

# Elite Series PDU

Total kWh monitoring

Per outlet control



User Manual

## Safety Precautions

To avoid potential problems when using PDU:

- If the building has 3-phase AC power, ensure that the server and monitor are on the same phase. For best results, they should be on the same circuit.
- To avoid potentially fatal shock hazard and possible damage to equipment, test AC outlets at the server and monitor for proper polarity and grounding.
- To ensure the safety of network communication, it is recommended that the PDU be installed in a network firewall to prevent malicious attacks by hackers, which will affect the safety of power consumption.

### Safety instructions

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

**WARNING:** All outlets of the PDU output high voltage.  
Necessary precautions should be taken.

**WARNING:** Do not push any objects through the openings of the PDU. Doing so may cause fire or electric shock by shorting out interior components.

**WARNING:** There is a possibility of severe electrical shock

from either the live or neutral side of any of the power outlets or their wiring, even if one of the circuit breakers is disabled.

**WARNING:** The PDU is intended for indoor use only.

**WARNING:** To help protect the PDU from electrical power fluctuations, use a surge suppressor, line conditioner or uninterruptible power supply.

**WARNING:** Be sure that nothing rests on the cables of the PDU and that it is not located where it may be stepped on or tripped over.

**WARNING:** Do not spill food or liquids on the PDU. If it gets wet, disconnect the power immediately.

**WARNING:** Keep the PDU away from heat sources.

## **Rack mount safety considerations**

When installing the PDU, make sure the following environmental specifications are met:

**Elevated Operating Ambient Temperature:** If the PDU is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature.

Therefore, consideration should be given to installing the

equipment in an environment compatible with the manufacturer's maximum rated ambient temperature. See above.

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

**Mechanical Loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading.

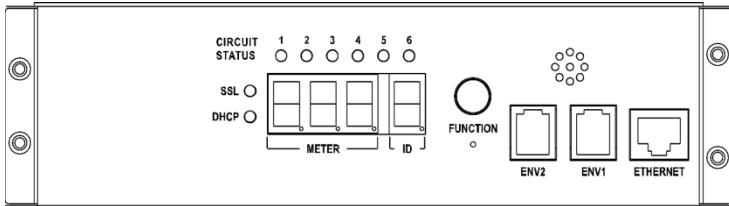
**Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing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

**Reliable Grounding:** Reliable grounding of rack-mounted equipment should be maintained.

Particular attention should be given to supply connections other than direct connections to the branch circuit, such as power strips or extension cords.

# Features and Benefits

The PDU is an Internet-ready power strip equipped with an intelligent current meter to indicate the total power consumption of the Power Distribution Unit (PDU). Each PDU includes PDU Utility software to monitor and manage multiple PDUs.



Functions	Description
Ethernet	Ethernet connection for the built-in web server.
Audible Alarm	<p>Holes for audible alarm.</p> <p>Warning- 1 beep in 1 second.</p> <p>Overload- 3 beeps in 1 second.</p> <p>Note: The audible alarm will keep beeping until the current gets back to normal and the current is lower than the threshold to 0.5 amps.</p>

Function Button	<p>A function button that can be used to change the meter display</p> <ul style="list-style-type: none"><li>● Press and hold the key after 1 beeping; it can let the meter to show up the current information and temperature/humidity in sequence.</li><li>● Press and hold the key after 2 beeping; it can let the meter to show up the IP address</li><li>● Press and hold the key after 4 beeping; it can change the way to get IP by DHCP or Fixed IP.</li><li>● Press and hold the key after 6 beeping; it can reset PDU back to default setting.</li></ul> <hr/>
Meter	<p>A built-in true Root Meter Square (RMS) current meter.</p> <p>3 digits to display current and IP Address.</p> <hr/>
ID	<p>The identification of power circuit.</p>

LED Indicator	SSL (Blue): Light on means web access is protected by SSL.  DHCP (green): Light on means PDU gets IP from DHCP server.  Circuit Status (red): Circuit Status LEDs labeled alphabetically to indicate the PDU's circuit status. The number of LED will vary according to different models.
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ENV1 / ENV2	RJ11 connection for optional accessory to measure temperature and humidity.
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Circuit Breaker	Overload power protection.
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## Alarms and monitoring

The PDU delivers accurate, real-time global current monitoring of all connected devices via the onboard web interface or through the PDU Utility software. Users have the ability to set a current alarm threshold that, once exceeded, will cause the PDU to sound an alarm or send a notification message, or both.

