out of tolerance."
       ::= { upsWellKnownAlarms 10 }

 upsAlarmOutputOffAsRequested OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
               "The UPS has shut down as requested, i.e., the output
                is off."
      ::= { upsWellKnownAlarms 11 }

upsAlarmUpsOffAsRequested OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
       DESCRIPTION
               "The entire UPS has shutdown as commanded."
       ::= { upsWellKnownAlarms 12 }

upsAlarmChargerFailed OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
       DESCRIPTION
               "An uncorrected problem has been detected within the
                UPS charger subsystem."
       ::= { upsWellKnownAlarms 13 }

upsAlarmUpsOutputOff OBJECT-TYPE
      SYNTAX INTEGER
```

```
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
               "The output of the UPS is in the off state."
      ::= { upsWellKnownAlarms 14 }

upsAlarmUpsSystemOff OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
       DESCRIPTION
               "The UPS system is in the off state."
       ::= { upsWellKnownAlarms 15 }

upsAlarmFanFailure OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
               "The failure of one or more fans in the UPS has been
               detected."
       ::= { upsWellKnownAlarms 16 }

upsAlarmFuseFailure OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
               "The failure of one or more fuses has been detected."
      ::= { upsWellKnownAlarms 17 }

upsAlarmGeneralFault OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
               "A general fault in the UPS has been detected."
      ::= { upsWellKnownAlarms 18 }

 upsAlarmDiagnosticTestFailed OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "The result of the last diagnostic test indicates a
               failure."
      ::= { upsWellKnownAlarms 19 }

  upsAlarmCommunicationsLost OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "A problem has been encountered in the
               communications between the agent and the UPS."
      ::= { upsWellKnownAlarms 20 }
```

```
upsAlarmAwaitingPower OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
               "The UPS output is off and the UPS is awaiting the
                return of input power."
      ::= { upsWellKnownAlarms 21 }

 upsAlarmShutdownPending OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
              "A upsShutdownAfterDelay countdown is underway."
      ::= { upsWellKnownAlarms 22 }

  upsAlarmShutdownImminent OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
       DESCRIPTION
               "The UPS will turn off power to the load in less than
                5 seconds; this may be either a timed shutdown or a
                low battery shutdown."
      ::= { upsWellKnownAlarms 23 }

  upsAlarmTestInProgress OBJECT-TYPE
      SYNTAX INTEGER
      ACCESS read-only
      STATUS mandatory
       DESCRIPTION
               "A test is in progress, as initiated and indicated by
                the Test Group.  Tests initiated via other
                implementation-specific mechanisms can indicate the
                presence of the testing in the alarm table, if
                desired, via a OBJECT-TYPE macro in the MIB
                document specific to that implementation and are
                outside the scope of this OBJECT-TYPE."
       ::= { upsWellKnownAlarms 24 }

upsTest OBJECT IDENTIFIER ::= { MitsubishiUPS 7 }

  upsTestId OBJECT-TYPE
      SYNTAX OBJECT IDENTIFIER
      ACCESS read-write
      STATUS mandatory
      DESCRIPTION
              "The test named by an OBJECT IDENTIFIER which
               allows a standard mechanism for the initiation of
               a test, including the well known tests identified in
               this document."
      ::= { upsTest 1 }

upsTestSpinLock OBJECT-TYPE
    SYNTAX  TestAndIncr
    ACCESS  read-write
```

```
    STATUS  mandatory
    DESCRIPTION
           "A spin lock on the test subsystem."
    ::= { upsTest 2 }

upsTestResultsSummary OBJECT-TYPE
    SYNTAX  INTEGER
    {
        donePass(1),
        doneWarning(2),
        doneError(3),
        aborted(4),
        inProgress(5),
        noTestsInitiated(6)
    }
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The results of the current or last UPS diagnostics
            test performed.  The values for donePass(1),
            doneWarning(2), and doneError(3) indicate that the
            test completed either successfully, with a warning, or
            with an error, respectively.  The value aborted(4) is
            returned for tests which are aborted by setting the
            value of upsTestId to upsTestAbortTestInProgress.
            Tests which have not yet concluded are indicated by
            inProgress(5).  The value noTestsInitiated(6)
            indicates that no previous test results are available,
            such as is the case when no tests have been run since
            the last reinitialization of the network management
            subsystem and the system has no provision for non-
            volatile storage of test results."
    ::= { upsTest 3 }

