



**NRGence™ Energy Box  
EC1000 / EC2004  
User Manual**



## FCC, CE Information

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

## RoHS

This product is RoHS compliant.

## SJ/T 11364-2006

The following contains information that relates to China.

部件名称	有毒有害物质或元素					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
电器部件	●	○	○	○	○	○
机构部件	○	○	○	○	○	○

- : 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006规定的限量要求之下。
- : 表示符合欧盟的豁免条款, 但该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。
- ×: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。



## User Information

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### Online Registration

Be sure to register your product at our online support center:

International	<a href="http://support.aten.com">http://support.aten.com</a>
North America	<a href="http://www.aten-usa.com/product_registration">http://www.aten-usa.com/product_registration</a>

### Telephone Support

For telephone support, call this number:

International	886-2-8692-6959
China	86-10-5255-0110
Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-888-999-ATEN ext 4988
United Kingdom	44-8-4481-58923

### User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

## Package Contents

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The EC1000 / EC2004 package consists of:

- 1 EC1000 / EC2004 Energy Box
- 1 Power Adapter
- 1 Mounting Kit
- 4 RJ-45 Cables
- 1 CD ROM (Manual, eco Sensors Software)
- 1 User Instructions\*

Check to make sure that all of the components are present and in good order. If anything is missing, or was damaged in shipping, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the switch or to any other devices on the EC1000 / EC2004 installation.

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\* Features may have been added to the EC1000 / EC2004 since this manual was published. Please visit our website to download the most up-to-date version.

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## About This Manual

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This User Manual is provided to help you get the most from your EC1000 / EC2004 system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

**Chapter 1, Introduction,** introduces you to the EC1000 / EC2004 System. Its purpose, features and benefits are presented, and its front and back panel components are described.

**Chapter 2, Hardware Setup,** provides step-by-step instructions for setting up your installation, and explains some basic operation procedures.

**Chapter 3, Front Panel Operation,** explains how to operate the EC1000 / EC2004 from the local console.


**Chapter 4, EC1000 Browser Operation,** describes how to login to the EC1000 with a browser, and explains the functions of the icons and buttons that appear on the opening page, and explains the administrative procedures that are employed to configure the EC1000's working environment.

**Chapter 5, EC2004 Browser Operation,** describes how to login to the EC2004 with a browser, and explains the functions of the icons and buttons that appear on the opening page, and explains the administrative procedures that are employed to configure the EC2004's working environment.

**An Appendix,** at the end of the manual provides technical and troubleshooting information.

## **Conventions**

This manual uses the following conventions:

- Monospaced      Indicates text that you should key in.
- [ ]                Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
- 1.                 Numbered lists represent procedures with sequential steps.
- ◆                 Bullet lists provide information, but do not involve sequential steps.
- Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
-                 Indicates critical information.

## **Product Information**

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For information about all ATEN products and how they can help you connect without limits, visit ATEN on the Web or contact an ATEN Authorized Reseller. Visit ATEN on the Web for a list of locations and telephone numbers:

International	<a href="http://www.aten.com">http://www.aten.com</a>
North America	<a href="http://www.aten-usa.com">http://www.aten-usa.com</a>

# Chapter 1

## Introduction

### Overview

---

The EC1000 / EC2004 Energy Box solution is the latest evolution of ATEN's energy intelligence product line NRGence™. The EC1000 monitors the electrical current of 4 Energy PDU's, along with room temperature, humidity, and differential pressure using environmental sensors. The EC2004 has 4 ports to monitor the electrical current of two PDUs and the electrical current + voltage of two additional PDUs; and monitors room temperature, humidity and differential pressure using four environmental sensors, plus a 4-pin dry contact Rack Door Sensor port for external sensors to monitor rack door access. Both Energy Boxes provide instant real-time power management and energy-saving control for data centers—allowing you to upgrade and maintain your current IT power resources quickly and cost-effectively.

The EC1000 / EC2004 Energy Box has four RJ-45 ports to connect to four Energy PDUs and four RJ-11 ports to connect external sensors to monitor environmental conditions. Each environmental sensor can provide measured readings of temperature, humidity, and differential pressure from separate areas of a room, giving you a wide range of monitoring and protection.

The EC1000 / EC2004 features real-time status, system logs, threshold alerts, and event notification. The Energy Box logs power and environmental conditions according to customizable minimum/maximum thresholds set for; current, voltage\*, temperature, humidity, and differential pressure.

The Energy Box allows the power and environmental data to be monitored by display at the rack or remotely for easy viewing and maintenance. The Energy Box is a standalone unit with over IP monitoring that is controlled by a built-in web GUI or ATEN's eco Sensors software.

Remote monitoring offers secure access with 128bits SSL encryption, and customizable account policies for user management. Remote authentication supports RADIUS and additional management interfaces including HTTP, HTTPS, and SNMPv1&v2&v3 (Read, Write, Trap). Event notifications can be monitored via Syslog/SMTP/SNMP trap and by audible alarm for real-time local and remote alerting.

The NRGence™ EC1000 / EC2004 Energy Box is the intelligent cost effective solution to monitor ATEN's Energy PDUs – to ensure safe and effective energy-saving power management.

\*Only available with the EC2004 Energy Box.

## Features

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### Operation

- ◆ Space saving 1U and 0U rack mounting with front, rear, and side mounting
- ◆ 4 RJ-45 Energy Sensor Ports to monitor four Energy PDUs (0A to 32A per port) electrical currents (EC1000), or 2 electrical currents and 2 electrical currents + voltage (EC2004)
- ◆ 4 RJ-11 Environmental Sensor Ports to monitor temperature, humidity, and differential pressure\*
- ◆ Maximum Amperage Monitor 32A@100V~240V (Energy Box)
- ◆ 3 digit 7 segment front panel LED displays current/sensor/IP address information
- ◆ Threshold monitoring for:
  - ◆ Current
  - ◆ Voltage (EC2004)
  - ◆ Temperature\*
  - ◆ Humidity\*
  - ◆ Differential pressure\*
- ◆ Threshold alerting through:
  - ◆ Local: audible alarm and LED lights
  - ◆ Remote: SMTP/SNMP trap/Syslog

### Management

- ◆ Front panel LED indicators for current, temperature\*, humidity\*, differential pressure\*, and IP address at the Energy Box
- ◆ Remote real-time current, voltage (EC2004), temperature\*, humidity\*, and differential pressure\* monitoring and management
- ◆ Door Sensor support – allows the monitoring of rack mount enclosure door access to notify users when a door has been opened (EC2004)
- ◆ Management through eco Sensors Energy Management Software or 3rd party SNMP manager
- ◆ Supports name assignment for individual Energy PDUs
- ◆ Multi-language GUI supports: English, Traditional Chinese, Simplified Chinese, Japanese, Korean, German, Italian, Spanish, Portuguese, French, Russian

- ◆ Event Logging – 128 line event log
- ◆ Syslog support
- ◆ F/W upgradable

## **Remote Access**

- ◆ Remote management via TCP/IP using built in 10/100Mbps Ethernet port
- ◆ Management via built in browser based GUI
- ◆ Network Interfaces: TCP/IP, UDP, HTTP, HTTPS, SSL, SMTP, DHCP, NTP, DNS, 10Base-T/100Base-TX, auto sense, Ping
- ◆ Supports SNMP Manager V1, V2, V3

## **Security**

- ◆ Strong security features include password protection and advanced encryption technologies – utilizing 128 bit SSL
- ◆ RADIUS authorization and authentication

\*Requires external sensors (see *Optional Accessories*, page 6).

## Requirements

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- ◆ Energy PDU PE1216, PE1324, PE2220, or PE2340
- ◆ Environmental Sensors EA1140, EA1240, EA1340 to monitor environmental data
- ◆ Door monitoring requires an EA1440 or EA1441 door sensor
- ◆ One Cat 5e Ethernet cable to connect the EC1000 / EC2004 to the local area network
- ◆ Browsers accessing the EC1000 / EC2004 must support SSL 128 bit encryption.

## Optional Accessories

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### **Sensors**

Sensors are optional accessories. You can use the EC1000 / EC2004 Energy Box without sensors. However, if you want to have complete energy management of your data center with the full use of the EC1000 / EC2004 Energy Box, you would need to use eco Sensors software and install 4 sensors for each of the racks to generate more complete energy-efficient data and charts. Sensors help you maintain a safe and highly efficient data center by monitoring environmental conditions. Higher sensor density installations help to generate more accurate and precise data. Available sensors are show in the table, below:

Sensor	Part Number
Temperature	EA1140
Temperature / Humidity	EA1240
Differential Pressure / Temperature	EA1340

### **Door Sensor**

The EC2004 features a 4-pin dry contact port for door sensors that support the monitoring of rack mount enclosure door access to notify users when a door has been opened. See the table below for information about the two available door sensors. Please contact your ATEN dealer for purchasing information:

Port	Part Number	Sensor
Door Sensor	EA1440	Photo Sensor
	EA1441	Inductive Proximity Sensor

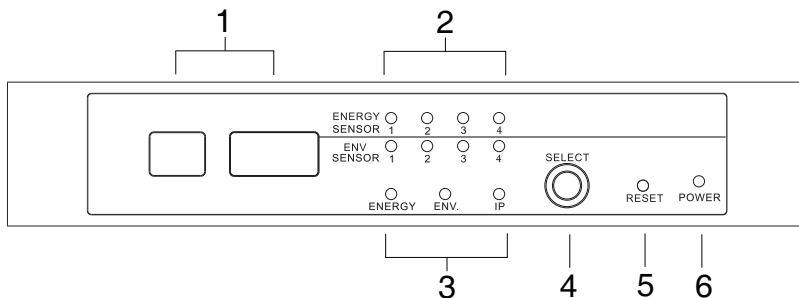
### **Sensor Management**

Sensors can be managed via the EC1000 / EC2004's browser based graphical user interface (GUI) or with NRGence™ eco Sensors software that can be downloaded from the ATEN website. The download link can be found on the software CD provided with the EC1000 / EC2004 package.



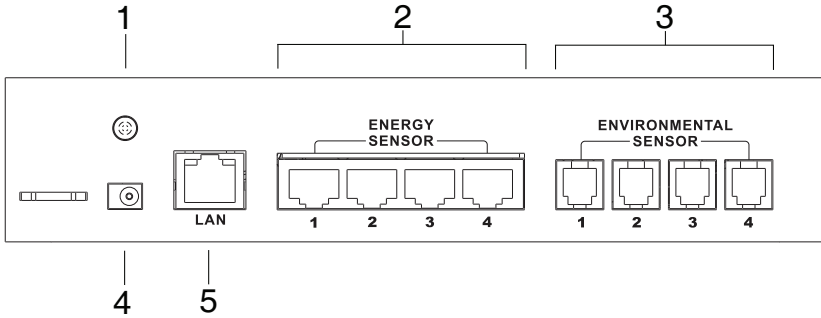
# Components

## EC1000 Front View



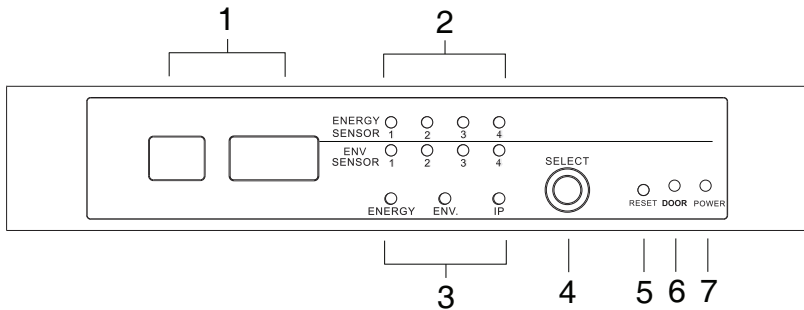
No.	Component	Description
1	Readout Section	<ul style="list-style-type: none"> <li>◆ The first single-digit LED indicates the port selected:               <ul style="list-style-type: none"> <li>◆ Energy Sensor (1-4)</li> <li>◆ Environmental Sensor (1-4)</li> <li>◆ IP Address (1)</li> </ul> </li> <li>◆ The second 3-digit LED displays information related to the first LED:               <ul style="list-style-type: none"> <li>◆ Current</li> <li>◆ Temperature, Humidity, Differential Pressure</li> <li>◆ IP Address</li> </ul> </li> </ul>
2	Energy and Environmental Sensor LEDs	Lights (Orange) for connected Energy Sensors and (Green) for Environmental Sensors, currently connected to a port and taking readings.
3	Selection LED	Lights (Green) to indicate the selection (Energy, Environment, IP) that the Readout is currently displaying.
4	Select Button	Press the Select button to cycle through the selections (Energy, Environment, IP) to display their data readout on the 3-digit LED.
5	Reset Switch	This switch must be pushed with a thin object, such as the end of a paper clip. <ul style="list-style-type: none"> <li>◆ Press and release to reboot the device.</li> <li>◆ Press and hold for more then three seconds to reset the Energy Box to its factory default settings</li> </ul>
6	Power LED	Lights (Green) when the Energy Box is powered up and ready to operate.

## EC1000 Rear View



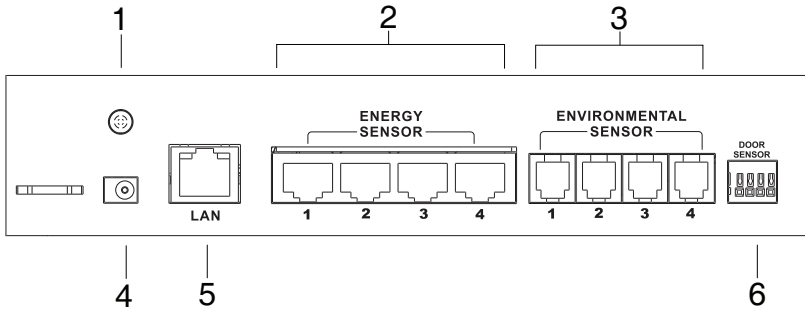
No.	Component	Description
1	Grounding Terminal	The wire used to ground the Energy Box attaches here.
2	Energy Sensor Ports	The four RJ-45 cables that connect the Energy Box to your Energy PDUs, plug in here.
3	Environmental Sensor Ports	External sensors plug into these four RJ-11 ports.*
4	Power Jack	The power adapter cable plugs into this jack.
5	LAN Port	The cable that connects the Energy Box to the LAN plugs in here.

\*External sensors are sold separately (see *Optional Accessories*, page 6).

**EC2004 Front View**

No.	Component	Description
1	Readout Section	<ul style="list-style-type: none"> <li>◆ The first single-digit LED indicates the port selected:               <ul style="list-style-type: none"> <li>◆ Energy Sensor (1-4)</li> <li>◆ Environmental Sensor (1-4)</li> <li>◆ IP Address (1)</li> </ul> </li> <li>◆ The second 3-digit LED displays information related to the first LED:               <ul style="list-style-type: none"> <li>◆ Current</li> <li>◆ Temperature, Humidity, Differential Pressure</li> <li>◆ IP Address</li> </ul> </li> </ul>
2	Energy and Environmental Sensor LEDs	Lights (Orange) for connected Energy Sensors and (Green) for Environmental Sensors, currently connected to a port and taking readings.
3	Selection LED	Lights (Green) to indicate the selection (Energy, Environment, IP) that the Readout is currently displaying.
4	Select Button	Press the Select button to cycle through the selections (Energy, Environment, IP) to display their data readout on the 3-digit LED.
5	Reset Switch	<p>This switch is recessed and must be pushed with a thin object, such as the end of a paper clip.</p> <ul style="list-style-type: none"> <li>◆ Press and release to reboot the device.</li> <li>◆ Press and hold for more then three seconds to reset the Energy Box to its factory default settings</li> </ul>
6	Door Sensor	Door sensor: Lights Red when the door is open. See <i>Door Sensor</i> , page 6, for details.
7	Power LED	Lights (Green) when the Energy Box is powered up and ready to operate.

## EC2004 Rear View



No.	Component	Description
1	Grounding Terminal	The wire used to ground the Energy Box attaches here.
2	Energy Sensor Ports	The four RJ-45 cables that connect the Energy Box to your Energy PDUs, plug in here. The electrical measurements are as follows: <ul style="list-style-type: none"> <li>◆ Port 1 Voltage / Amps</li> <li>◆ Port 2 Amps</li> <li>◆ Port 3 Voltage / Amps</li> <li>◆ Port 4 Amps</li> </ul>
3	Environmental Sensor Ports	External sensors plug into these four RJ-11 ports.*
4	Power Jack	The power adapter cable plugs into this jack.
5	LAN Port	The cable that connects the Energy Box to the LAN plugs in here.
6	Door Sensor Port	This 4-pin dry contact port is for a door sensor which allows the monitoring of a rack mounted enclosure's door access to notify users when a door has been opened. See <i>Door Sensor</i> , page 6, for details.

\*External sensors are sold separately (see *Optional Accessories*, page 6).

# Chapter 2

## Hardware Setup



1. Important safety information regarding the placement of this device is provided on page 91. Please review it before proceeding.