## Sequential power application

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

### **Features :** **System**

- Built-in Web Server to Support Remote Power Management.
- Local LED Displays Amps, IP Address ,Temperature or Humidity
- Daily, Weekly, Monthly & Yearly Power Consumption Data
- 10/100 Base-T Ethernet Port
- IPv4 and IPv6 Support
- SNMP Control (v1,v2c,v3)
- Telnet, SSHv2 Encryption Support
- Radius Authentication
- User Account for Three Different Permissions Management System
- Alarm Notification via Email, SNMP, Syslog, LED or audible alarm
- SSLv3, TLS1.0,TLS1.1,TLS1.2 Support
- IP Address Filtering



- Max. of 5000 entries for each Power Consumption Data and Event Log
- Remote firmware Upgrade Support
- Alive of Heart Beat Trap Available.
- Definable Reset Button
- Fahrenheit and Celsius Switchable
- Export and Import PDU Configuration

## **Power Management**

- True RMS Current Measurement.
- Provide Voltage, Frequency, Power Factor, Active power, Apparent Power and kWh information.
- Remote Per Outlet On/Off Power Switching
- User Defined Alarm Thresholds for Warning and Overload.
- User Defined Power On/OFF Sequence Time.
- Timed & Scheduled On/Off/Reboot Switching
- Alternative Outlet Restart Mode: Memorized Previous Status, Always On or Always Off
- Ping-No-Answer Alarm
- Outlet Action via Pre-Set Event, Including Power Event, Environment Event and Receiving Trap from Other Devices.
- Circuit Breaker Protection
- Free Bundle Management Utility.

## Getting Started

Before installing your PDU, refer to the following list to ensure you have all items that shipped with the PDU, as well as other items necessary for proper installation. The standard PDU package includes the following:

- Power Distribution Unit
- Rack mounting brackets
- Four retaining screws for each rack mounting bracket

# Rack Mount Instructions

This section will provide a quick instruction to install the PDU.

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

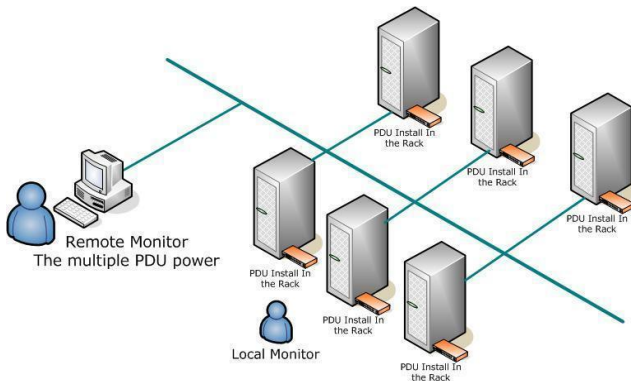
C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing

this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

## Diagram



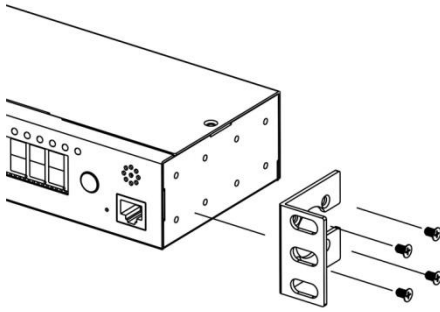
## Hardware

### 1. Install mounting brackets.

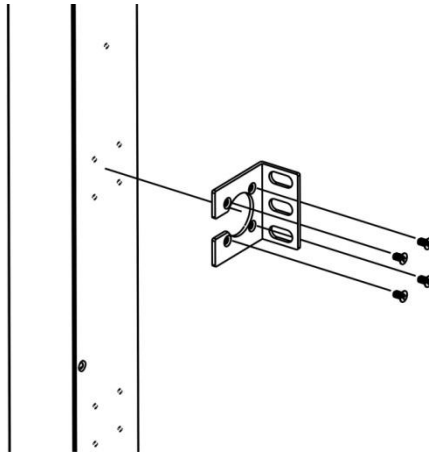
The PDU comes with brackets for mounting in a rack. To mount the PDU into a rack performs the following procedure:

