

# USER'S GUIDE



Input L1 :

- 4.9 A
- 4.90 A Total
- 219.2 V
- 1074.08 W Total
- 0002 kwh
- 100%

▼ ▲ ↶ ESC

Reset

Power Share

IP1 10/100/1000

IP2 10/100/1000

USB-A 1&2

EMD Sensor

PDU Cascading

PDU Cascading

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# Preface

## About this Manual

Congratulations on purchasing a PDU. This user manual provides detailed descriptions of the hardware components and how to use the product. Read this manual carefully and follow the instructions before installing.

## Copyright Information

No part of this manual, including the products and software described in it, may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means, except documentation kept by the purchasers for backup purposes, without the express written permission of the manufacturer.

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# Preface

## Safety Instructions

Follow these safety instructions to avoid injury to yourself and damage to the PDU.

- To reduce the risk of fire or electric shock, install the unit in a temperature-controlled indoor area free of conductive contaminants. Do not place the unit near liquids or in an excessively humid environment.
- Do not allow liquids or foreign objects to enter the unit.
- The unit does not contain any user-serviceable parts.
- Do not open the unit.
- Servicing, maintenance, and repair for this equipment must be performed by qualified service personnel. Remove rings, watches and other jewelry before servicing the unit.
- Before maintenance, repair or shipment, the unit must be completely switched off and unplugged and all connections must be removed.
- Before plugging in the power cord of the device, make sure that the power source rating matches the power rated indicated on the product labels.
- Use a harmonized and certified power cord when connecting any device to the outlets.
- The digital output can only connect switches, indicators, or other output devices that are normally open or normally closed.

# Preface

## Safety Notices



**Caution:**

This unit has been provided with a real time clock circuit. There is a danger of explosion if the battery is incorrectly replaced. Replace only with a 3V Lithium cell (CR1220) or equivalent type. Discard used batteries according to the manufacturer's instructions.



**Caution:**

**Rack-Mounted Equipment** – The unit is intended to be rack-mounted, the Installation Instructions shall contain wording to address the following concerns when the unit is mounted in a rack system.

“The equipment is to be installed in an environment with maximum ambient temperature must not exceed 60°C.”

“The openings on the enclosure are for air convection hence protected the equipment from overheating. **DO NOT COVER THE OPENINGS.**”

“Lay this equipment on a reliable surface when installing. A drop or fall could cause injury.”

“The equipment shall be installed according to specification as nameplate. Make sure the voltage of the power source when connecting the equipment to the power outlet. The current of load and output power of loads should not be over the specification.”

“This equipment must be connected to the reliable earth before using.”

# Introduction

The PDU, is an intelligent power strip designed to power monitor the input and circuit breaker consumption and auto email history report to supervisor for power bill charge. At the same time, provides the useful ability of managing power for any combination of network equipment connected to it. Users can control the power on/off for any device connected to the PDU remotely, using a console or Ethernet connections.

It's also equipped with a console port for connecting upto 8 EMD (Environmental Monitoring Device) in cascade for sensing temperature and humidity along with two alarms that can be activated when either of the sensors shows unusual values.

# Introduction

## Features

- To calculate the power consumption on hourly basis, and have an accumulation of daily
- Provide detail data-logging for statistical analysis and diagnostic then auto email daily history report
- Daisy-chaining can cascade up 16 power strips
- Sequential power-up on the outlets / Allows users to configure the sequence in which power is turned on or off for each outlet
- Intelligently turn on/off devices based on event occurrence or planned schedule
- Event notification by pop-up/Sending Trap or E-Mail for events notification
- Upto 42 power outlets that can be turned on or off in multiple ways, with easy monitoring of current consumption
- Set over-current watchdog for each outlet (Threshold settings for over-current warnings and alerts)
- Versatile sensors supported through EMD (Environmental Monitoring Device) inputs, 8 sensors can be deployed in cascade
- Comprehensive power management and flexible configuration through web browser, NMS, Telnet, SNMP V1,2,3
- Support Secure Socket Layer V3 and Secure Shell V2 protocols
- Administrator and multiple users with password protection for double-layer security
- Address-specific IP security masks to prevent unauthorized access
- User-friendly interface to display input and output status
- Upgrade utility for easy firmware upgrade
- Models available in 220-250V and 380-415V