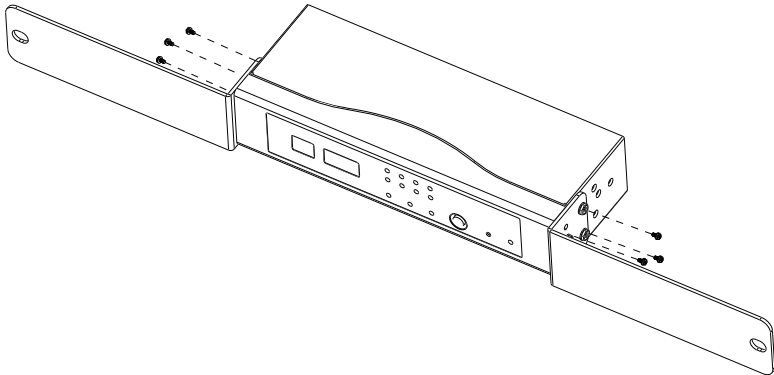
### Rack Mounting

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The EC1000 / EC2004 can be mounted in a 19" (1U) rack or in an 0U configuration mounted to the side of the rack. To rack mount the device, use the rack mounting brackets that came with your device. The brackets are screwed to the front, rear or middle sides of the device, depending on the installation type and then the unit can slide into the front of the rack, or mount to the side of the rack, as shown in the diagrams below:

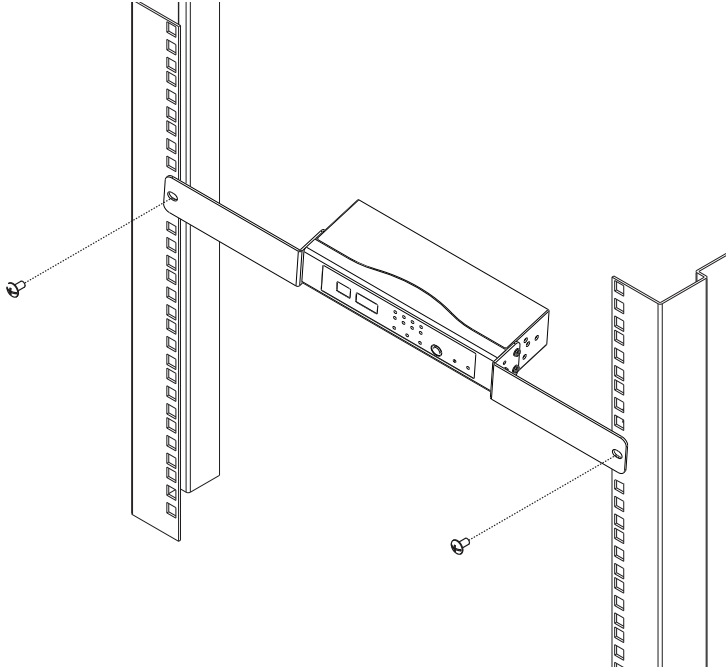
#### Rack Mounting - Front

1. Use 3 M3 x 8 Phillips hex head screws supplied with the rack mounting kit to screw the rack mounting brackets into the sides near the front of the unit.



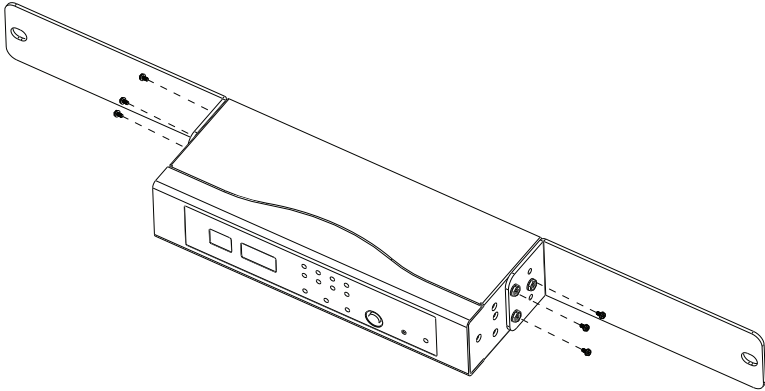
2. Position the unit in the front of the rack and align the holes in the mounting brackets with the holes in the rack.

3. Screw the mounting brackets to the rack.

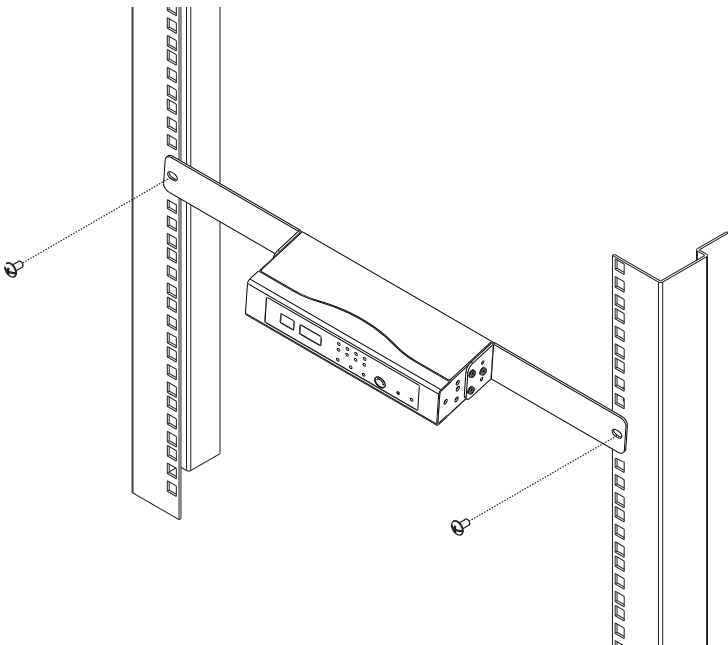


## **Rack Mounting - Rear**

1. Use the M3 x 8 Phillips hex head screws supplied with the rack mounting kit to screw the rack mounting brackets into the sides near the rear of the unit.

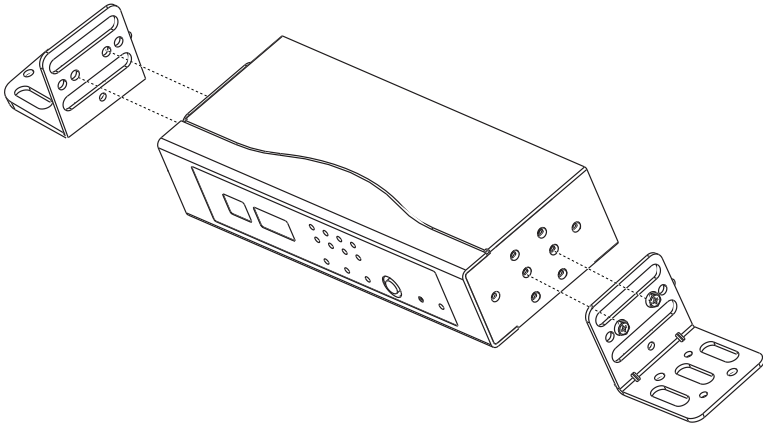


2. Position the unit in the front of the rack and align the holes in the mounting brackets with the holes in the rack.
3. Screw the mounting brackets to the rack.

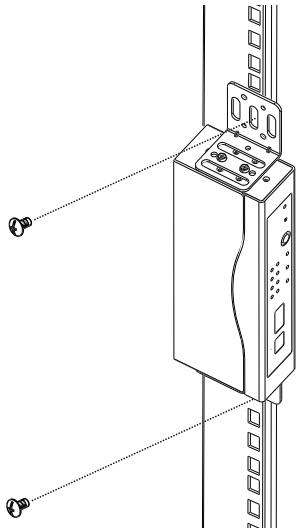


## **Rack Mounting - Side**

1. Use 2 M3 x 8 Phillips hex head screws supplied with the rack mounting kit to screw the rack mounting brackets onto the sides at the middle of the unit.



2. Position the unit on the outer front of the rack and align the holes in the mounting brackets with the holes in the rack.
3. Screw the mounting brackets to the rack.





## Installation

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To set up your EC1000 / EC2004 Energy Box installation, refer to the installation diagram on the next page (the numbers in the diagram correspond to the numbered steps), and do the following:

1. Use a grounding wire to ground the Energy Box by connecting one end of the wire to its grounding terminal, and the other end of the wire to a suitable grounded object.

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**Note:** Do not omit this step. Proper grounding helps to prevent damage to the unit from surges or static electricity.

---

2. For each Energy PDU you want to connect, use an RJ-45 cable included with the package to connect the Energy Box to the Energy PDU.
3. Plug the cable that connects the Energy Box to the LAN, into the LAN port.
4. (Optional) If you are using environmental sensors with your Energy Box installation, connect them to the rear environmental sensor ports, and see *Securing the Sensors*, page 17 for sensor installation.

---

**Note:** Sensors are optional. Please see *Optional Accessories*, page 6.

---

5. (Optional) If you are using a door sensor with your installation, connect it to the 4-pin dry sensor port on the unit's rear panel (EC2004 only), and follow the installation instructions provided with the door sensor.

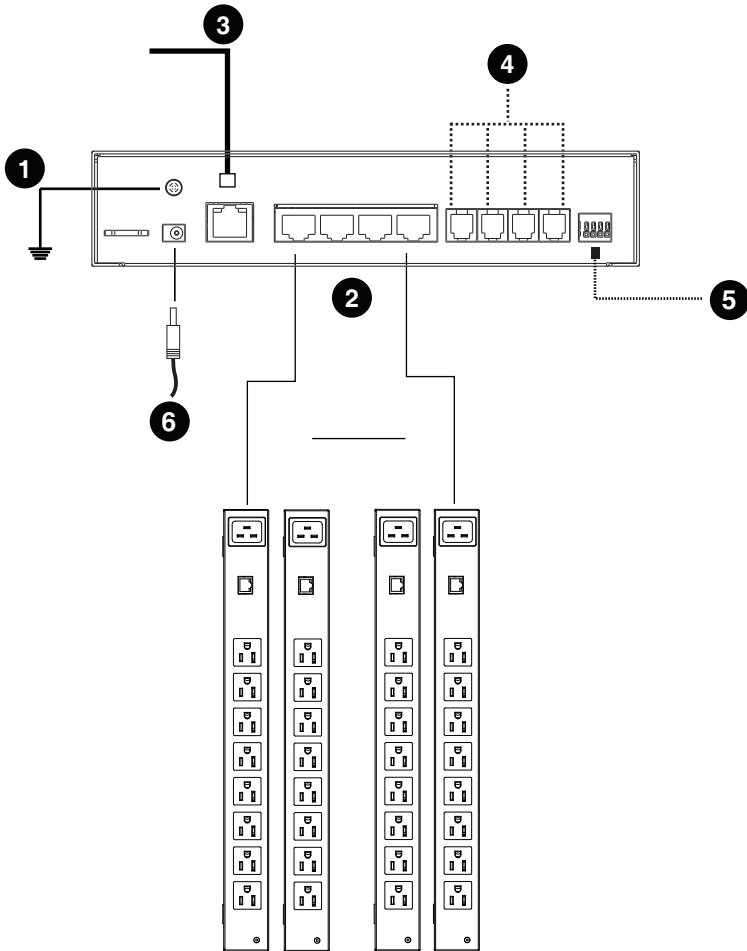
---

**Note:** See *Door Sensor*, page 6, for further information

---

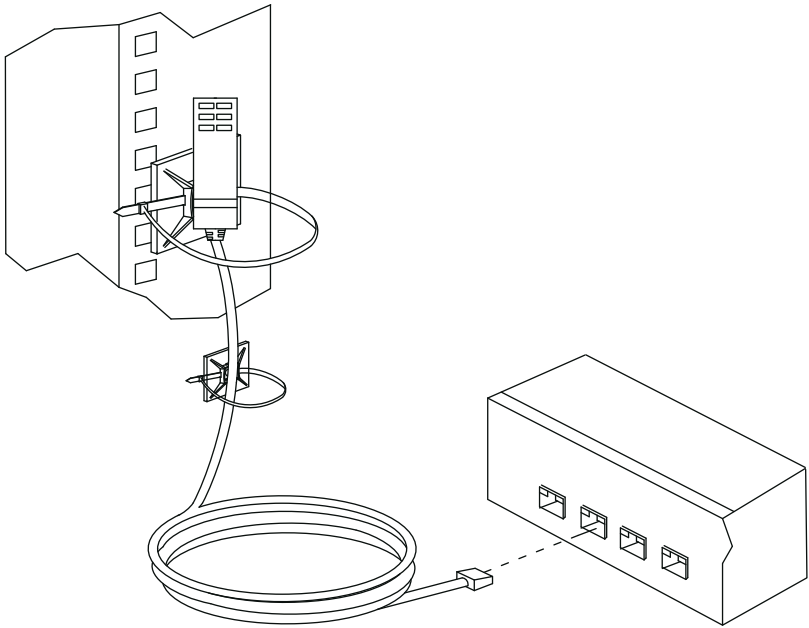
6. Connect the power adapter to an AC power source.

## Installation Diagram



## **Securing the Sensors**

Connect the sensors to the EC1000 Energy Box's rear environmental sensor ports and secure them using sensor mounts, tie wraps, and adhesive cable tie holders. If you use a tie wrap to secure the sensor, tighten the tie wrap over the recessed channel on the sensor, as shown in the following diagram:



- 
- Note:**
1. The sensors shown in the above diagram are for reference purposes only. The sensors for the EC1000 / EC2004 may look slightly different.
  2. Depending on the model and type of sensor, sensor mounts, tie wraps, and adhesive cable tie holders may or may not be provided in the package.
-

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# Chapter 3

## Front Panel Operation

### Overview

---

The EC1000 / EC2004 Energy Box displays real-time energy, environment, and IP information locally via the front panel display, for monitoring at the rack. This chapter discusses the front panel operation and monitoring.

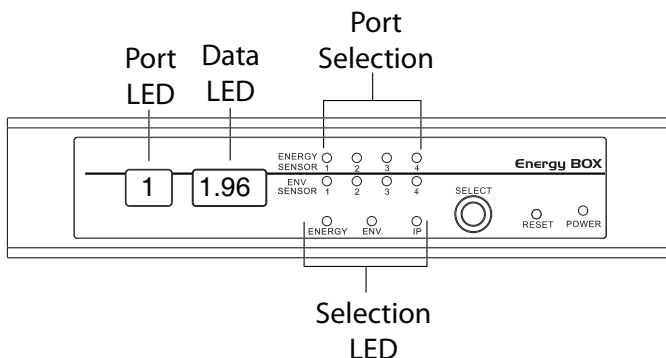
Detailed management is done remotely over a standard TCP/IP connection via graphical user interface (GUI) using a web browser or by ATEN's eco Sensor software. Over-IP operation is discussed in Chapter 4, EC1000 Browser Operation, and Chapter 5, EC2004 Browser Operation.

### Front Panel Operation

The EC1000 / EC2004 front panel display is controlled by the Select pushbutton. The Select pushbutton cycles through the energy ports, environmental ports, and IP Address in order, displaying relevant information for each selection in the Port LED, and Data LED displays.

The Port LED displays the port (1-4) you are viewing for each selection type: *Energy*, *Environment*, or *IP Address*.

The Data LED displays relevant information about the port you are viewing. The table on the next page explains the different information displayed for each section.



Selection LED	Port LEDs	Data LED Displays	Data LED Description
Energy	1-4	Current	<p>Displays the power current of the Energy PDU connected to Energy Sensor port 1, 2, 3, or 4.</p> <p>The data range is 0–20 A.</p> <p>When an Energy port is selected the EC1000 / EC2004 displays real-time data for that port until you manual switch to another port.</p>
Environment	1-4	Temperature Humidity Differential Pressure	<p>Displays the Temperature, Humidity, and Differential Pressure of the sensor connected to Environmental Sensor port 1, 2, 3, or 4.</p> <p>When an Environmental Sensor port is selected the Data LED will switch between the readings, flashing a letter first to represent the data to be displayed, then displays the data reading. The letter and data ranges are:</p> <p>(T) Temperature: -20–60°C</p> <p>(H) Humidity: 15–95</p> <p>(D) Differential Pressure: -250–250*</p> <p>After the environmental data is displayed, the EC1000 / EC2004 automatically switches back to Energy Sensor port 1.</p> <p>*The Differential Pressure only shows absolute values due to the displays limitation of 3 digits.</p>
IP	1	IP Address	<p>Displays the IP address of the EC1000 / EC2004, switching between each of the four octets that make up the full IP address.</p> <p>After the IP address is displayed twice, the EC1000 / EC2004 automatically switches back to Energy Sensor port 1.</p>

# Chapter 4

## EC1000 Browser Operation

### Operation Methods

---

The NRGence™ EC1000 Energy Box provides three methods to access and manage your installation: Browser, eco Sensors (Energy PDU Management Software), and SNMP. The EC2004 Browser Operation is discussed in Chapter 5.

---

**Note:** The following sections of this chapter contain information concerning Browser operation. For eco Sensors operation, please reference the separate eco Sensors User Manual. The eco Sensors software and User Manual can be downloaded from the ATEN website.

---

### Browser

The EC1000 Energy Box can be accessed and controlled via any supported Internet browser from any platform. See *Browser Operation*, page 25, and the following sections in this chapter, for full details.