- 1.1 Attach the mounting brackets to the unit, using the four retaining screws provided for each of the brackets.

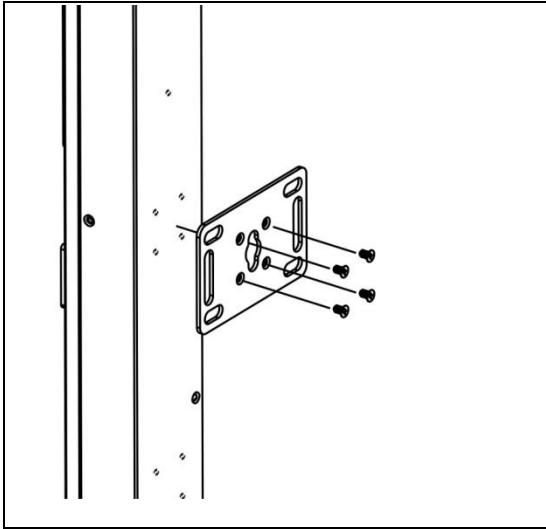
Horizontal:



Vertical 1



Vertical 2



- 1.2 Choose a location for the brackets.
- 1.3 Align the mounting holes of brackets with the notched hole on the vertical rail and attach with the retaining screws.
2. Connect input and output power.
3. Connect Ethernet cable to the PDU.
4. Power on the PDU.

## Web interface:

The default setting for the way to get IP address is DHCP. If PDU can not get the IP from DHCP server, the IP address will stay at **192.168.0.216**



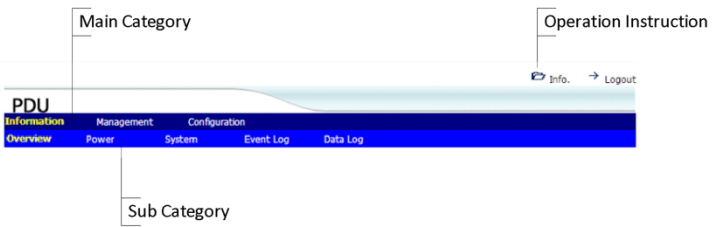
Login Name:

Login Password:

Default ID: **snmp**

Default Password: **1234**

After login to web, user can check all operation instruction in web page of “Info.”





## Information

### Overview

#### **Power information summary**

Note:

Setting column

- S: Schedule is set. PDU will execute the pre-set outlet action in specified time automatically.
- P: Ping function is active. If the specified device stops ping response, PDU will execute the pre-set outlets action
- E: PDU will execute the pre-set outlets' action according to event happen.

### Power

**All power information and each circuit current consumption**

### System

**System information**

### Event Log

**Inquire event log**

Note:

System memory can log up to 5000 entries.

### Data Log

**Inquire data log**

Note:

System memory can log up to 5000 entries.

## Management

### Control

#### **Remote outlet control manually**

Note 1:

Not only control individual outlet, but also can set up multiple outlets into a group to simultaneously control

Note 2:

ATS Primary Input Selection: Select one of Input sources as primary.  
(Support ATS model only)

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### Schedule

#### **Pre-set time to turn on or off the specified outlet**

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### Ping Action

#### **Ping-No-Answer power action**

Note:

Automatically reboot the locked device by ping its IP

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### Event Action

#### **Pre-set outlet action once the current, temperature or humidity over threshold**

Note:

Receive Trap OID equal to: User can input the private OID to trigger the specified outlet action.