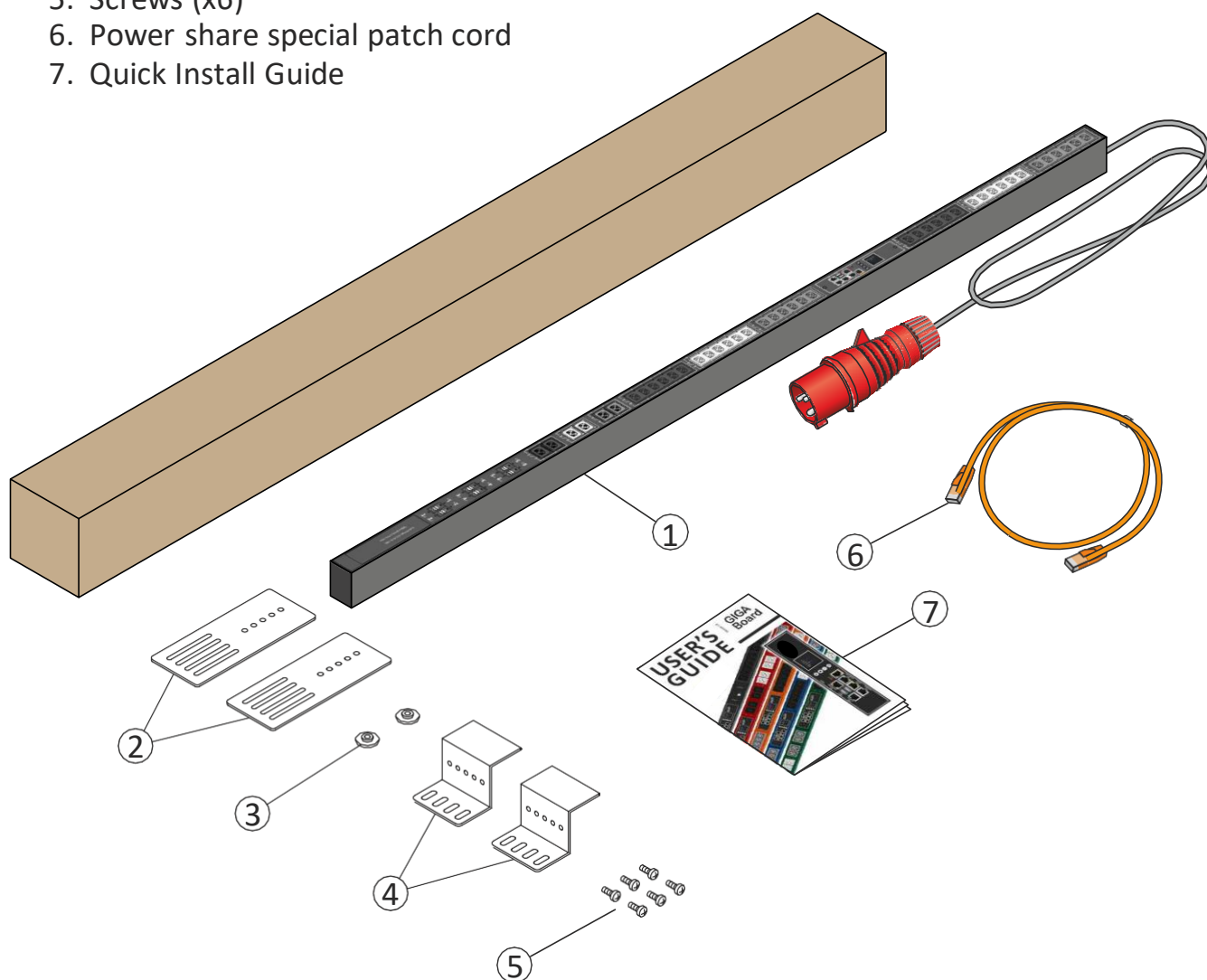


# Introduction

## Package Contents

Make sure the PDU package has the following items. If any of the items are missing or damaged, contact your nearest service center or vendor.