### eco Sensors

The EC1000 Energy Box supports NRGence™ eco Sensors (eco PDU Manager Software). NRGence™ eco Sensors provides you with an easy method for managing multiple devices, offering an intuitive and user-friendly Graphical User Interface that allows you to configure a PDU device and monitor power status of the equipment connected to it. NRGence™ eco Sensors can be downloaded from the ATEN website, along with a separate eco Sensors User Manual.

### SNMP

The EC1000 supports any 3rd party V1, V2, or V3 SNMP Manager Software. SNMP Management Information Database (MIB) files for the EC1000 can be found on the software CD provided with the EC1000 package.

## Browser Login

---

The Energy Box can be accessed via Internet browser from any OS platform.

**Note:** Browsers must support SSL 128 bit encryption.

---

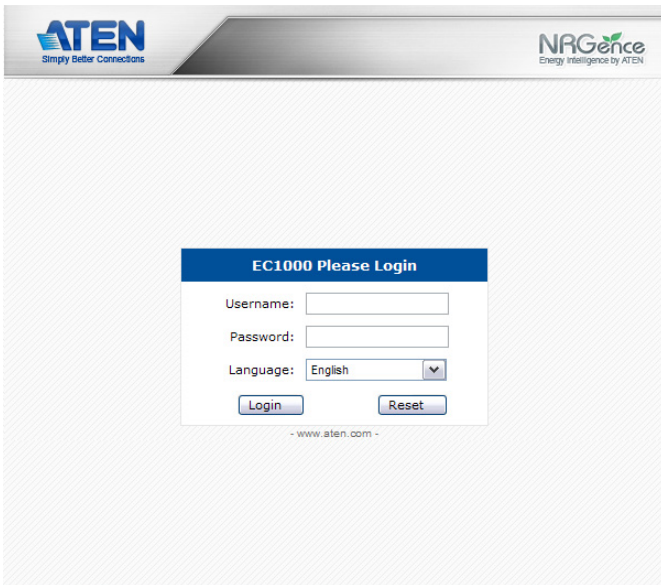
To access the Energy Box, do the following:

1. Open your browser and specify the IP address of the EC1000 you want to access in the browser's URL location bar.

**Note:** You can get the IP address by selecting *IP* from the front panel, or see *IP Address Determination*, page 97, for information about setting it up yourself.

---

2. If a Security Alert dialog box appears, accept the certificate – it can be trusted. The Login page appears:



3. Provide a valid Username and Password (see *First Time Setup*, page 25), and select your language.
4. Click **Login** to bring up the Main Page.



## The EC1000 Main Page

After you have successfully logged in, the EC1000's Main Page comes up with the Access *Connections* page displayed:

The screenshot shows the EC1000 main page interface. At the top, there is a navigation bar with icons for Access, User Management, Log, Device Management, and Maintenance. The main content area is divided into two sections: 'Energy Sensor Status' and 'Environment Sensor Status'. The 'Energy Sensor Status' table shows four sensors (B1, B2, B3, B4) with their current measurements and thresholds. The 'Environment Sensor Status' table shows a detailed view for the EC1000 device, including aggregate current and various temperature, humidity, and pressure readings for four sensors.

Energy Sensor	Energy Sensor Name	Measurement	Min Threshold	Max Threshold
B1		Current	1.99 A	
B2		Current	N/A	
B3		Current	N/A	
B4		Current	N/A	

Energy flow Name	Measurement	Min Threshold	Max Threshold	
EC1000	Aggregate current	1.99 A		
	Temperature	24.10 °C		
	Humidity	32.00 %		
	Pressure	N/A		
	Sensor 1	Temperature	23.00 °C	
	Humidity	35.00 %		
	Pressure	N/A		
	Sensor 2	Temperature	23.20 °C	
	Humidity	35.00 %		
	Pressure	N/A		
	Sensor 3	Temperature	22.90 °C	
	Humidity	37.00 %		
	Pressure	N/A		

**Note:** The screen depicts an Administrator's page. Depending on a user's type and permissions, not all of these elements appear.

## Page Components

The web page screen components are described in the table, below:

No.	Item	Description
1	Tab Bar	The tab bar contains the main operation categories. The items that appear in the tab bar are determined by the user's type, and the authorization options that were selected when the user's account was created.
2	Menu Bar	The menu bar contains operational sub-categories that pertain to the item selected in the tab bar. The items that appear in the menu bar are determined by the user's type, and the authorization options that were selected when the user's account was created.
3	Sidebar	The Sidebar provides a tree view listing of outlets that relate to the various tab bar and menu bar selections.
4	Help	Connects to on-line help at the ATEN website for the device's configuration and operation.
5	Logout	Click this button to log out of your web session.
6	Interactive Display Panel	This is your main work area. The screens that appear reflect your menu choices and Sidebar selection.

## Browser Operation

### First Time Setup

Once the Energy Box installation has been cabled up, the next task the Administrator needs to perform involves configuring the network parameters, changing the default Administrator login settings, and adding users.

To accomplish this you must login over the network with a browser (See *Browser Login*, page 22, for details).

- Note:**
1. Since this is the first time you are logging in, use the default Username: *administrator*; and the default Password: *password*. For security purposes we recommend changing them to something unique (see *Changing the Administrator Login*, page 27).
  2. For remote methods of getting logged in, use the Select button from the front panel of the EC1000 to obtain the IP address and enter it into a web browser to access the Energy Box; or see *IP Address Determination*, page 97.

After you successfully log in, the Access/Connections page appears:

The screenshot shows the EC1000 web interface. The top navigation bar includes 'Access', 'User Management', 'Log', 'Device Management', and 'Maintenance'. The main content area is titled 'Connections' and displays the following data:

**Energy Sensor Status**

Energy Sensor	Energy Sensor Name	Measurement	Max Threshold
001		Current 1.59 A	
002		Current N/A	
003		Current N/A	
004		Current N/A	

**Environment Sensor Status**

Energy Box Name	Measurement	Min Threshold	Max Threshold	
EC1000	Aggregate current	1.59 A		
	Sensor 1	Temperature	24.00 °C	
		Humidity	54.00 %	
		Pressure	N/A	
	Sensor 2	Temperature	22.90 °C	
		Humidity	59.00 %	
		Pressure	N/A	
	Sensor 3	Temperature	23.20 °C	
		Humidity	58.00 %	
		Pressure	N/A	
	Sensor 4	Temperature	23.00 °C	
		Humidity	58.00 %	
Pressure		N/A		

A 'Save' button is located at the bottom right of the table area.

**Note:** Operation details are discussed in *Access*, page 28.

## Network Configuration

To set up the network, do the following:

1. Click the **Device Management** tab.
2. The interface displays the **Device Configuration** page. A screen similar to the one below appears:

The screenshot shows the NRGence EC1000 web interface. The top navigation bar includes 'Access', 'User Management', 'Log', 'Device Management', and 'Maintenance'. The 'Device Management' tab is active. The main content area is titled 'Device Configuration | Security' and 'Hi administrator, welcome to the EC1000'. The configuration is divided into sections: General, Service Ports, and IPv4 Configuration. The General section includes fields for Energy Box Name (EC1000), MAC Address (00:10:74:AD:DC:0C), Firmware Version (FW Ver:1.0.064), and Rack Location name (EC1000). The Service Ports section has radio buttons for 'Only HTTPs' (selected) and 'HTTP / HTTPs', with input fields for HTTP (80) and HTTPs (443). The IPv4 Configuration section has radio buttons for 'Obtain IP address automatically [DHCP]' (selected) and 'Set IP address manually [Fixed IP]', with input fields for IP Address (192.168.1.100), Subnet Mask (255.255.255.0), and Default Gateway (192.168.1.1). There are also radio buttons for 'Obtain DNS server address automatically' (selected) and 'Set DNS server address manually', with a Preferred DNS Server field (192.168.1.1).

3. Fill in the fields according to the information provided under *Device Configuration*, page 35.

## Changing the Administrator Login

To change the default Administrator username and password, do the following:

1. Click the **User Management** tab.

The User Management page has a detailed list of administrator and user login information.

The screenshot shows the NRGence EC1000 User Management interface. The top navigation bar includes 'Accounts', 'User Management', 'Log', 'Device Management', and 'Maintenance'. The 'Accounts' sidebar is visible on the left. The main content area is titled 'Administrator information' and contains several form fields:

- Administrator information:** Name: administrator, Password: \*\*\*\*\*
- SNMPv3 account information:** Name: administrator, Auth-password: \*\*\*\*\*, Priv-Password: \*\*\*\*\*
- SNMPv1/v2c community:** Read community: administrator, Write community: administrator

Below these fields is a table titled 'User information' with the following data:

Management	name	Password	Energy Sensor			
			01	02	03	04
Enable	mandy2	*****				
Enable	1100	****				
Enable	28ck	****				
Enable	3300	****				
Enable	1	*				
Enable	2	*				
Enable	3	*				
Enable	4	*				

A 'Save' button is located at the bottom right of the form.

2. In the **Administrator Information** section, reset the name and password fields to something unique, then click **Save** (at the bottom of the page.)

**Note:** If you forget the Administrator's name or password, short the mainboard jumper to restore the default Administrator account. See *Administrator Login Failure*, page 101 in the Appendix for full details.

# Access

## Connections

When you login to the EC1000, the interface opens with its default selection of the *Access* tab; on the *Connections* menu. The contents of the **Energy Sensor Status** and **Environmental Sensor Status** sections are displayed in the main panel.

The screenshot shows the EC1000 web interface. At the top, there is a navigation bar with icons for Access, User Management, Log, Device Management, and Maintenance. The main header includes the NRGoffice logo and the text 'EC1000'. Below the header, a green bar displays 'Connections | Configuration' and a welcome message: 'Hi administrator, welcome to the EC1000'. On the left, a sidebar shows a tree view with 'EC1000' expanded to show sub-items [01], [02], [03], and [04]. The main content area contains two tables:

**Energy Sensor Status**

Energy Sensor	Energy Sensor Name	Measurement	Max Threshold
[01]		Current	1.51 A
[02]		Current	N/A
[03]		Current	N/A
[04]		Current	N/A

**Environment Sensor Status**

Energy Box Name	Measurement		Min Threshold	Max Threshold	
EC1000	Aggregate current	1.51 A			
	Sensor 1	Temperature	24.40 °C		
		Humidity	54.00 %		
		Pressure	N/A		
	Sensor 2	Temperature	23.30 °C		
		Humidity	56.00 %		
		Pressure	N/A		
	Sensor 3	Temperature	23.50 °C		
		Humidity	56.00 %		
		Pressure	N/A		
	Sensor 4	Temperature	23.20 °C		
		Humidity	57.00 %		
		Pressure	N/A		

A 'Save' button is located at the bottom right of the main content area.

## Energy Sensor Status

The EC1000 Energy Box supports the monitoring of four Energy PDUs. The **Energy Sensor Status** section allows you to view power status and set up a power management configuration for each Energy PDU:

### Energy Sensor Status

Energy Sensor	Energy Sensor Name	Measurement		Max Threshold
[01]		Current	1.56 A	<input type="text"/>
[02]		Current	N/A	<input type="text"/>
[03]		Current	N/A	<input type="text"/>
[04]		Current	N/A	<input type="text"/>

#### ■ Energy Sensor

This field displays the Energy Sensor port number that the Energy PDU is connected to.

#### ■ Energy Sensor Name

This field displays the custom name created for the Energy sensor port (see *Configuration*, page 31).

#### ■ Measurement

This field displays the real-time power current reading of an Energy PDU.

#### ■ Threshold Settings

This field is used to set the maximum threshold settings for the Energy PDU's current. If a range exceeds the maximum setting an alarm is triggered.

## Environment Sensor Status

The EC1000 Energy Box supports the monitoring from four environmental sensors\*. The **Environment Sensor Status** section allows you to view the status and set up environmental management configurations for each sensor device:

### Environment Sensor Status

Energy Box Name	Measurement		Min Threshold	Max Threshold	
EC1000	Aggregate current	1.88 A			
	Sensor 1	Temperature	24.50 °C		
		Humidity	54.00 %		
		Pressure	N/A		
	Sensor 2	Temperature	23.30 °C		
		Humidity	57.00 %		
		Pressure	N/A		
	Sensor 3	Temperature	23.60 °C		
		Humidity	57.00 %		
		Pressure	N/A		
	Sensor 4	Temperature	23.30 °C		
		Humidity	58.00 %		
		Pressure	N/A		

### ■ Measurement

This field displays the measurement type (Temperature, Humidity, Differential Pressure) and real-time reading of each sensor.

### ■ Threshold Settings

These fields are used to set the maximum, and minimum threshold settings for Temperature, Humidity, and Differential Pressure. If a range falls below the minimum setting, or exceeds the maximum setting an alarm is triggered.

---

**Note:** Sensors are optional accessories. see *Optional Accessories*, page 6.

---



## **Configuration**

The *Configuration* page is used to set custom names for the Energy Sensor ports of each Energy PDU:

### **Energy Sensor Configuration**

<b>Energy Sensor</b>	<b>Energy Sensor Name</b>
[01]	<input type="text"/>
[02]	<input type="text"/>
[03]	<input type="text"/>
[04]	<input type="text"/>

Each Energy Sensor port can be given a distinctive name. The maximum number of characters is 15.

When you have finished making your changes, click **Save**.

# User Management

When you select the *User Management* tab the screen comes up with *Administrator Information* and *User Information* displayed in the main panel. The EC1000 supports one Administrator account and up to eight User accounts.

- Note:**
1. Each account can support 2 login sessions.
  2. The EC1000 supports a total of 3 concurrent login sessions.

**Administrator information**

Name: administrator Password: \*\*\*\*\*

**SNMPv3 account information**

Name: administrator Auth-password: \*\*\*\*\* Priv-Password: \*\*\*\*\*

**SNMPv1/v2c community**

Read community: administrator Write community: administrator

---

**User information**

Management	Name	Password	Energy Sensor			
			01	02	03	04
Enable	brett	*****				
Enable	1100	****				
Enable	zack	****				
Enable	3300	****				
Enable	1	*				
Enable	2	*				
Enable	3	*				
Enable	4	*				

## Administrator Information

This section is used to set the Administrator name and password for browser login, SNMPv3 accounts, and SNMPv1/v2c community settings. Only Administrators can view this section. For details, see *Changing the Administrator Login*, page 27.




## User Information

To add a user, do the following:

1. Set the Management field to *Enable*.
2. Key in a name and password in the Name and Password fields.
3. Set the sensor-by-sensor permissions of the user in the Energy Sensor field.
4. Click *Save* to save your settings.

**Note:** Correct values must be entered in both the Name and Password fields to enable an account. For account policies see page 44.

The various options are explained in more detail in the following table:

Field	Description	
Management	<p>The Management field allows you to Enable or Disable a user's account:</p> <ul style="list-style-type: none"> <li>◆ Enable – stores the user account</li> <li>◆ Disable – disables the user account</li> </ul>	
Name	From 1 to 16 characters are allowed depending on the Account Policy settings. See <i>Account Policy</i> , page 44.	
Password	From 1 to 16 characters are allowed depending on the Account Policy settings. See <i>Account Policy</i> , page 44.	
Energy Sensor	<p>This field allows you to set the Energy sensor-by-sensor permissions of the user. Click on the user/port icon to cycle through the three permissions options, as follows:</p>	
		User has complete access to this sensor port.
		User has read-only access to this sensor port.
		User has no access to this sensor port.
Save	Click this button to save your operation or changes	

## Log

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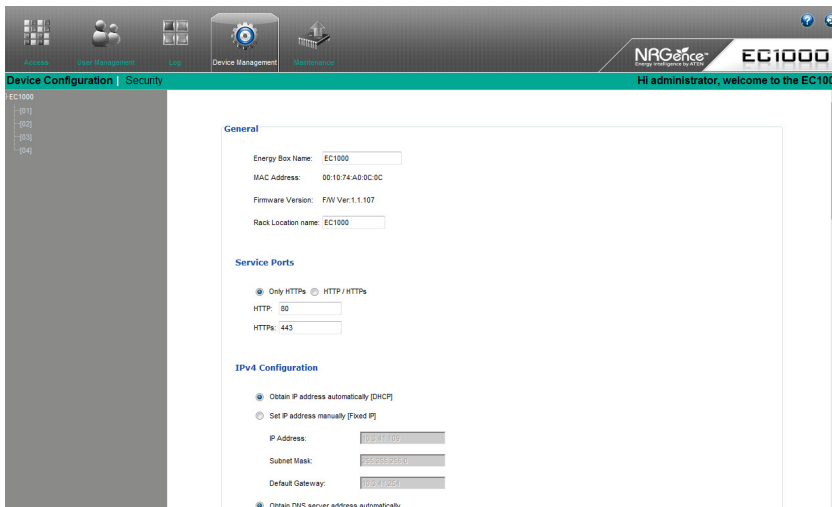
The EC1000 keeps a record of transactions that take place on its installation, and stores up to 128 events at one time. The *System Log* page provides a powerful array of filters and functions that allow you to view and export the log file data, as well as be informed by email of specified events as they occur. If you need to log more than 128 events at a time, a syslog server can be used (see *Syslog Server*, page 40).