upsTestResultsDetail OBJECT-TYPE
    SYNTAX  DisplayString
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "Additional information about upsTestResultsSummary.
            If no additional information available, a zero length
            string is returned."
    ::= { upsTest 4 }

upsTestStartTime OBJECT-TYPE
    SYNTAX  TimeStamp
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The value of sysUpTime at the time the test in
            progress was initiated, or, if no test is in progress,
            the time the previous test was initiated.  If the
            value of upsTestResultsSummary is noTestsInitiated(6),
            upsTestStartTime has the value 0."
    ::= { upsTest 5 }

upsTestElapsedTime OBJECT-TYPE
```

```
    SYNTAX  TimeInterval
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The amount of time, in TimeTicks, since the test in
            progress was initiated, or, if no test is in progress,
            the previous test took to complete.  If the value of
            upsTestResultsSummary is noTestsInitiated(6),
            upsTestElapsedTime has the value 0."
    ::= { upsTest 6 }

upsWellKnownTests OBJECT IDENTIFIER ::= { upsTest  7 }

upsTestNoTestsInitiated OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
           "No tests have been initiated and no test is in progress."
    ::= { upsWellKnownTests 1 }

upsTestAbortTestInProgress OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
           "The test in progress is to be aborted / the test in
            progress was aborted."
    ::= { upsWellKnownTests 2 }

upsTestGeneralSystemsTest OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
           "The manufacturer's standard test of UPS device systems."
    ::= { upsWellKnownTests  3 }

upsTestQuickBatteryTest OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
           "A test that is sufficient to determine if the battery
            needs replacement."
    ::= { upsWellKnownTests 4 }

upsTestDeepBatteryCalibration OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
           "The system is placed on battery to a discharge level,
            set by the manufacturer, sufficient to determine
            battery replacement and battery run-time with a high
            degree of confidence.  WARNING:  this test will leave
            the battery in a low charge state and will require
```

```
            time for recharging to a level sufficient to provide
            normal battery duration for the protected load."
    ::= { upsWellKnownTests 5 }

upsControl OBJECT IDENTIFIER ::= { MitsubishiUPS 8 }

upsShutdownType OBJECT-TYPE
    SYNTAX  INTEGER
    {
        output(1),
        system(2)
    }
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "This object determines the nature of the action to be
            taken at the time when the countdown of the
            upsShutdownAfterDelay and upsRebootWithDuration
            objects reaches zero.

            Setting this object to output(1) indicates that
            shutdown requests should cause only the output of the
            UPS to turn off.  Setting this object to system(2)
            indicates that shutdown requests will cause the entire
            UPS system to turn off."
    ::= { upsControl 1 }

upsShutdownAfterDelay OBJECT-TYPE
    SYNTAX  INTEGER     -- UNITS seconds
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "Setting this object will shutdown (i.e., turn off)
            either the UPS output or the UPS system (as determined
            by the value of upsShutdownType at the time of
            shutdown) after the indicated number of seconds, or
            less if the UPS batteries become depleted. Setting
            this object to 0 will cause the shutdown to occur
            immediately.  Setting this object to -1 will abort the
            countdown.  If the system is already in the desired
            state at the time the countdown reaches 0, then
            nothing will happen.  That is, there is no additional
            action at that time if upsShutdownType = system and
            the system is already off.  Similarly, there is no
            additional action at that time if upsShutdownType =
            output and the output is already off.  When read,
            upsShutdownAfterDelay will return the number of
            seconds remaining until shutdown, or -1 if no shutdown
            countdown is in effect.  On some systems, if the agent
            is restarted while a shutdown countdown is in effect,
            the countdown may be aborted.  Sets to this object
            override any upsShutdownAfterDelay already in effect."
    ::= { upsControl 2 }

upsStartupAfterDelay OBJECT-TYPE
    SYNTAX  INTEGER     -- UNITS seconds
    ACCESS  read-write
```