1. PDU
2. IPFIX001 (x2)
3. IPFIX002 (x2)
4. IPFIX003 (x2)
5. Screws (x6)
6. Power share special patch cord
7. Quick Install Guide



# Introduction

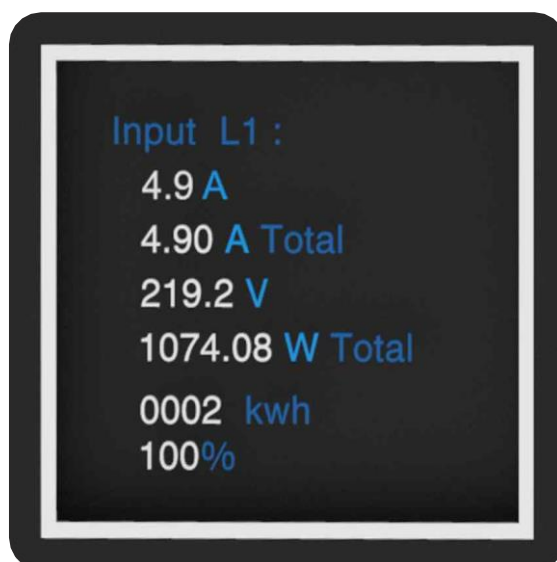
## Hardware Components

The following sections provide descriptions about the front panel components and how to use them.

	Component	Description
1.	Inlet	Power lead to be connected to the Data Centre power source
2.	Breaker	Prevent excessive current flow to protect the system
3.	OLED Display	Display input Power Data
4.	Mounting Options	Different choice of mounting options

## OLED Display

The front panel of the PDU has a colored OLEDscreen that provides information about the PDU power status.

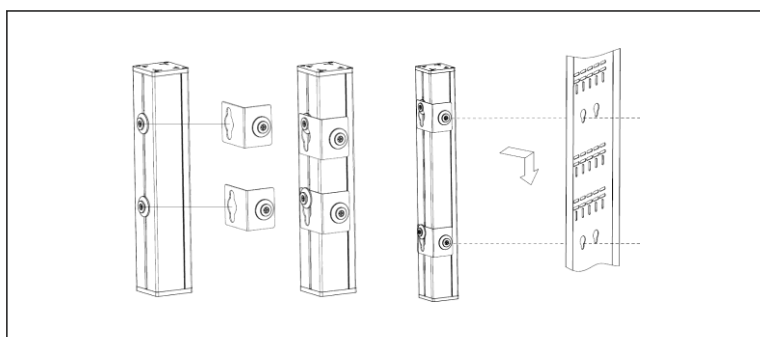
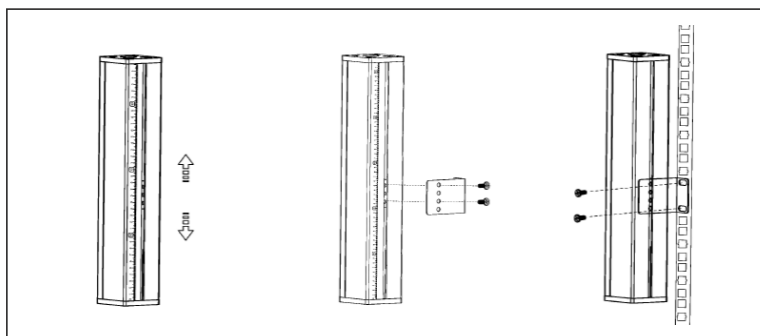
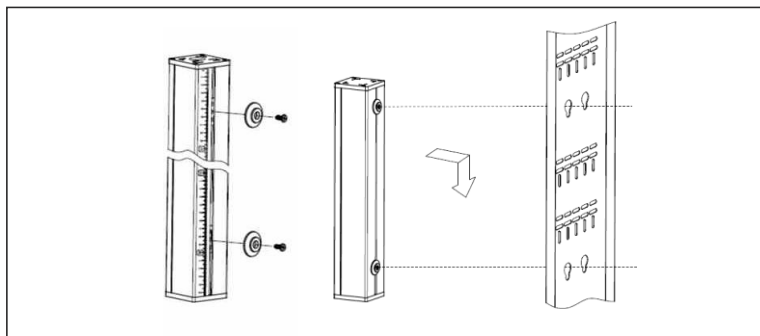
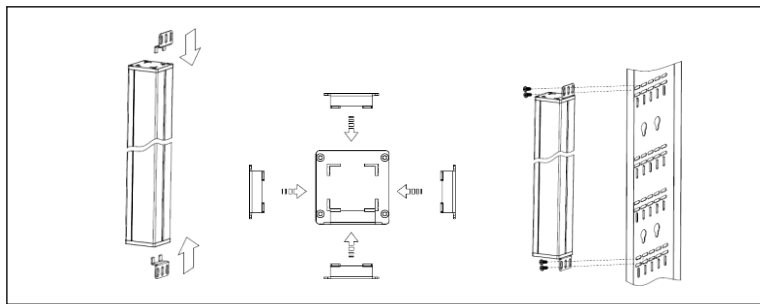


# Getting Started

This section provides information about setting up the PDU, connecting power, and connecting devices to it before users start using it for power management. Read this section carefully to learn how to connect various devices to the PDU.