### **The System Log Event List**

- ◆ Clicking on a device in the Sidebar displays its log events in the main panel's log event list.
- ◆ Clicking the **Refresh** button brings the log list up to date with the latest events.
- ◆ The entry box to the right of the Refresh button lets you set the number of events to display per page. Simply key in the number of your choice.
- ◆ The top right of the main panel shows the total number of pages in the log file, and what page you are currently viewing.
- ◆ The buttons on the bottom row function as follows:
  - ◆ **Clear** – click to erase the contents of the log event list
  - ◆ **First Page** – click to go to the first page of the log event list
  - ◆ **Previous Page** – click to move to the previous page of the log event list
  - ◆ **Next Page** – click to move to the next page of the log event list
  - ◆ **Last Page** – click to move to the last page of the log event list
  - ◆ **Save** – click to save the contents of the log event list to a Csv or Txt type file.

## Device Management

The *Device Management* page allows administrators to configure and control overall EC1000 operations.



### Device Configuration

This page provides information about the EC1000, as described in the following sections:

#### General

##### General

Energy Box Name:

MAC Address: 00:10:74:A0:0C:0C

Firmware Version: FW Ver:1.0.064

Rack Location name:

Item	Meaning
Energy Box Name	This field lets you give the device a unique name. Simply delete whatever is in the text box and key in the name of your choice. Click <b>Save</b> (located at the bottom of the page) to save the new name.

Item	Meaning
MAC Address	This item displays the EC1000's MAC address.
Firmware Version	This item displays the current firmware version number. You can reference it to see if there are newer versions available on the ATEN website.
Rack Location Name	This field lets you give the rack location a unique name for easy reference.

## Service Ports

As a security measure, if a firewall is being used, the Administrator can specify the port numbers that the firewall will allow. If a port other than the default is used, users must specify the port number as part of the IP address when they login. If an invalid port number (or no port number) is specified, the EC1000 will not be found.

### Service Ports

Only HTTPs
  HTTP / HTTPs

HTTP:

HTTPs:

An explanation of the fields is given in the table below:

Field	Explanation
Only HTTPs	Select this button to use HTTPs service port connections.
HTTP / HTTPs	Select this button to use both HTTP and HTTPs service port connections.
HTTP	The port number for a browser login. The default is 80.
HTTPS	The port number for a secure browser login. The default is 443.

- Note:**
- Valid entries for all of the Service Ports are from 1–65535.
  - The service ports cannot have the same value. You must set a different value for each one.
  - If there is no firewall (on an Intranet, for example), it doesn't matter what these numbers are set to, since they have no effect.

## IPv4 Configuration

The EC1000's IPv4 IP and DNS addresses (the traditional method of specifying IP addresses) can either be assigned dynamically (DHCP), or a fixed IP address can be specified.

### IPv4 Configuration

Obtain IP address automatically [DHCP]  
 Set IP address manually [Fixed IP]

IP Address:   
 Subnet Mask:   
 Default Gateway:

Obtain DNS server address automatically  
 Set DNS server address manually

Preferred DNS Server:   
 Alternate DNS Server:

- ◆ For dynamic IP address assignment, select the **Obtain IP address automatically** radio button. (This is the default setting.)
- ◆ To specify a fixed IP address, select the **Set IP address manually** radio button and fill in the IP address with values appropriate for your network.
- ◆ For automatic DNS Server address assignment, select the **Obtain DNS Server address automatically** radio button.
- ◆ To specify the DNS Server address manually, select the **Set DNS server address manually** radio button, and fill in the addresses for the Preferred and Alternate DNS servers with values appropriate for your network.

- 
- Note:**
1. If you choose *Obtain IP address automatically*, when the device starts up it waits to get its IP address from the DHCP server. If it hasn't obtained the address after one minute, it automatically reverts to its factory default IP address (192.168.0.60.)
  2. If the device is on a network that uses DHCP to assign network addresses, see *IP Address Determination*, page 97, for information.
  3. Specifying the Alternate DNS Server address is optional.
-

## Event Notification

The Event Notification section is divided into three sections: SMTP Server; SNMP Trap Receivers; and Syslog Server. Each section is described below.

### ◆ SMTP Server

#### Event Notification

##### SMTP Server

Enable report from the following SMTP Server

SMTP Server:

My server requires authentication

Account Name:

Password:

From:

To:

To have the EC1000 email reports from the SMTP server to you, do the following:

1. Select **Enable report from the following SMTP server**, and key in the IP address of your SMTP server.
2. If your server requires authentication, select the **My server requires authentication** checkbox.
3. Key in the appropriate account information in the **Account Name**, **Password**, and *From* fields.

---

**Note:** Only one email address is allowed in the *From* fields, and it cannot exceed 64 characters.)

---

4. Key in the email address (addresses) of where you want the event reports sent to in the *To* field.

---

**Note:** If you are sending the report to more than one email address, separate the addresses with a comma, or semicolon. The use of a comma or semicolon to separate the email address will depend on your mail servers settings. The total cannot exceed 256 characters.

---



## ◆ SNMP Trap Receivers

### SNMP Trap Receiver

<input type="checkbox"/> Enable SNMP Trap	<input checked="" type="radio"/> SNMPv3	<input type="radio"/> SNMPv2c	<input type="radio"/> SNMPv1
Receiver IP 1:	<input type="text" value="0.0.0.0"/>		
Service Port 1:	<input type="text" value="162"/>		
Community 1:	<input type="text"/>		
User name 1:	<input type="text"/>		
Auth-password 1:	<input type="text"/>		
Priv-Password 1:	<input type="text"/>		
Receiver IP 2:	<input type="text" value="0.0.0.0"/>		
Service Port 2:	<input type="text" value="162"/>		
Community 2:	<input type="text"/>		
User name 2:	<input type="text"/>		
Auth-password 2:	<input type="text"/>		
Priv-Password 2:	<input type="text"/>		

Up to four SNMP management stations can be specified. If you want to use SNMP trap notifications, do the following:

1. Select **Enable SNMP Trap**.
2. Select the type: **SNMPv3**, **SNMPv2c**, or **SNMPv1**.
3. For *SNMPv3* key in the **Receiver IP(s)**, **User name(s)**, **Auth-password(s)**, **Priv-password(s)** and **Service Port** number(s) of the computer(s) to be notified of SNMP trap events. The valid port range is 1–65535. The default port number is 162.
4. For *SNMPv2c* and *SNMPv1* key in the **Receiver IP(s)**, **Community(s)**, and **Service Port** number(s) of the computer(s) to be notified of SNMP trap events. The valid port range is 1–65535. The default port number is 162.

## ◆ Syslog Server

### Syslog Server

Enable Syslog Server

Server IP:

0.0.0.0

Service Port:

514

To record all the events that take place on EC1000 devices and write them to the Syslog server, do the following:

1. Check **Enable Syslog Server**.
2. Key in the **Server IP** and the **Service Port** of the Syslog server. The valid port range is 1-65535. The default port number is 514.

## Date/Time

The Date/Time dialog page sets the EC1000 Energy Box time parameters:

### Date Time

#### Time Zone

(GMT-12:00) Eniwetok Kwajalein

Daylight Savings Time

#### Manual Input

Date:   (YYYY-MM-DD)

Time:  (HH:MM:SS)

Sync with PC

#### Network Time

Enable auto adjustment

AU | ntp1.cs.mu.OZ.AU

Preferred custom server IP:

Alternate time server:

AU | ntp1.cs.mu.OZ.AU

Alternate custom server IP:

Adjust time everyday

Adjust Time Now

Set the parameters according to the information described below.

### Time Zone

- ◆ To establish the time zone that the EC1000 is located in, drop down the **Time Zone** list and choose the city that most closely corresponds to where it is at.
- ◆ If your country or region employs **Daylight Saving Time** (Summer Time), check the corresponding checkbox.

## Manual Input

Use this section to specify the EC1000's date and time manually.

- ◆ Click the calendar icon and click the calendar entry for the date.
- ◆ Key the time into the Time field, using the HH:MM:SS (hours, minutes, seconds) format.

---

**Note:** This section is only enabled when *auto adjustment* (in the *Network Time* section) is disabled (the checkbox is unchecked).

---

As an alternative to specifying the date and time by entering them into the date and time fields, you can click to put a check in the **Sync with PC** checkbox, in which case the EC1000 will take its date and time settings from the locally connected PC.

## Network Time

To have the time automatically synchronized to a network time server, do the following:

1. Check the **Enable auto adjustment** checkbox.
2. Drop down the time server list to select your preferred time server  
– or –  
Check the **Preferred custom server IP** checkbox, and key in the IP address of the time server of your choice.
3. If you want to configure an alternate time server, check the **Alternate time server** checkbox, and repeat step 2 for the alternate time server entries.
4. Key in your choice for the number of days between synchronization procedures.

## Finishing Up

When you have finished making your settings on this page, click **Save**.

After you have saved your changes, if you want to synchronize immediately, click **Adjust Time Now**.

## Security

The Security page controls access to the EC1000.

The screenshot shows the Security configuration page for the EC1000. The page is divided into several sections:

- Navigation Bar:** Contains icons for Access, User Management, Log, Device Management, and Maintenance.
- Breadcrumb Trail:** Device Configuration | Security
- Tree View:** Shows the device hierarchy: EC1000 > [01] > [02] > [03] > [04].
- Security Section:**
  - Login Failures:**
    - Allowed: 3
    - Timeout: 5 min
  - Working Mode:**
    - Enable ICMP
  - Account Policy:**
    - Minimum Username Length: 1
    - Minimum Password Length: 1
    - Password Must Contain At Least:
      - One Upper Case
      - One Lower Case
      - One Number
    - Disable Duplicate Login

### Login Failures

- ◆ **Allowed** sets the number of consecutive failed login attempts that are permitted from a remote user.
- ◆ **Timeout** sets the amount of time a remote user must wait before attempting to login again after exceeding the number of allowed failures.

### Working Mode

- ◆ If **ICMP** is *enabled*, the EC1000 Energy Box can be pinged. If it is not enabled, the device cannot be pinged. The default is Enabled.

When you have finished making your settings on this page, click **Save**.

## Account Policy

The Account Policy section governs policies in regard to usernames and passwords.

### Account Policy

Minimum Username Length:

Minimum Password Length:

Password Must Contain At Least:  One Upper Case  
 One Lower Case  
 One Number

Disable Duplicate Login

Check a policy and enter the required information in the appropriate fields.

Item	Description
Minimum Username Length	Sets the minimum number of characters required for a username. Acceptable values are from 1–16.
Minimum Password Length	Sets the minimum number of characters required for a password. Acceptable values are from 1–16.
Password Must Contain At Least	Checking any of these items requires users to include at least one of the specified items in their password. <b>Note:</b> This policy does not affect existing user accounts. Only new user accounts created after this policy has been enabled, and users required to change their passwords are affected.
Disable Duplicate Login	Check this to prevent users from logging in with the same account at the same time.

## Login String / IP Filter / Mac Filter

### Login String/IP Filter/MAC Filter

Login String:

IP Filter Enable     Include     Exclude

MAC Filter Enable     Include     Exclude

### ■ Login String

The *Login String* entry field is used to specify a login string (in addition to the IP address) that users must include when accessing the EC1000 device with a browser. For example:

192.168.0.126/abcdefg

- ◆ The following characters are allowed:

0–9 a–z A–Z ~ ! @ \$ \* ( ) \_ ' ,

- ◆ The following characters are not allowed:

& ^ { } ' < > | " % " : / ? # \ [Space] + - = [ ] ;

Compound characters (É Ç ñ ... etc.)

- 
- Note:**
1. There must be a forward slash between the IP address and the string.
  2. If no login string is specified here, anyone will be able to access the EC1000 login page using the IP address alone. This makes your installation less secure.
  3. For security purposes, we recommend that you change this string occasionally
-

## ■ IP Filter / MAC Filter

If any filters have been configured, they appear in the IP Filter and/or MAC Filter list boxes.

IP and MAC Filters control access to the EC1000 based on the IP and/or MAC addresses of the client computers attempting to connect. A maximum of 5 IP filters and 5 MAC filters are allowed.

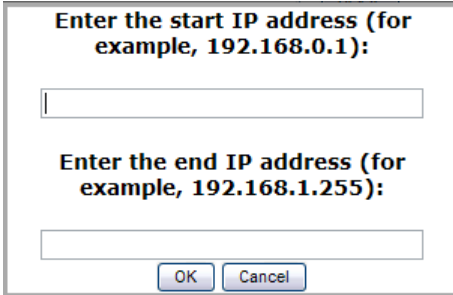
To enable IP and/or MAC filtering, click to put a check mark in the **IP Filter Enable** and/or **MAC Filter Enable** checkbox.

- ◆ If the **Include** button is checked, all the addresses within the filter range are allowed access; all other addresses are denied access.
- ◆ If the **Exclude** button is checked, all the addresses within the filter range are denied access; all other addresses are allowed access.

### Adding Filters

To add an IP filter, do the following:

1. Click **Add**. A dialog box similar to the one below appears:



The dialog box is titled "Enter the start IP address (for example, 192.168.0.1):" and "Enter the end IP address (for example, 192.168.1.255):". It contains two text input fields, one for the start IP address and one for the end IP address. At the bottom, there are two buttons: "OK" and "Cancel".

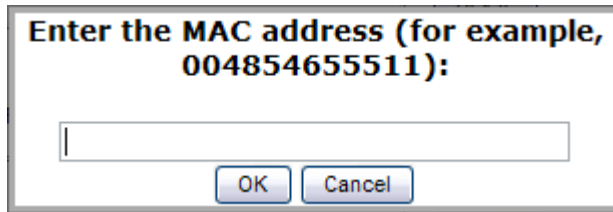
2. Enter the start and end filter addresses in the dialog boxes (for example, 192.168.0.200), then click **OK**.
3. To filter a single IP address, key in the same IP address for the start and end IP. To filter a continuous range of addresses, key in the last number of the range (for example, 192.168.0.225).
4. After filling in the address, click **OK**.

Repeat these steps for any additional IP addresses you want to filter.



To add a MAC filter, do the following:

1. Click **Add**. A dialog box similar to the one below appears:



2. Specify the MAC address in the dialog box (for example, 001074670000), then click **OK**.

Repeat these steps for any additional MAC addresses you want to filter.

### **IP Filter / MAC Filter Conflict**

If there is a conflict between an IP filter and a MAC filter – for example, where a computer's IP address is allowed by the IP filter but its MAC address is excluded by the MAC filter – then that computer's access is blocked.

In other words, if either filter blocks a computer, then the computer is blocked, no matter what the other filter is set to.

### **Modifying Filters**

To modify a filter, select it in the IP Filter or MAC Filter list box and click **Modify**. The Modify dialog box is similar to the Add dialog box. When it comes up, simply delete the old address(es) and replace it with the new one(s).

### **Deleting Filters**

To delete a filter, select it in the IP Filter or MAC Filter list box and click **Delete**.

## **Authentication & Authorization**

The Authentication & Authorization page is used to set up login authentication and authorization management from external sources.

### **Authentication & Authorization**

#### **RADIUS Settings**

Enable RADIUS

Preferred RADIUS Server IP:	<input type="text" value="0.0.0.0"/>
Preferred RADIUS Service Port:	<input type="text" value="1812"/>
Alternate RADIUS Server IP:	<input type="text" value="0.0.0.0"/>
Alternate RADIUS Server Port:	<input type="text" value="1645"/>
Timeout:	<input type="text" value="0"/> sec
Retries:	<input type="text" value="0"/>
Shared Secret (at least 6 characters):	<input type="text"/>

### **RADIUS Settings**

To allow authentication and authorization for the EC1000 device through a RADIUS server, do the following:

1. Check **Enable RADIUS**.
2. Fill in the **Preferred RADIUS Server IP**, **Preferred RADIUS Service Port**, and (*optional*) **Alternate RADIUS Server IP** and **Preferred RADIUS Service Port**. The default port number for the Preferred server is 1812; the default port number for the Alternate server is 1645.

---

**Note:** Make sure that the port numbers you specify here match the port numbers used by the RADIUS servers.

---

3. In the **Timeout** field, set the time in seconds that the EC1000 waits for a RADIUS server reply before it times out.
4. In the **Retries** field, set the number of allowed retries for attempting to connect to the RADIUS server.
5. In the **Shared Secret** field, key in the character string that you want to use for authentication between the EC1000 and the RADIUS Server.

6. On the RADIUS server, set the entry for each user as follows:

su/xxxx

Where *xxxx* represents the Username given to the user when the account was created on the EC1000. The user's access rights are the ones assigned for the EC1000, as well. (See *User Information*, page 32.)

## Private Certificate

When logging in over a secure (SSL) connection, a signed certificate is used to verify that the user is logging in to the intended site. For enhanced security, the *Private Certificate* section allows you to use your own private encryption key and signed certificate, rather than the default ATEN certificate.

There are two methods for establishing your private certificate: generating a self-signed certificate; and importing a third-party certificate authority (CA) signed certificate.

### Generating a Self-Signed Certificate

If you wish to create your own self-signed certificate, a free utility – openssl.exe – is available for download over the web.