```
    STATUS  mandatory
    DESCRIPTION
           "Setting this object will start the output after the
            indicated number of seconds, including starting the
            UPS, if necessary.  Setting this object to 0 will
            cause the startup to occur immediately.  Setting this
            object to -1 will abort the countdown.  If the output
            is already on at the time the countdown reaches 0,
            then nothing will happen.  Sets to this object
            override the effect of any upsStartupAfterDelay
            countdown or upsRebootWithDuration countdown in
            progress.  When read, upsStartupAfterDelay will return
            the number of seconds until startup, or -1 if no
            startup countdown is in effect.  If the countdown
            expires during a utility failure, the startup shall
            not occur until the utility power is restored.  On
            some systems, if the agent is restarted while a
            startup countdown is in effect, the countdown is
            aborted."
    ::= { upsControl 3 }

upsRebootWithDuration OBJECT-TYPE
    SYNTAX  INTEGER     -- UNITS seconds
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "Setting this object will immediately shutdown (i.e.,
            turn off) either the UPS output or the UPS system (as
            determined by the value of upsShutdownType at the time
            of shutdown) for a period equal to the indicated
            number of seconds, after which time the output will be
            started, including starting the UPS, if necessary.  If
            the number of seconds required to perform the request
            is greater than the requested duration, then the
            requested shutdown and startup cycle shall be
            performed in the minimum time possible, but in no case
            shall this require more than the requested duration
            plus 60 seconds.  When read, upsRebootWithDuration
            shall return the number of seconds remaining in the
            countdown, or -1 if no countdown is in progress.  If
            the startup should occur during a utility failure, the
            startup shall not occur until the utility power is
            restored."
    ::= { upsControl 4 }

upsAutoRestart OBJECT-TYPE
    SYNTAX  INTEGER
    {
        on(1),
        off(2)
    }
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "Setting this object to 'on' will cause the UPS system
            to restart after a shutdown if the shutdown occurred
            during a power loss as a result of either a
```

```
            upsShutdownAfterDelay or an internal battery depleted
            condition.  Setting this object to 'off' will prevent
            the UPS system from restarting after a shutdown until
            an operator manually or remotely explicitly restarts
            it.  If the UPS is in a startup or reboot countdown,
            then the UPS will not restart until that delay has
            been satisfied."
    ::= { upsControl 5 }

upsConfig OBJECT IDENTIFIER ::= { MitsubishiUPS 9 }

upsConfigInputVoltage OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS RMS Volts
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "The magnitude of the nominal input voltage (RMS Volts).
            On those systems which support read-write access to this
            object, if there is an attempt to set this variable to
            a value that is not supported, the request must be
            rejected and the agent shall respond with an
            appropriate error message, i.e., badValue for SNMPv1,
            or inconsistentValue for SNMPv2."
    ::= { upsConfig 1 }

upsConfigInputFreq OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 Hertz
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "The nominal input frequency (0.1 Hertz).  On those systems
            which support read-write access to this object, if there is
            an attempt to set this variable to a value that is not
            supported, the request must be rejected and the agent
            shall respond with an appropriate error message, i.e.,
            badValue for SNMPv1, or inconsistentValue for SNMPv2."
    ::= { upsConfig 2 }

upsConfigOutputVoltage OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS RMS Volts
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "The magnitude of the nominal output voltage (RMS Volts).
            On those systems which support read-write access to this
            object, if there is an attempt to set this variable to
            a value that is not supported, the request must be
            rejected and the agent shall respond with an
            appropriate error message, i.e., badValue for SNMPv1,
            or inconsistentValue for SNMPv2."
    ::= { upsConfig 3 }

upsConfigOutputFreq OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS 0.1 Hertz
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
```