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## Device

### **Outlets and circuits name, sequence on/off and outlet owner configuration**

Note1:

The max. length of outlet name is 36 characters

The max. time for delay on/off is 9999 seconds

After Restart:

Define the outlet action after power restart

Last Status: After power restart, outlets remain the same power status.

ON: Turn on outlets after power restart.

OFF: Turn off outlets after power restart.

Note2:

After PDU is plugged into main power, PDU system will start to sequentially turn on the output socket according to the pre-set delay time in PDU web interface. The factory default setting for delay time is one second for each outlet; therefore the 8 ports PDU will take 8 seconds, 24 ports PDU will take 24 seconds to complete start-up procedure.

Before the sequence procedure is completed, if

a PDU is unplugged from the power source, the outlets which are not turned on will be regarded as remaining at the power-off status. Next time the PDU is plugged into main power, these outlets will not be automatically turned on. These outlets can only be turned on by web interface.

Reset Accumulated Energy: Subtotal for energy (kWh). User can reset it to 0 and have PDU restart calculating.

Carbon Emission Rate: Users can check this parameter through power plant.

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### Threshold

**Set threshold of current, temperature and humidity.**

## Configuration

## Network

### IP address related configuration

Note:

The default setting for the way to get IP address is DHCP. If PDU can not get the IP from DHCP server, the IP address will stay at **192.168.0.216**

The max. length of host name is 36 characters

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## Security

### Access setup for web, SSL, SSH and Telnet

Note:

Default login ID is **snmp** and password is **1234** for SSH and Telnet.

Note: SSH/Telnet command

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(1) Device / Phases  
(2) Circuit  
(3) Outlet  
(4) Environment  
(5) ATS  
(6) Network  
(7) About PDU  
(8) Logout  
> █
```

(1) Device / Phase : Display PDU Power

information

- (2) Circuit: Display each circuit current.
  - (3) Outlet: Display each outlet current and control it
  - (4) Environment: Display temperature and humidity information.
  - (5) ATS: Display ATS information.
  - (6) Network: Display network information.
  - (7) About PDU: PDU system information.
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## User

### **Multiple users configuration**

Note:

Users can add up to 8 accounts.

Admin: Full authority to monitor, control and configure PDU  
Default ID is **snmp**, password is **1234**

(Access [Information](#) /  
[Management](#) / [Configuration](#))

Power user: Monitor PDU, control the specified outlets. No permission to configure PDU.

Default Password: **password**

(Access [Information](#) /  
[Management](#) )

View Only: Monitor PDU only. No permission

to control and configure PDU.  
Default Password: **password**  
(Access [Information](#) )

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## Mail

### **Mail server configuration**

Send out alert message to pre-defined account when event occurs.

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## SNMP

### **Set the SNMP parameter**

Support SNMPv1,v2 and v3

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## Time

### **Time by NTP or manually for schedule and log record**

Note:

Time must be set properly; otherwise the schedule setting will not be performed correctly.

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## Radius

### **Advanced authentication**

Note:

System supports the Remote Authentication Dial-in User Service protocol. (RADIUS). It provides a centralized network protocol to enable remote authentication and authorization.

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## Log

### **Log setup**

Note:

Export	Export events and data log in text format. Set the date to mail kWh usage information.
Syslog	Sent event log to the specified syslog server.
Data log	Set the interval of log time.
Heartbeat Trap	Send trap continuously to the specified IP to indicate PDU is alive.
Event Log	Check the box to enable to log the specified event

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## System

### **Configure file export and import, firmware upgrade, reset functions.**

Note:

System	Export system configuration. Import system configuration from export file.
Firmware Upgrade	Update: Keep all configurations after complete firmware upgrade. Update and Reset: Reset all configurations back to default after complete firmware upgrade.



Reset System	Restart network system through web.
Temperature Scale	Switch temperature unit between Celsius and Fahrenheit
Hardware Reset Button Definition	Define reset action. The reset procedure is to press and hold the key in the front panel of PDU, release it after hearing 6 beeping.