### Obtaining a CA Signed SSL Server Certificate

For the greatest security, we recommend using a third party certificate authority (CA) signed certificate. To obtain a third party signed certificate, go to a CA (Certificate Authority) website to apply for an SSL certificate. After the CA sends you the certificate and private encryption key, save them to a convenient location on your computer.

### Importing the Private Certificate

To import the private certificate, do the following:

#### Private Certificate

Private Key:

Certificate:

1. Click **Browse** to the right of *Private Key*; browse to where your private encryption key file is located; and select it.
2. Click **Browse** to the right of *Certificate*; browse to where your certificate file is located; and select it.
3. Click **Upload** to complete the procedure.

---

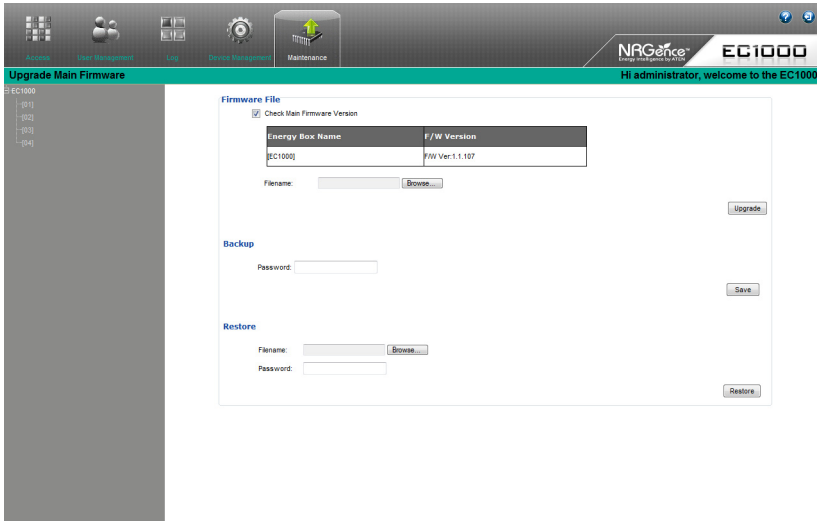
**Note:** 1. Clicking **Restore Default** returns the device to using the default ATEN certificate.

2. Both the private encryption key and the signed certificate must be imported at the same time.
- 

When you have finished making your settings on this page, click **Save**.

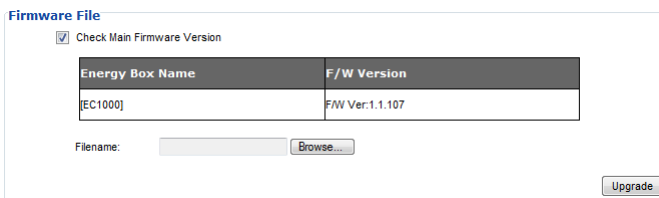
## Maintenance

The *Maintenance* function is used to upgrade the EC1000's firmware, and to backup and restore the device's configuration settings.



### Firmware File

When you click the **Maintenance** tab, the *Firmware File* section is displayed at the top of the page:



A description of the items shown in this panel are given in the table, below:

Item	Description
Check Main Firmware Version	If you enable <i>Check Main Firmware Version</i> , the EC1000's current firmware level is compared with that of the upgrade file. If the current version is equal to or higher than the upgrade version, a popup message appears, to inform you of the situation and stops the upgrade procedure.
Name	Lists the name of the EC1000 Energy Box.

Item	Description
F/W Version	Displays the EC1000 's current firmware version.
Filename	As new versions of the firmware become available, they are posted on our website and can be downloaded to a convenient location on your computer. Click the <i>Browse</i> button to select the downloaded upgrade file.
Upgrade	Click this button to upgrade the firmware of the selected devices.

### ■ Upgrading the Firmware

To upgrade the firmware refer to the screen shot on the preceding page, and do the following:

1. Go to our website and download the new firmware file to a convenient location on your computer.
2. Click the **Browse** button; navigate to where the firmware file is located and select it.
3. Click **Upgrade** to start the upgrade procedure.
  - ◆ If you enabled **Check Main Firmware Version** the current firmware level is compared with that of the upgrade file. If the current version is equal to or higher than the upgrade version, a popup message appears, to inform you of the situation and stops the upgrade procedure.
  - ◆ If you didn't enable **Check Main Firmware Version**, the upgrade file is installed without checking what its level is.
  - ◆ Once the upgrade completes successfully, the EC1000 resets itself.
4. Login again, and check the firmware version to be sure it is the new one.

### ■ Firmware Upgrade Recovery

Should the EC1000's firmware upgrade procedure fail, and the device becomes unusable, the following firmware upgrade recovery procedure will resolve the problem:

1. Power off the device.
2. Press and hold the **Reset Switch** (see page 7).
3. While holding the **Reset Switch** in, power the switch back on.

This causes the Energy Box to use the original factory installed main firmware version. Once the EC1000 is operational, you can try upgrading the main firmware again.

## Backup/Restore

Using *Backup/Restore* from the *Maintenance* tab gives you the ability to back up the EC1000's configuration and user profile information:

The screenshot shows two sections: 'Backup' and 'Restore'. The 'Backup' section has a 'Password:' label followed by a text input field and a 'Save' button. The 'Restore' section has a 'Filename:' label followed by a text input field and a 'Browse...' button, a 'Password:' label followed by a text input field, and a 'Restore' button.

### Backup

To backup the device's settings do the following:

1. In the **Password** field, key in a password for the file.

---

**Note:** Entering a password is optional. If you do enter a password, make a note of it, since you will need it to be able to restore the file.

---

2. Click **Save**.
3. When the browser asks what you want to do with the file, select *Save to disk*; then save it in a convenient location.

### Restore

To restore a previous backup, do the following:

1. Click **Browse**; navigate to the file and select it.
2. In the **Password** field, key in the same password that you used to save the file.

---

**Note:** If you didn't set a password for the file, you can omit this step.

---

3. Click **Restore**.

After the file is restored, a message appears to inform you that the procedure succeeded, and you are automatically logged off the Energy Box.

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# Chapter 5

## EC2004 Browser Operation

### Operation Methods

---

The NRGence™ EC2004 Energy Box provides three methods to access and manage your installation: Browser, eco Sensors (Energy PDU Management Software), and SNMP. The EC1000 Browser Operation is discussed in Chapter 4.

---

**Note:** The following sections of this chapter contain information concerning Browser operation. For eco Sensors operation, please reference the separate eco Sensors User Manual. The eco Sensors software and User Manual can be downloaded from the ATEN website.

---

### Browser

The EC2004 Energy Box can be accessed and controlled via any supported Internet browser from any platform. See *Browser Operation*, page 59, and the following sections in this chapter, for full details.

### eco Sensors

The EC2004 Energy Box supports NRGence™ eco Sensors (eco PDU Manager Software). NRGence™ eco Sensors provides you with an easy method for managing multiple devices, offering an intuitive and user-friendly Graphical User Interface that allows you to configure a PDU device and monitor power status of the equipment connected to it. NRGence™ eco Sensors can be downloaded from the ATEN website, along with a separate eco Sensors User Manual.

### SNMP

The EC2004 supports any 3rd party V1, V2, or V3 SNMP Manager Software. SNMP Management Information Database (MIB) files for the EC2004 can be found on the software CD provided with the EC2004 package.

## Browser Login

---

The Energy Box can be accessed via Internet browser from any OS platform.

**Note:** Browsers must support SSL 128 bit encryption.

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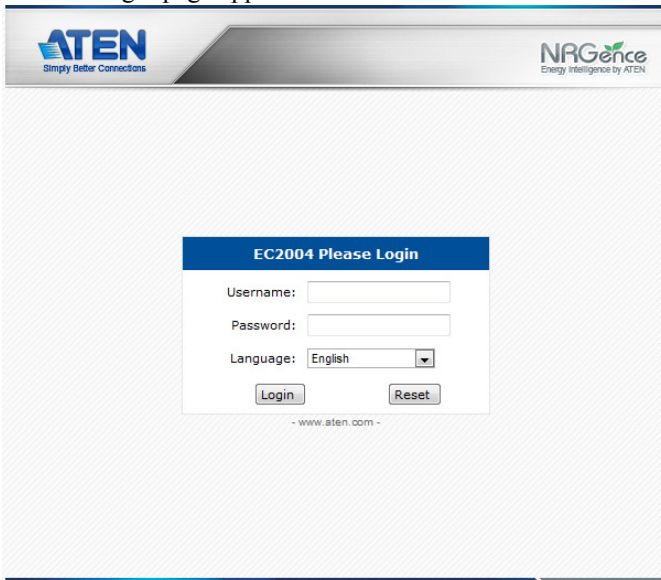
To access the Energy Box, do the following:

1. Open your browser and specify the IP address of the EC2004 you want to access in the browser's URL location bar.

**Note:** You can get the IP address by selecting *IP* from the front panel, or see *IP Address Determination*, page 97, for information about setting it up yourself.

---

2. If a Security Alert dialog box appears, accept the certificate – it can be trusted. The Login page appears:



The screenshot shows a web browser window displaying the login page for the EC2004 device. The page has a header with the ATEN logo on the left and the NRGence logo on the right. The main content area is a white box with a blue title bar that says "EC2004 Please Login". Inside this box, there are three input fields: "Username:" with a text box, "Password:" with a text box, and "Language:" with a dropdown menu currently set to "English". Below these fields are two buttons: "Login" and "Reset". At the bottom of the white box, there is a small footer that reads "- www.aten.com -".

3. Provide a valid Username and Password (see *First Time Setup*, page 59), and select your language.
4. Click **Login** to bring up the Main Page.

## The EC2004 Main Page

After you have successfully logged in, the EC2004's Main Page comes up with the Access *Connections* page displayed:

The screenshot shows the EC2004 web interface. At the top, there is a navigation bar with tabs for 'Access', 'User', 'Log', 'Setup', and 'PDU'. Below this is a sidebar with a tree view of outlets. The main content area displays two tables: 'Energy Sensor Status' and 'Monitor Status'.

Energy Sensor	Energy Sensor Name	Measurement	Min Threshold	Max Threshold
[01] VOLT/AMP	Current	N/A		1.9
	Voltage	N/A	90.0	130.0
	Power	N/A		1200.0
	Power Dissipation	0.3622 KWH		5.0
[02] AMP	Current	N/A		3.0
	Voltage	N/A	90.0	130.0
	Power	N/A		200.0
	Power Dissipation	0.0039 KWH		6.0
[03] VOLT/AMP	Current	N/A		1.5
	Voltage	N/A	90.0	130.0
	Power	N/A		1300.0
	Power Dissipation	0.5630 KWH		7.0
[04] AMP	Current	N/A		4.0
	Voltage	N/A	90.0	130.0
	Power	N/A		155.0
	Power Dissipation	0.0050 KWH		9.0

Energy Box Name	Measurement	Min Threshold	Max Threshold
Aggregate Current	0.00 A		12.0
Power	0.0000 W		1302.0
Aggregate power dissipation	0.9498 KWH		11.0

Environment Sensor Status	
Door Sensor	N/A

**Note:** The screen depicts an Administrator's page. Depending on a user's type and permissions, not all of these elements appear.

### Page Components

The web page screen components are described in the table, below:

No.	Item	Description
1	Tab Bar	The tab bar contains the main operation categories. The items that appear in the tab bar are determined by the user's type, and the authorization options that were selected when the user's account was created.
2	Menu Bar	The menu bar contains operational sub-categories that pertain to the item selected in the tab bar. The items that appear in the menu bar are determined by the user's type, and the authorization options that were selected when the user's account was created.
3	Sidebar	The Sidebar provides a tree view listing of outlets that relate to the various tab bar and menu bar selections.

No.	Item	Description
4	Help / Logout	Help: Connects to on-line help at the ATEN website for the device's configuration and operation. Logout: Click this button to log out of your web session.
5	Interactive Display Panel	This is your main work area. The screens that appear reflect your menu choices and Sidebar selection.

# Browser Operation

## First Time Setup

Once the Energy Box installation has been cabled up, the next task the Administrator needs to perform involves configuring the network parameters, changing the default Administrator login settings, and adding users.

To accomplish this you must login over the network with a browser (See *Browser Login*, page 56, for details).

- Note:**
1. Since this is the first time you are logging in, use the default Username: *administrator*; and the default Password: *password*. For security purposes we recommend changing them to something unique (see *Changing the Administrator Login*, page 61).
  2. For remote methods of getting logged in, use the Select button from the front panel of the EC2004 to obtain the IP address and enter it into a web browser to access the Energy Box; or see *IP Address Determination*, page 97.

After you successfully login, the Access/Connections page appears:

The screenshot shows the NRG Office Ec2004 web interface. The top navigation bar includes icons for Access, User, Log, Setup, and PDU. The main content area is titled 'Connections | Configuration' and contains two tables.

**Energy Sensor Status**

Energy Sensor	Energy Sensor Name	Measurement	Min Threshold	Max Threshold
[01] VOLT/AMP		Current	N/A	1.5
		Voltage	90.0	130.0
		Power	N/A	1200.0
		Power Dissipation	0.3622 KWH	5.0
[02] AMP		Current	N/A	3.0
		Voltage	90.0	130.0
		Power	N/A	200.0
		Power Dissipation	0.0039 KWH	6.0
[03] VOLT/AMP		Current	N/A	1.5
		Voltage	90.0	130.0
		Power	N/A	1300.0
		Power Dissipation	0.5836 KWH	7.0
[04] AMP		Current	N/A	4.0
		Voltage	90.0	130.0
		Power	N/A	155.0
		Power Dissipation	0.0000 KWH	0.0

**Monitor Status**

Energy Box Name	Measurement	Min Threshold	Max Threshold
	Aggregate current	0.00 A	12.0
	Power	0.0000 W	1302.0
	Aggregate power dissipation	0.9498 KWH	11.0
<b>Environment Sensor Status</b>			
Door Sensor	N/A	Door Sensor Type <input checked="" type="radio"/> Not installed <input type="radio"/> Photo (EA-1440) <input type="radio"/> IR (EA-1440)	

**Note:** Operation details are discussed in *Access*, page 62.

## Network Configuration

To set up the network, do the following:

1. Click the **Setup** tab.
2. The interface displays the **Device Configuration** page. A screen similar to the one below appears:

The screenshot shows the NRC Office EC2004 web interface. The top navigation bar includes 'Access', 'User', 'Log', 'Setup', and 'PDU'. The 'Setup' tab is active. The left sidebar shows a tree view with 'EC2004' selected. The main content area is titled 'Device Configuration | Security' and contains the following configuration options:

**General**

Energy Box Name: EC2004  
MAC Address: 00:10:74:A0:00:00  
Firmware Version: F/W Ver: 1.0.066  
Rack Location name: EC2004

**Service Ports**

Only HTTP  HTTP / HTTPS  HTTPS / HTTP  
HTTP: 80  
HTTPS: 443

**IPv4 Configuration**

Obtain IP address automatically [DHCP]  Set IP address manually [Fixed IP]

IP Address: 10.3.52.94  
Subnet Mask: 255.255.254.0  
Default Gateway: 10.3.53.254

Obtain DNS server address automatically  Set DNS server address manually

3. Fill in the fields according to the information provided under *Device Configuration*, page 70.

## Changing the Administrator Login

The User page has a detailed list of administrator and user login information. To change the default Administrator username and password, do the following:

1. Click the **User** tab.

The screenshot shows the NFG Office EC2004 web interface. The top navigation bar includes 'Access', 'User', 'Log', 'Setup', and 'PDU' tabs, with 'User' selected. The main content area is titled 'Accounts' and contains the following sections:

- Administrator information:** Fields for Name (administrator) and Password (masked with asterisks).
- SNMPv3 account information:** Fields for Name (administrator), Auth-password (masked), and Priv-Password (masked).
- SNMPv1/v2c community:** Fields for Read community (administrator) and Write community (administrator).
- User information:** A table with columns for Management, Name, Password, and Energy Sensor (01, 02, 03, 04). The Management column has a 'Disable' dropdown for each row. The Energy Sensor columns contain '0x' values.

A 'Save' button is located at the bottom right of the form.

2. In the **Administrator Information** section, reset the name and password fields to something unique, then click **Save** (at the bottom of the page.)

---

**Note:** If you forget the Administrator's name or password, short the mainboard jumper to restore the default Administrator account. See *Administrator Login Failure*, page 101 in the Appendix for details.

---

# Access

## Connections

When you login to the EC2004, the interface opens with its default selection of the *Access* tab; on the *Connections* menu. The contents of the **Energy Sensor Status** and **Monitor Status** sections are displayed in the main panel.

The screenshot shows the NRGforce EC2004 web interface. The top navigation bar includes 'Access', 'User', 'Log', 'Setup', and 'PDU'. The 'Connections' menu is active, showing a sidebar with 'EC2004', '[P1]', '[P2]', '[P3]', and '[P4]'. The main content area is divided into two sections: 'Energy Sensor Status' and 'Monitor Status'.