```
            "The nominal output frequency (0.1 Hertz).  On those systems
             which support read-write access to this object, if there is
             an attempt to set this variable to a value that is not
             supported, the request must be rejected and the agent
             shall respond with an appropriate error message, i.e.,
             badValue for SNMPv1, or inconsistentValue for SNMPv2."
    ::= { upsConfig 4 }

upsConfigOutputVA OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS Volt-Amps
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The magnitude of the nominal Volt-Amp rating (Volt-Amps)."
    ::= { upsConfig 5 }

upsConfigOutputPower OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS Watts
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
           "The magnitude of the nominal true power rating (watts)."
    ::= { upsConfig 6 }

upsConfigLowBattTime OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS minutes
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "The value of upsEstimatedMinutesRemaining at which a
            lowBattery condition is declared.  For agents which
            support only discrete (discontinuous) values, then the
            agent shall round up to the next supported value.  If
            the requested value is larger than the largest
            supported value, then the largest supported value
            shall be selected."
    ::= { upsConfig 7 }

upsConfigAudibleStatus OBJECT-TYPE
    SYNTAX  INTEGER
    {
        disabled(1),
        enabled(2),
        muted(3)
    }
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "The requested state of the audible alarm.  When in
            the disabled state, the audible alarm should never
            sound.  The enabled state is self-describing.  Setting
            this object to muted(3) when the audible alarm is
            sounding shall temporarily silence the alarm.  It will
            remain muted until it would normally stop sounding and
            the value returned for read operations during this
            period shall equal muted(3).  At the end of this
            period, the value shall revert to enabled(2).  Writes
```

```
            of the value muted(3) when the audible alarm is not
            sounding shall be accepted but otherwise shall have no
            effect."
    ::= { upsConfig 8 }

upsConfigLowVoltageTransferPoint OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS RMS Volts
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "The minimum input line voltage (RMS Volts) allowed before
            the UPS system transfers to battery backup."
    ::= { upsConfig 9 }

upsConfigHighVoltageTransferPoint OBJECT-TYPE
    SYNTAX  NonNegativeInteger  -- UNITS RMS Volts
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
           "The maximum line voltage (RMS Volts) allowed before the UPS
            system transfers to battery backup."
    ::= { upsConfig  10 }

-- UPS trap information group
upsTrapInfo OBJECT IDENTIFIER ::= { MitsubishiUPS 10 }

trapCode OBJECT-TYPE
      SYNTAX Unsigned32
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
            "A number identifying the event for that last trap that was
sent."
      ::= { upsTrapInfo 1 }

trapDescription OBJECT-TYPE
      SYNTAX DisplayString (SIZE (0..63))
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
            "A string identifying the event for that last trap that was
sent."
      ::= { upsTrapInfo 2 }

-- UPS Traps
-- upsTraps OBJECT IDENTIFIER ::= { Tag 101 }

alarmCritical TRAP-TYPE
      ENTERPRISE MitsubishiUPS
      VARIABLES  { trapCode, trapDescription }
      DESCRIPTION
            "Critical alarm."
      ::= 1

alarmWarning TRAP-TYPE
      ENTERPRISE MitsubishiUPS
      VARIABLES  { trapCode, trapDescription }
```

```
      DESCRIPTION
            "Warning alarm."
      ::= 2

alarmInformation TRAP-TYPE
      ENTERPRISE MitsubishiUPS
      VARIABLES  { trapCode, trapDescription }
      DESCRIPTION
            "Information alarm."
      ::= 3

upsAlarmCleared TRAP-TYPE
      ENTERPRISE MitsubishiUPS
      VARIABLES  { trapCode, trapDescription }
      DESCRIPTION
            "Alarm cleared."
      ::= 4

upsTrapInitialization TRAP-TYPE
      ENTERPRISE  MitsubishiUPS
      VARIABLES   { upsIdentName }
      DESCRIPTION
            "This trap is sent each time a NetCom device is
initialized."
      ::= 5

END
```