**Energy Sensor Status**

Energy Sensor	Energy Sensor Name	Measurement	Min Threshold	Max Threshold
P11 VOLT/AMP		Current	N/A	1.9
		Voltage	N/A	130.0
		Power	N/A	1200.0
		Power Dissipation	0.3622 KWH	5.0
P23 AMP		Current	N/A	3.0
		Voltage	N/A	130.0
		Power	N/A	200.0
		Power Dissipation	0.0039 KWH	6.0
P33 VOLT/AMP		Current	N/A	1.5
		Voltage	N/A	130.0
		Power	N/A	1300.0
		Power Dissipation	0.5836 KWH	7.0
P43 AMP		Current	N/A	4.0
		Voltage	N/A	130.0
		Power	N/A	155.0
		Power Dissipation	0.0000 KWH	9.0

**Monitor Status**

Energy Box Name	Measurement	Min Threshold	Max Threshold
EC2004	Aggregate current	0.00 A	12.0
	Power	0.0000 W	1302.0
	Aggregate power dissipation	0.9498 KWH	11.0
	<b>Environment Sensor Status</b>		
Door Sensor	Door Sensor Type <input checked="" type="radio"/> Not Installed <input type="radio"/> Photo (EA1440) <input type="radio"/> Inductive Proximity (EA1441) <input type="radio"/> Reed (EA1442)		
	Sensor 1	Temperature	N/A
		Humidity	N/A
		Pressure	N/A
Sensor 2	Temperature	N/A	
	Humidity	N/A	
	Pressure	N/A	
Sensor 3	Temperature	N/A	
	Humidity	N/A	



## Energy Sensor Status

The EC2004 supports the monitoring of two Energy PDU's Amps, and two Energy PDU's Amps + Voltage readings. The **Energy Sensor Status** section allows you to view the power status and set up power management configurations for each Energy PDU:

**Energy Sensor Status**

Energy Sensor	Energy Sensor Name	Measurement		Min Threshold	Max Threshold
[01] VOLT/AMP		Current	N/A	<input type="text"/>	<input type="text"/>
		Voltage	N/A	<input type="text"/>	<input type="text"/>
		Power	N/A	<input type="text"/>	<input type="text"/>
		Power Dissipation	0.0000 KWH	<input type="text"/>	<input type="text"/>
[02] AMP		Current	N/A	<input type="text"/>	<input type="text"/>
		Voltage	N/A	<input type="text"/>	<input type="text"/>
		Power	N/A	<input type="text"/>	<input type="text"/>
		Power Dissipation	0.0000 KWH	<input type="text"/>	<input type="text"/>
[03] VOLT/AMP		Current	N/A	<input type="text"/>	<input type="text"/>
		Voltage	N/A	<input type="text"/>	<input type="text"/>
		Power	N/A	<input type="text"/>	<input type="text"/>
		Power Dissipation	0.0000 KWH	<input type="text"/>	<input type="text"/>
[04] AMP		Current	N/A	<input type="text"/>	<input type="text"/>
		Voltage	N/A	<input type="text"/>	<input type="text"/>
		Power	N/A	<input type="text"/>	<input type="text"/>
		Power Dissipation	0.0000 KWH	<input type="text"/>	<input type="text"/>

### ■ Energy Sensor

This field displays the Energy Sensor port number that the Energy PDU is connected to.

### ■ Energy Sensor Name

This field displays the custom name created for the Energy sensor port (see *Configuration*, page 65).

### ■ Measurement

This field displays the real-time *Current*, *Voltage*, *Power*, and *Power Dissipation* of the Energy PDU.

### ■ Threshold Settings

This field is used to set the minimum and maximum threshold settings for the Energy PDU's measurements. If a range falls below the minimum setting, or exceeds the maximum setting an alarm is triggered.

## Monitor Status

The EC2004 supports PDU device level monitoring, plus monitoring via Door and environmental sensors\*. The **Monitor Status** section allows you to view the status and set up environmental management configurations for each sensor device:

### Monitor Status

Energy Box Name	Measurement	Min Threshold	Max Threshold	
EC2004	Aggregate current	0.00 A		
	Power	0.0000 W		
	Aggregate power dissipation	0.0000 KWH		
	<b>Environment Sensor Status</b>			
	Door Sensor	N/A	<b>Door Sensor Type</b> <input checked="" type="radio"/> Not Installed <input type="radio"/> Photo (EA1440) <input type="radio"/> Inductive Proximity (EA1441) <input type="radio"/> Reed (EA1442)	
	Sensor 1	Temperature	24.60 °C	
		Humidity	60.00 %	
		Pressure	N/A	
	Sensor 2	Temperature	25.50 °C	
		Humidity	56.00 %	
		Pressure	N/A	
	Sensor 3	Temperature	N/A	
		Humidity	N/A	
		Pressure	N/A	
	Sensor 4	Temperature	N/A	
Humidity		N/A		
	Pressure	N/A		

### ■ Measurement

This field displays the real-time measurement from the **Environmental Sensors**: (Temperature, Humidity, Differential Pressure), **Door Sensor**: (Photo, Inductive Proximity, Reed), and **PDU Device**: (Aggregate Current, Power, Aggregate Power Dissipation).

### ■ Threshold Settings

These fields are used to set the Door Sensor Type, and **Maximum / Minimum** threshold settings for *Temperature, Humidity, Differential Pressure*, and **Maximum** thresholds for *Aggregate Current, Power, and Aggregate Power Dissipation*. If a range falls below the minimum setting, or exceeds the maximum setting an alarm is triggered.

---

**Note:** Sensors are optional accessories. see *Optional Accessories*, page 6.

---

## **Configuration**

The *Configuration* page, selected from the menu bar, is used to set custom names for the Energy Sensor ports of each Energy PDU:

### **Energy Sensor Configuration**

<b>Energy Sensor</b>	<b>Energy Sensor Name</b>
[01]	<input type="text"/>
[02]	<input type="text"/>
[03]	<input type="text"/>
[04]	<input type="text"/>

Each Energy Sensor port can be given a name. The maximum number of characters is 15. When you have finished making your changes, click **Save**.

# User Management

When you select the *User* tab the screen comes up with *Administrator Information* and *User Information* displayed in the main panel. The EC2004 supports one Administrator account and up to eight User accounts.

- Note:**
1. Each account can support 2 login sessions.
  2. The EC2004 supports a total of 3 concurrent login sessions.

**Administrator information**

Name:  Password:

**SNMPv3 account information**

Name:  Auth-password:  Priv-Password:

**SNMPv1/v2c community**

Read community:  Write community:

---

**User Information**

Management	Name	Password	Energy Sensor			
			01	02	03	04
Disable ▾			[X]	[X]	[X]	[X]
Disable ▾			[X]	[X]	[X]	[X]
Disable ▾			[X]	[X]	[X]	[X]
Disable ▾			[X]	[X]	[X]	[X]
Disable ▾			[X]	[X]	[X]	[X]
Disable ▾			[X]	[X]	[X]	[X]
Disable ▾			[X]	[X]	[X]	[X]
Disable ▾			[X]	[X]	[X]	[X]

## Administrator Information

This section is used to set the Administrator name and password for browser login, SNMPv3 accounts, and SNMPv1/v2c community settings. Only Administrators can view this section. For details, see *Changing the Administrator Login*, page 61.




## User Information

To add a user, do the following:

1. Set the Management field to *Enable*.
2. Key in a name and password in the **Name** and **Password** fields.
3. Set the sensor-by-sensor permissions of the user in the **Energy Sensor** field.
4. Click **Save** to save your settings.

**Note:** Correct values must be entered in both the Name and Password fields to enable an account. For account policies see page 80.

The various options are explained in more detail in the following table:

Field	Description	
Management	<p>The Management field allows you to Enable or Disable a user's account:</p> <ul style="list-style-type: none"> <li>◆ Enable – stores the user account</li> <li>◆ Disable – disables the user account</li> </ul>	
Name	From 1 to 16 characters are allowed depending on the Account Policy settings. See <i>Account Policy</i> , page 80.	
Password	From 1 to 16 characters are allowed depending on the Account Policy settings. See <i>Account Policy</i> , page 80.	
Energy Sensor	<p>This field allows you to set the Energy sensor-by-sensor permissions of the user. Click on the user/port icon to cycle through the three permissions options, as follows:</p>	
		User has complete access to this sensor port.
		User has read-only access to this sensor port.
		User has no access to this sensor port.
Save	Click this button to save your operation or changes	

# Log

The EC2004 keeps a record of transactions that take place on its installation, and stores up to 128 events at one time. The *System Log* page provides a powerful array of filters and functions that allow you to view and export the log file data, as well as be informed by email of specified events as they occur. If you need to log more than 128 events at a time, a syslog server can be used (see *Syslog Server*, page 76). In addition, from the *Notification Settings* page, you can configure notification settings to be sent via Syslog, E-mail, or SNMP.

The screenshot shows the NRC@Office EC2004 System Log interface. The top navigation bar includes icons for Access, User, Log, Setup, and PDU. The main panel displays a log table with the following data:

No.	Date/Time	Category	Severity	User	Description
001	2013-06-28 09:34:29	Authentication	Information	administrator	administrator 10.3.41.52 logged in.
002	2013-06-28 09:33:42	System	Notification		PDU 0.0.0.0 get new IP address 10.3.41.118 from DHCP server.
003	2013-06-28 09:29:38	Authentication	Information	administrator	administrator 10.3.41.52 session timed out.
004	2013-06-28 09:25:37	Authentication	Information	administrator	administrator 10.3.41.52 logged in.
005	2013-06-28 09:23:17	System	Notification		PDU 0.0.0.0 get new IP address 10.3.41.118 from DHCP server.
006	2013-06-28 09:22:12	Device	Information		Environmental Sensors 2 added to Station
007	2013-06-28 09:22:11	Device	Information		Environmental Sensors 1 added to Station
008	2013-06-28 09:22:09	System	Information		Device was rebooted.
009	2013-06-27 17:18:21	Authentication	Information	administrator	administrator 10.3.41.52 logged out.
010	2013-06-27 15:58:51	Device	Notification		Rack door is closed
011	2013-06-27 15:58:36	Device	Notification		Rack door is closed
012	2013-06-27 15:58:28	Device	Critical		Rack door is open
013	2013-06-27 15:42:13	Authentication	Information	administrator	administrator 10.3.41.52 logged in.
014	2013-06-27 15:41:37	System	Notification		PDU 0.0.0.0 get new IP address 10.3.41.118 from DHCP server.
015	2013-06-27 15:36:51	Device	Information		Environmental Sensors 2 added to Station
016	2013-06-27 15:36:41	Device	Information		Environmental Sensors 1 added to Station
017	2013-06-27 15:35:28	System	Information		Device was rebooted.

The interface also includes a sidebar with device IDs (011-014), a Refresh button, a page size selector (25), and navigation buttons (Clear, First Page, Previous Page, Next Page, Last Page, Save) at the bottom.

## The System Log Event List

- Clicking on a device in the Sidebar displays its log events in the main panel's log event list.
- Clicking the **Refresh** button brings the log list up to date with the latest events.
- The entry box to the right of the Refresh button lets you set the number of events to display per page. Simply key in the number of your choice.
- The top right of the main panel shows the total number of pages in the log file, and what page you are currently viewing.
- The buttons on the bottom row function as follows:
  - **Clear** – click to erase the contents of the log event list
  - **First Page** – click to go to the first page of the log event list
  - **Previous Page** – click to move to the previous page of the log event list

- ◆ **Next Page** – click to move to the next page of the log event list
- ◆ **Last Page** – click to move to the last page of the log event list
- ◆ **Save** – click to save the contents of the log event list to a Csv or Txt type file.

## Notification Settings

The Notification Settings page lets you decide which events trigger a notification, and how the notifications are sent out:

Event Log Settings			
Event List			
Event	Syslog	E-mail	SNMP
▼ Enable all system events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Log export succeeded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
System event log (SEL) cleaned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FW upgrade succeeded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FW upgrade failed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Device configuration restore succeeded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Device configuration restore failed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Device configuration backup succeeded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Device configuration settings modified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Security settings modified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FW upgrade started	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Device rebooted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PDU get new IP address	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▼ Enable all Authentication events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
User login	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
User login failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
User logout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Session timeout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▶ Enable all User Management events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▶ Enable all Device Management events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notifications can be sent via E-mail, SNMP, or written to the SysLog file, or any combination of the three. A check mark ( ✓ ) indicates that notification of the event is permitted for the method specified in the column heading; an empty box indicates that notification is not restricted.

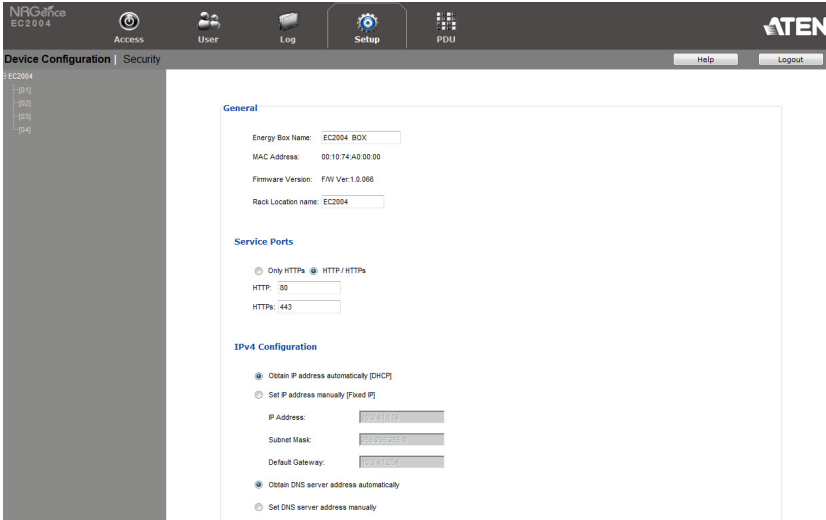
To view all log options, you can expand the *Event Lists*: **Enable all system events**, **Enable all Authentication events**, **Enable all User Management events**, or **Enable all Device Management events**, using icon below.



**Note:** In any of the columns, you can select the top heading to select a group of events. Clicking permit/restrict on a group heading causes all of them to change in unison.

# Setup

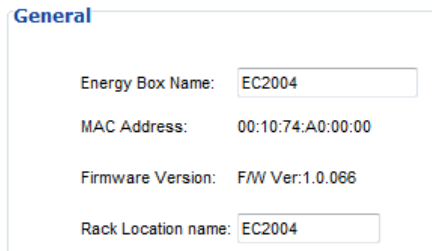
The *Setup* page allows administrators to set the EC2004’s device configurations and security.



## Device Configuration

This page provides information about the EC2004, as described in the following sections:

### General



Item	Meaning
Energy Box Name	This field lets you give the device a unique name. Simply delete whatever is in the text box and key in the name of your choice. Click <b>Save</b> (located at the bottom of the page) to save the new name.



Item	Meaning
MAC Address	This item displays the EC2004's MAC address.
Firmware Version	This item displays the current firmware version number. You can reference it to see if there are newer versions available on the ATEN website.
Rack Location Name	This field lets you give the rack location a unique name for easy reference.

## Service Ports

As a security measure, if a firewall is being used, the Administrator can specify the port numbers that the firewall will allow. If a port other than the default is used, users must specify the port number as part of the IP address when they login. If an invalid port number (or no port number) is specified, the EC2004 will not be found.

### Service Ports

Only HTTPs     HTTP / HTTPs

HTTP:

HTTPs:

An explanation of the fields is given in the table below:

Field	Explanation
Only HTTPs	Select this button to only use HTTPs service port connections.
HTTP / HTTPs	Select this button to use both HTTP and HTTPs service port connections.
HTTP	The port number for a browser login. The default is 80.
HTTPS	The port number for a secure browser login. The default is 443.

- Note:**
- Valid entries for all of the Service Ports are from 1–65535.
  - The service ports cannot have the same value. You must set a different value for each one.
  - If there is no firewall (on an Intranet, for example), it doesn't matter what these numbers are set to, since they have no effect.

## IPv4 Configuration

The EC2004's IPv4 IP and DNS addresses (the traditional method of specifying IP addresses) can either be assigned dynamically (DHCP), or a fixed IP address can be specified.

### IPv4 Configuration

Obtain IP address automatically [DHCP]

Set IP address manually [Fixed IP]

IP Address:

Subnet Mask:

Default Gateway:

Obtain DNS server address automatically

Set DNS server address manually

Preferred DNS Server:

Alternate DNS Server:

- ◆ For dynamic IP address assignment, select the **Obtain IP address automatically** radio button. (This is the default setting.)
- ◆ To specify a fixed IP address, select the **Set IP address manually** radio button and fill in the IP address with values appropriate for your network.
- ◆ For automatic DNS Server address assignment, select the **Obtain DNS Server address automatically** radio button.
- ◆ To specify the DNS Server address manually, select the **Set DNS server address manually** radio button, and fill in the addresses for the Preferred and Alternate DNS servers with values appropriate for your network.

- 
- Note:**
1. If you choose *Obtain IP address automatically*, when the device starts up it waits to get its IP address from the DHCP server. If it hasn't obtained the address after one minute, it automatically reverts to its factory default IP address (192.168.0.60.)
  2. If the device is on a network that uses DHCP to assign network addresses, and you need to ascertain its IP address, see *IP Address Determination*, page 97, for information.
  3. Specifying the Alternate DNS Server address is optional.
-

## IPv6 Configuration

IPv6 is the new (128-bit) format for specifying IP addresses\* (See *IPv6*, page 99 for further information).

**Note:** At present, the EC2004 does not support IPv6 but we intend to enable this feature in the near future. For more information, please check our website for the latest EC2004 firmware updates.

### IPv6 Configuration

Enable autoconfiguration  
 Set configuration manually

IP Address:   
 Static Prefix Length:   
 Default Gateway:

Use DHCPv6 to obtain DNS Server Addresses  
 Set DNS server address manually

Preferred DNS Server:   
 Alternate DNS Server:

- ◆ For auto IP address assignment, select the *Enable autoconfiguration* radio button.
- ◆ To specify a fixed IP address, select the *Set configuration manually* radio button and fill in the IP address with values appropriate for your network.
- ◆ For automatic DNS Server address assignment, select the *Use DHCPv6 to obtain DNS Server Addresses* radio button.
- ◆ To specify the DNS Server address manually, select the *Set DNS server address manually* radio button, and fill in the addresses for the Preferred and Alternate DNS servers with values appropriate for your network.

**Note:** 1. If the device is on a network that uses DHCP to assign network addresses, and you need to ascertain its IP address, see *IP Address Determination*, page 97, for information.

2. Specifying the Alternate DNS Server address is optional.

## Event Notification

The Event Notification section is divided into three sections: SMTP Server; SNMP Trap Receivers; and Syslog Server. Each section is described below.

### ◆ SMTP Server

#### Event Notification

##### SMTP Server

Enable report from the following SMTP Server

SMTP Server:

My server requires authentication

Account Name:

Password:

From:

To:

To have the EC2004 email reports from the SMTP server to you, do the following:

1. Select **Enable report from the following SMTP Server**, and key in the IP address of your SMTP server.
2. If your server requires authentication, select the **My server requires authentication** checkbox.
3. Key in the appropriate account information in the **Account Name**, **Password**, and *From* fields.

---

**Note:** Only one email address is allowed in the *From* fields, and it cannot exceed 64 characters.)

---

4. Key in the email address (addresses) of where you want the event reports sent to in the *To* field.

---

**Note:** If you are sending the report to more than one email address, separate the addresses with a comma or semicolon. The use of a comma or semicolon to separate the email address will depend on your mail servers settings. The total cannot exceed 256 characters.

---

## ◆ SNMP Trap Receivers

### SNMP Trap Receiver

<input type="checkbox"/> Enable SNMP Trap	<input checked="" type="radio"/> SNMPv3	<input type="radio"/> SNMPv2c	<input type="radio"/> SNMPv1
Receiver IP 1:	<input type="text" value="0.0.0.0"/>		
Service Port 1:	<input type="text" value="162"/>		
Community 1:	<input type="text"/>		
User name 1:	<input type="text"/>		
Auth-password 1:	<input type="text"/>		
Priv-Password 1:	<input type="text"/>		
Receiver IP 2:	<input type="text" value="0.0.0.0"/>		
Service Port 2:	<input type="text" value="162"/>		
Community 2:	<input type="text"/>		
User name 2:	<input type="text"/>		
Auth-password 2:	<input type="text"/>		
Priv-Password 2:	<input type="text"/>		

Up to four SNMP management stations can be specified. If you want to use SNMP trap notifications, do the following:

1. Check **Enable SNMP Trap**.
2. Select the type: **SNMPv3**, **SNMPv2c**, or **SNMPv1**.
3. For *SNMPv3* key in the **Receiver IP(s)**, **User name(s)**, **Auth-password(s)**, **Priv-password(s)** and **Service Port** number(s) of the computer(s) to be notified of SNMP trap events. The valid port range is 1–65535. The default port number is 162.
4. For *SNMPv2c* and *SNMPv1* key in the **Receiver IP(s)**, **Community(s)**, and **Service Port** number(s) of the computer(s) to be notified of SNMP trap events. The valid port range is 1–65535. The default port number is 162.

## ◆ Syslog Server

### Syslog Server

Enable Syslog Server

Server IP:

0.0.0.0

Service Port:

514

To record all the events that take place on EC2004 devices and write them to the Syslog server, do the following:

1. Check **Enable Syslog Server**.
2. Key in the **Server IP** and the **Service Port** of the Syslog server. The valid port range is 1-65535. The default port number is 514.

## Date/Time

The Date/Time dialog page sets the EC2004 time parameters:

### Date Time

#### Time Zone

(GMT-12:00) Eniwetok Kwajalein ▼

Daylight Savings Time

#### Manual Input

Date: 2013-06-28 (YYYY-MM-DD) 

Time: 11:36:37 (HH:MM:SS)

Sync with PC

#### Network Time

Enable auto adjustment

AU | ntp1.cs.mu.OZ.AU ▼

Preferred custom server IP: 0.0.0.0

Alternate time server:

AU | ntp1.cs.mu.OZ.AU ▼

Alternate custom server IP: 0.0.0.0

1 Adjust time every days

Adjust Time Now

Set the parameters according to the information described below.

### Time Zone

- ♦ To establish the time zone that the EC2004 is located in, drop down the **Time Zone** list and choose the city that most closely corresponds to where it is at.
- ♦ If your country or region employs **Daylight Saving Time** (Summer Time), check the corresponding checkbox.

## Manual Input

Use this section to specify the EC2004's date and time manually.

- ◆ Click the calendar icon and click the calendar entry for the date.
- ◆ Key the time into the Time field, using the HH:MM:SS (hours, minutes, seconds) format.

---

**Note:** This section is only enabled when *auto adjustment* (in the *Network Time* section) is disabled (the checkbox is unchecked).

---

As an alternative to specifying the date and time by entering them into the date and time fields, you can click to put a check in the **Sync with PC** checkbox, in which case the EC2004 will take its date and time settings from the locally connected PC.

## Network Time

To have the time automatically synchronized to a network time server, do the following:

1. Check the **Enable auto adjustment** checkbox.
2. Drop down the time server list to select your preferred time server  
– or –  
Check the **Preferred custom server IP** checkbox, and key in the IP address of the time server of your choice.
3. If you want to configure an alternate time server, check the **Alternate time server** checkbox, and repeat step 2 for the alternate time server entries.
4. Key in your choice for the number of days between synchronization procedures.

## Finishing Up

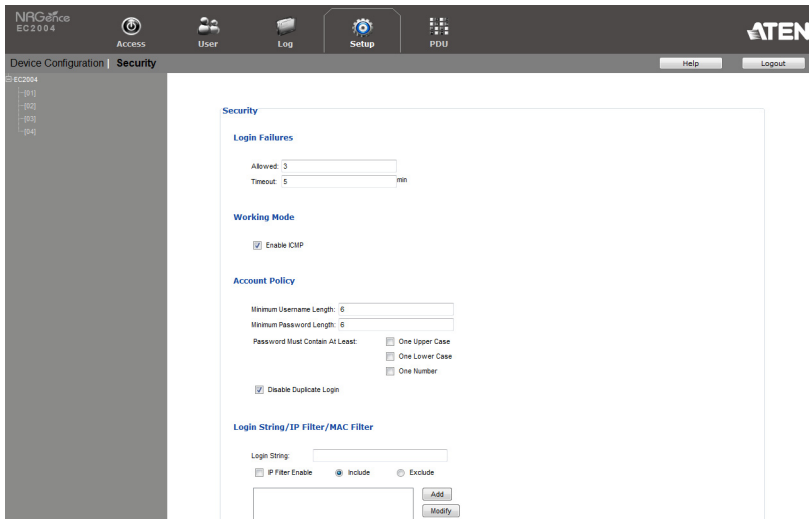
When you have finished making your settings on this page, click **Save**.

After you have saved your changes, if you want to synchronize immediately, click **Adjust Time Now**.



## Security

The Security page controls access to the EC2004.



### Login Failures

#### Login Failures

Allowed:   
 Timeout:  min

- ◆ **Allowed** sets the number of consecutive failed login attempts that are permitted from a remote user.
- ◆ **Timeout** sets the amount of time a remote user must wait before attempting to login again after exceeding the number of allowed failures.

### Working Mode

#### Working Mode

Enable ICMP

- ◆ If **ICMP** is *enabled*, the EC1000 Energy Box can be pinged. If it is not enabled, the device cannot be pinged. The default is Enabled.

## Account Policy

The Account Policy section governs policies in regard to usernames and passwords.

### Account Policy

Minimum Username Length:

Minimum Password Length:

Password Must Contain At Least:

- One Upper Case
- One Lower Case
- One Number

Disable Duplicate Login

Check a policy and enter the required information in the appropriate fields.

Item	Description
Minimum Username Length	Sets the minimum number of characters required for a username. Acceptable values are from 1–16.
Minimum Password Length	Sets the minimum number of characters required for a password. Acceptable values are from 1–16.
Password Must Contain At Least	Checking any of these items requires users to include at least one of the specified items in their password. <b>Note:</b> This policy does not affect existing user accounts. Only new user accounts created after this policy has been enabled, and users required to change their passwords are affected.
Disable Duplicate Login	Check this to prevent users from logging in with the same account at the same time.

## Login String / IP Filter / Mac Filter

### Login String/IP Filter/MAC Filter

Login String:

IP Filter Enable     Include     Exclude

MAC Filter Enable     Include     Exclude

#### ■ Login String

The *Login String* entry field is used to specify a login string (in addition to the IP address) that users must include when accessing the EC2004 device with a browser. For example:

192.168.0.126/abcdefg

- ◆ The following characters are allowed:

0–9 a–z A–Z ~ ! @ \$ \* ( ) \_ ' ,

- ◆ The following characters are not allowed:

& ^ { } ' < > | " % ” : / ? # \ [Space] + - = [ ] ;

Compound characters (É Ç ñ ... etc.)

- 
- Note:**
1. There must be a forward slash between the IP address and the string.
  2. If no login string is specified here, anyone will be able to access the EC2004 login page using the IP address alone. This makes your installation less secure.
  3. For security purposes, we recommend that you change this string occasionally
-

## ■ IP Filter / MAC Filter

If any filters have been configured, they appear in the IP Filter and/or MAC Filter list boxes.

IP and MAC Filters control access to the EC2004 based on the IP and/or MAC addresses of the client computers attempting to connect. A maximum of 5 IP filters and 5 MAC filters are allowed.

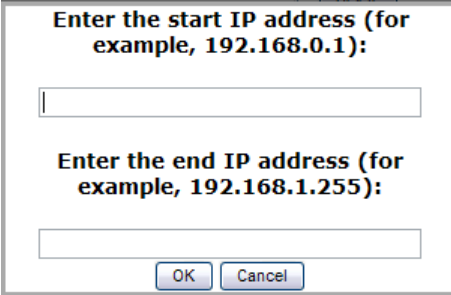
To enable IP and/or MAC filtering, click to put a check mark in the **IP Filter Enable** and/or **MAC Filter Enable** checkbox.

- ◆ If the **Include** button is checked, all the addresses within the filter range are allowed access; all other addresses are denied access.
- ◆ If the **Exclude** button is checked, all the addresses within the filter range are denied access; all other addresses are allowed access.

### Adding Filters

To add an IP filter, do the following:

1. Click **Add**. A dialog box similar to the one below appears:



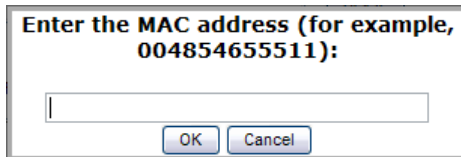
The dialog box is titled "Enter the start IP address (for example, 192.168.0.1):" and "Enter the end IP address (for example, 192.168.1.255):". It features two text input fields, one for the start IP and one for the end IP. At the bottom, there are two buttons: "OK" and "Cancel".

2. Enter the start and end filter addresses in the dialog boxes (for example, 192.168.0.200), then click **OK**.
3. To filter a single IP address, key in the same IP address for the start and end IP. To filter a continuous range of addresses, key in the last number of the range (for example, 192.168.0.225).
4. After filling in the address, click **OK**.

Repeat these steps for any additional IP addresses you want to filter.

To add a MAC filter, do the following:

1. Click **Add**. A dialog box similar to the one below appears:



2. Specify the MAC address in the dialog box (for example, 001074670000), then click **OK**.

Repeat these steps for any additional MAC addresses you want to filter.

### **IP Filter / MAC Filter Conflict**

If there is a conflict between an IP filter and a MAC filter – for example, where a computer's IP address is allowed by the IP filter but its MAC address is excluded by the MAC filter – then that computer's access is blocked.

In other words, if either filter blocks a computer, then the computer is blocked, no matter what the other filter is set to.

### **Modifying Filters**

To modify a filter, select it in the IP Filter or MAC Filter list box and click **Modify**. The Modify dialog box is similar to the Add dialog box. When it comes up, simply delete the old address(es) and replace it with the new one(s).

### **Deleting Filters**

To delete a filter, select it in the IP Filter or MAC Filter list box and click **Delete**.

## **Authentication & Authorization**

The Authentication & Authorization page is used to set up login authentication and authorization management from external sources.

### **Authentication & Authorization**

#### **RADIUS Settings**

Enable RADIUS

Preferred RADIUS Server IP:	<input type="text" value="0.0.0.0"/>
Preferred RADIUS Service Port:	<input type="text" value="1812"/>
Alternate RADIUS Server IP:	<input type="text" value="0.0.0.0"/>
Alternate RADIUS Server Port:	<input type="text" value="1645"/>
Timeout:	<input type="text" value="1"/> sec
Retries:	<input type="text" value="0"/>
Shared Secret (at least 6 characters):	<input type="text"/>

### **RADIUS Settings**

To allow authentication and authorization for the EC2004 device through a RADIUS server, do the following:

1. Check **Enable RADIUS**.
2. Fill in the **Preferred RADIUS Server IP**, **Preferred RADIUS Service Port**, and (*optional*) **Alternate RADIUS Server IP** and **Preferred RADIUS Service Port**. The default port number for the Preferred server is 1812; the default port number for the Alternate server is 1645.

---

**Note:** Make sure that the port numbers you specify here match the port numbers used by the RADIUS servers.

---

3. In the **Timeout** field, set the time in seconds that the EC2004 waits for a RADIUS server reply before it times out.
4. In the **Retries** field, set the number of allowed retries for attempting to connect to the RADIUS server.
5. In the **Shared Secret** field, key in the character string that you want to use for authentication between the EC2004 and the RADIUS Server.

6. On the RADIUS server, set the entry for each user as follows:

su/xxxx

Where *xxxx* represents the Username given to the user when the account was created on the EC2004. The user's access rights are the ones assigned for the EC2004, as well. (See *User Information*, page 66.)

## Private Certificate

When logging in over a secure (SSL) connection, a signed certificate is used to verify that the user is logging in to the intended site. For enhanced security, the *Private Certificate* section allows you to use your own private encryption key and signed certificate, rather than the default ATEN certificate.

There are two methods for establishing your **Private Certificate**: generating a self-signed certificate; and importing a third-party certificate authority (CA) signed certificate.

### Generating a Self-Signed Certificate

If you wish to create your own self-signed certificate, a free utility – openssl.exe – is available for download over the web.

### Obtaining a CA Signed SSL Server Certificate

For the greatest security, we recommend using a third party certificate authority (CA) signed certificate. To obtain a third party signed certificate, go to a CA (Certificate Authority) website to apply for an SSL certificate. After the CA sends you the certificate and private encryption key, save them to a convenient location on your computer.

### Importing the Private Certificate

To import the private certificate, do the following:

#### Private Certificate

Private Key:

Certificate:

1. Click **Browse** to the right of *Private Key*; browse to where your private encryption key file is located; and select it.
2. Click **Browse** to the right of *Certificate*; browse to where your certificate file is located; and select it.
3. Click **Upload** to complete the procedure.

---

**Note:** 1. Clicking **Restore Default** returns the device to using the default ATEN certificate.

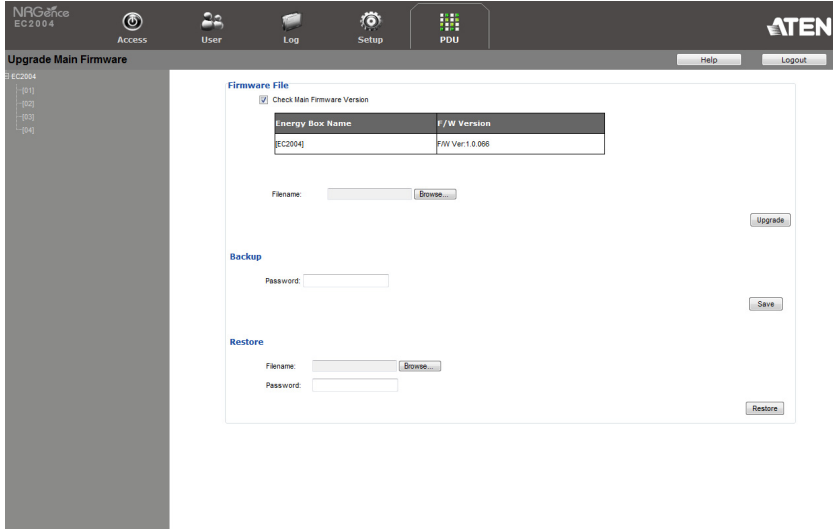
2. Both the private encryption key and the signed certificate must be imported at the same time.
- 

When you have finished making your settings on this page, click **Save**.



## PDU

The *PDU* function is used to upgrade the EC2004's firmware, and to backup and restore the device's configuration settings.



### Firmware File

When you click the **PDU** tab, *Firmware Upgrade File* is displayed at the top, which looks similar to the one below:

**Firmware File**

Check Main Firmware Version

Energy Box Name	F/W Version
[EC2004]	F/W Ver:1.0.066

Filename:

A description of the items shown in this panel are given in the table, below:

Item	Description
Check Main Firmware Version	If you enable <i>Check Main Firmware Version</i> , the EC2004's current firmware level is compared with that of the upgrade file. If the current version is equal to or higher than the upgrade version, a popup message appears, to inform you of the situation and stops the upgrade procedure.
Energy Box Name	Lists the name of the EC2004 Energy Box.

Item	Description
F/W Version	Displays the EC2004 's current firmware version.
Filename	As new versions of the firmware become available, they are posted on our website and can be downloaded to a convenient location on your computer. Click the <i>Browse</i> button to select the downloaded upgrade file.
Upgrade	Click this button to upgrade the firmware of the selected devices.

## ■ Upgrading the Firmware

To upgrade the firmware refer to the screen shot on the preceding page, and do the following:

1. Go to our website and download the new firmware file to a convenient location on your computer.
2. Click the **Browse** button; navigate to where the firmware file is located and select it.
3. Click **Upgrade** to start the upgrade procedure.
  - ◆ If you enabled **Check Main Firmware Version** the current firmware level is compared with that of the upgrade file. If the current version is equal to or higher than the upgrade version, a popup message appears, to inform you of the situation and stops the upgrade procedure.
  - ◆ If you didn't enable **Check Main Firmware Version**, the upgrade file is installed without checking what its level is.
  - ◆ Once the upgrade completes successfully, the EC2004 resets itself.
4. Log in again, and check the firmware version to be sure it is the new one.

## ■ Firmware Upgrade Recovery

Should the EC2004's firmware upgrade procedure fail, and the device becomes unusable, the following firmware upgrade recovery procedure will resolve the problem:

1. Power off the device.
2. Press and hold the **Reset Switch** (see page 7).
3. While holding the Reset Switch in, power the switch back on.

This causes the switch to use the original factory installed main firmware version. Once the switch is operational, you can try upgrading the main firmware again.

## Backup/Restore

Using *Backup/Restore* from the *PDU* tab gives you the ability to back up the EC2004's configuration and user profile information:

The image shows a web interface for backup and restore operations. It is divided into two sections: 'Backup' and 'Restore'.  
In the 'Backup' section, there is a label 'Backup' in blue, followed by a 'Password:' label and an empty text input field. To the right of the input field is a 'Save' button.  
In the 'Restore' section, there is a label 'Restore' in blue, followed by a 'Filename:' label, an empty text input field, and a 'Browse...' button. Below this is a 'Password:' label and another empty text input field. To the right of the second input field is a 'Restore' button.

### Backup

To backup the device's settings do the following:

1. In the **Password** field, key in a password for the file.

---

**Note:** Entering a password is optional. If you do enter a password, make a note of it, since you will need it to be able to restore the file.

---

2. Click **Save**.
3. When the browser asks what you want to do with the file, select *Save to disk*; then save it in a convenient location.

### Restore

To restore a previous backup, do the following:

1. Click **Browse**; navigate to the file and select it.
2. In the **Password** field, key in the same password that you used to save the file.

---

**Note:** If you didn't set a password for the file, you can omit this step.

---

3. Click **Restore**.

After the file is restored, a message appears to inform you that the procedure succeeded, and you are automatically logged off the Energy Box.

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## Safety Instructions

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### General

- ◆ This product is for indoor use only.
- ◆ Read all of these instructions. Save them for future reference.
- ◆ Follow all warnings and instructions marked on the device.
- ◆ Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.
- ◆ Do not use the device near water.
- ◆ Do not place the device near, or over, radiators or heat registers.
- ◆ The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.
- ◆ The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.
- ◆ Never spill liquid of any kind on the device.
- ◆ Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- ◆ The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- ◆ The device is designed for IT power distribution systems with 100V to 230V phase-to-phase voltage.
- ◆ To prevent damage to your installation it is important that all devices are properly grounded.
- ◆ Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

- ◆ If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- ◆ To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- ◆ Position system cables and power cables carefully; Be sure that nothing rests on any cables.
- ◆ Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.
- ◆ Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.
- ◆ If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
  - ◆ The power cord or plug has become damaged or frayed.
  - ◆ Liquid has been spilled into the device.
  - ◆ The device has been exposed to rain or water.
  - ◆ The device has been dropped, or the cabinet has been damaged.
  - ◆ The device exhibits a distinct change in performance, indicating a need for service.
  - ◆ The device does not operate normally when the operating instructions are followed.
- ◆ Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- ◆ Do not connect the RJ-11 connector marked “UPGRADE” to a public telecommunication network.

## **Rack Mounting**

- ◆ Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.
- ◆ Always load the rack from the bottom up, and load the heaviest item in the rack first.
- ◆ Make sure that the rack is level and stable before extending a device from the rack.
- ◆ Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.
- ◆ Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.
- ◆ Ensure that proper airflow is provided to devices in the rack.
- ◆ Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer.
- ◆ Do not step on or stand on any device when servicing other devices in a rack.

## Technical Support

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### International

- ◆ For online technical support – including troubleshooting, documentation, and software updates: **<http://support.aten.com>**
- ◆ For telephone support, see *Telephone Support*, page iii

### North America

Email Support		<a href="mailto:support@aten-usa.com">support@aten-usa.com</a>
Online Technical Support	Troubleshooting Documentation Software Updates	<a href="http://www.aten-usa.com/support">http://www.aten-usa.com/support</a>
Telephone Support		1-888-999-ATEN ext 4988

When you contact us, please have the following information ready beforehand:

- ◆ Product model number, serial number, and date of purchase.
- ◆ Your computer configuration, including operating system, revision level, expansion cards, and software.
- ◆ Any error messages displayed at the time the error occurred.
- ◆ The sequence of operations that led up to the error.
- ◆ Any other information you feel may be of help.



# Specifications

## EC1000

Function		EC1000
Energy PDU Connections		4
Port Selection		Pushbutton
Connectors	Energy Sensor	4 x RJ-45 Female
	Environment Sensor	4 x RJ-11 Female
	Power	1 x DC Jack
	LAN	1 x RJ-45 Female
Switches	Reset	1 x Semi-recessed Pushbutton
	Selection	1 x Selection Pushbutton
LEDs	PDU Status	4 (Orange)
	Sensor Status	4 (Green)
	Energy/Environment/IP	3 (Green)
	Selection	1 digit 7-segment (Orange)
	Current/Sensor/IP Address	3 digit 7-segment (Orange)
	Power	1 (Blue)
	LAN	10M/ 100Mbps
	Link	1 (Green)
Monitoring Range		100–240V; 50/60Hz; 0A to 32A (per port) LED Display Resolution 0.1A Precision: $\pm 0.1A@0 \sim 1A$ , $\pm 1\%@ >1A$
Power Consumption		DC 5.3V
Environment	Operating Temp.	0–50°C
	Storage Temp	-20–60°C
	Humidity	0–80% RH, Non-condensing
Physical Properties	Housing	Metal
	Weight	0.59 kg
	Dimensions (L x W x H)	20.00 x 7.59 x 4.20 cm

## EC2004

Function		EC2004	
Energy PDU Connections		4	
Port Selection		Pushbutton	
Connectors	Energy Sensor	Current	2 x RJ-45 Female
		Current / Voltage	2 x RJ-45 Female
	Environment Sensor		4 x RJ-11 Female
	Door Sensor		1 x 4-pin Dry Contact
	Power		1 x DC Jack
	LAN		1 x RJ-45 Female
Switches	Reset		1 x Semi-recessed Pushbutton
	Selection		1 x Selection Pushbutton
LEDs	PDU Status		4 (Orange)
	Sensor Status		4 (Green)
	Energy / Environment / IP		3 (Green)
	Selection		1 digit 7-segment (Orange)
	Current/Sensor/IP Address		3 digit 7-segment (Orange)
	Power		1 (Blue)
	Door Open		1 (Red)
	LAN	10M/ 100Mbps	1 (Orange/Green)
Link		1 (Green)	
Monitoring Range		100–240V; 50/60Hz; 0A to 20A (per port) LED Display Resolution 0.1A Voltage range: 100VAC~250VAC +/-1% Power range: 100W ~ 5000W +/- 2% Current range: 0.1A~1A +/- 0.1A, 1A~20A +/-1%	
Power Consumption		DC 5.3V	
Environment	Operating Temp.		0–50°C
	Storage Temp		-20–60°C
	Humidity		0–80% RH, Non-condensing
Physical Properties	Housing		Metal
	Weight		0.6 kg
	Dimensions (L x W x H)		20.00 x 7.59 x 4.20 cm

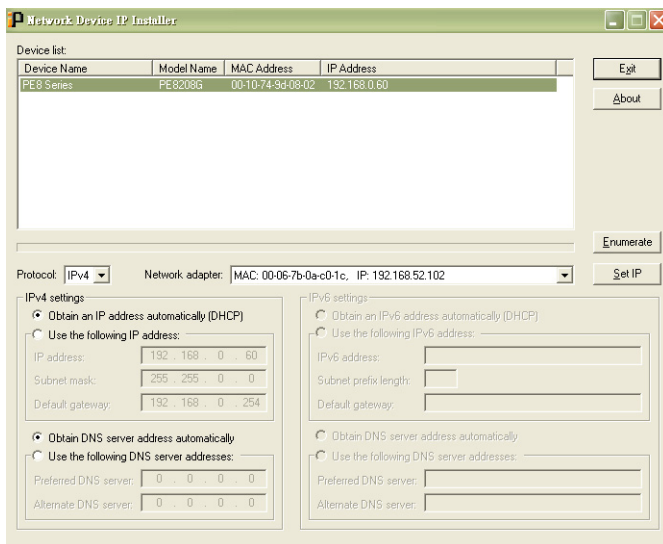
## IP Address Determination

If you are an administrator logging in for the first time, you need to access the Energy Box in order to give it an IP address that users can connect to. There are two methods to choose from. In each case, your client computer must be on the same network segment as the Energy Box. After you have connected and logged in you can give the device its fixed network address. (See *IPv4 Configuration*, page 37)

### Method 1:

For computers running Windows, an IP address can be determined and/or assigned with the IP Installer utility. The utility can be obtained from the *Download* area of our web site or from the software CD. Look under *Driver/SW*, and the model of your device. After downloading the utility to your computer, do the following:

1. Unzip the contents of *IPInstaller.zip* to a directory on your hard drive.
2. Go to the directory that you unzipped the IPInstaller program to and run *IPInstaller.exe*. A dialog box similar to the one below appears:



(Continues on next page.)

(Continued from previous page.)

3. Select the device in the *Device List*.

---

**Note:** 1. If the list is empty, or your device doesn't appear, click **Enumerate** to refresh the Device List.

2. If there is more than one device in the list, use the MAC address to pick the one you want. The eco PDU's MAC address is located on its bottom panel.
- 

4. Select either *Obtain an IP address automatically (DHCP)*, or *Specify an IP address*. If you chose the latter, fill the IP Address, Subnet Mask, and Gateway fields with the information appropriate to your network.
5. Click **Set IP**.
6. After the IP address shows up in the Device List, click **Exit** to end the program.

### **Method 2:**

1. Set your computer's IP address to 192.168.0.XXX  
Where XXX represents any number or numbers except 60. (192.168.0.60) is the default address of the Energy Box.)
2. Specify the device's default IP address (192.168.0.60) in your browser, and you will be able to connect.
3. Assign a fixed IP address for the device (see *IPv4 Configuration*, page 37), that is suitable for the network segment that it resides on.
4. After you log out, reset your computer's IP address to its original value.
5. Once you have logged in, go to Network Settings to set up the permanent IP environment (see *IPv4 Configuration*, page 37).

### **Method 3:**

NRGence™ eco Sensors allows you to determine/assign an IP address in order to configure a Energy Box and monitor power status of the equipment connected to it. NRGence™ eco Sensors can be obtained from the Download area of the ATEN web site.

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## IPv6

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At present, the EC2004 does not support IPv6 but we intend to enable this feature in the near future. For more information, please check our website for the latest EC2004 firmware updates.

### **Link Local IPv6 Address**

At power on, the EC2004 is automatically configured with a Link Local IPv6 Address (for example, fe80::210:74ff:fe61:1ef). To find out what the Link Local IPv6 Address is, log in with the EC2004 IPv4 address and open the *Setup* → *Device Configuration* page. The address is displayed in the *IPv6* section.

Once you have determined what the IPv6 address is, you can use it when logging in from a browser or the Win and Java Client AP programs.

For example:

If you are logging in from a browser, you would key in

```
http://[fe80::2001:74ff:fe6e:59%5]
```

for the URL bar.

- 
- Note:**
1. To log in with the Link Local IPv6 Address, the client computer must be on the same local network segment as the EC2004
  2. The %5 is the %interface used by the client computer. To see your client computer's IPv6 address: from the command line issue the following command: `ipconfig /all`. The % value appears at the end of the IPv6 address.
-

## **IPv6 Stateless Autoconfiguration**

At present, the EC2004 does not support IPv6 but we intend to enable this feature in the near future. For more information, please check our website for the latest EC2004 firmware updates.

If the EC2004 network environment contains a device (such as a router) that supports the IPv6 Stateless Autoconfiguration function, the EC2004 can obtain its prefix information from that device in order to generate its IPv6 address. For example, 2001::74ff:fe6e:59.

As above, the address is displayed in the *Setup* → *Device Configuration* page.

Once you have determined what the IPv6 address is, you can use it when logging in from a browser or the Win and Java Client AP programs.

For example:

If you are logging in from a browser, you would key in

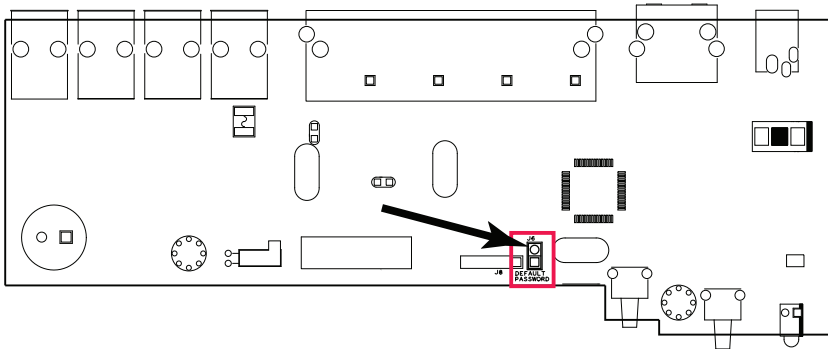
```
http://[2001::74ff:fe6e:59]
```

for the URL bar.

## Administrator Login Failure

If you are unable to perform an Administrator login (because the Username and Password information has become corrupted, or you have forgotten it, for example), you can clear the login information with the following procedure:

1. Power off the Energy Box and remove its housing.
2. Short the jumper labeled J6.



3. Power on the Energy Box.
  4. After the Energy Box beeps (6 seconds), power off the switch.
  5. Remove the jumper cap from J6.
  6. Close the housing and start the Energy Box.
- After you start, you can use the default Username and Password to log in.

## Limited Warranty

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ATEN warrants this product against defects in material or workmanship for a period of one (1) year from the date of purchase. If this product proves to be defective, contact ATEN's support department for repair or replacement of your unit. ATEN will not issue a refund. Return requests can not be processed without the original proof of purchase.

When returning the product, you must ship the product in its original packaging or packaging that gives an equal degree of protection. Include your proof of purchase in the packaging and the RMA number clearly marked on the outside of the package.

This warranty becomes invalid if the factory-supplied serial number has been removed or altered on the product.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence or modification of any part of the product. This warranty does not cover damage due to improper operation or maintenance, connection to improper equipment, or attempted repair by anyone other than ATEN. This warranty does not cover products sold AS IS or WITH FAULTS.

IN NO EVENT SHALL ATEN'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT. FURTHER, ATEN SHALL NOT BE RESPONSIBLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. ATEN SHALL NOT IN ANY WAY BE RESPONSIBLE FOR, WITHOUT LIMITATION, LOSS OF DATA, LOSS OF PROFITS, DOWNTIME, GOODWILL, DAMAGE OR REPLACEMENT OF EQUIPMENT OR PROPERTY, AND ANY EXPENSES FROM RECOVERY, PROGRAMMING, AND REPRODUCTION OF ANY PROGRAM OR DATA.

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ATEN reserves the right to revise or update its product, software or documentation without obligation to notify any individual or entity of such revisions, or update.

For details about extended warranties, please contact one of our dedicated value added resellers.