## Rack Mounting

The PDU can be installed in most standard racks. After attaching the ears to each side of the device, position the device in the rack and align the holes in the ears (mounting brackets) with the hole in the rack.



# Introduction

## Hotswap replaceable IEX GIGA Controller

The GIGA IEX PDUs provides an easy replacement of its controller.

If the controller is failing, just simply send the controller back to for repair or replacement.

How to replace a controller:

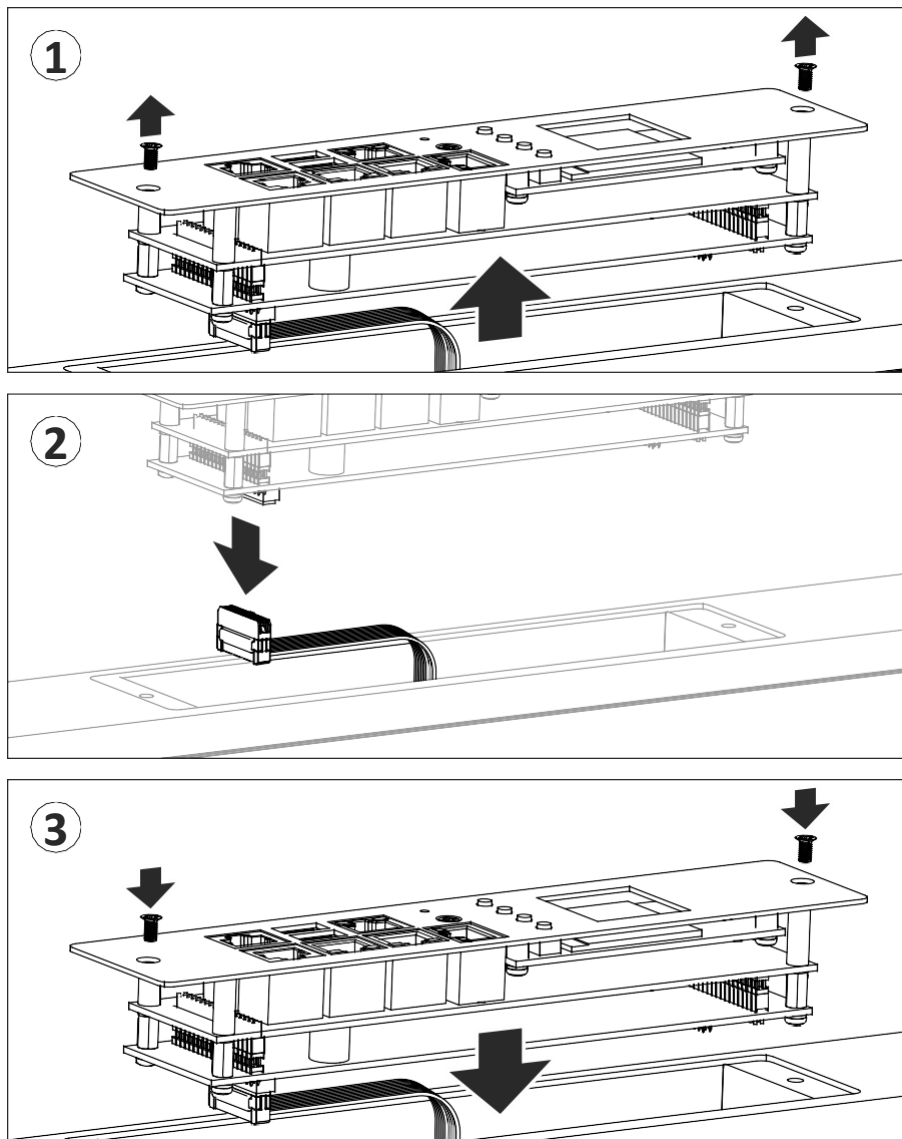
1- PDU is not required to be powered off.

Loosen the screws at two sides of the IEX GIGA controller, and lift it up.

2- Disconnect the PDU's controller cable from the controller.

3- Get a new IEX GIGA controller and install it back into the PDU in the reverse order.

**Note: the limit torque to fix the controller is 0.8N.m—1.0N.m**

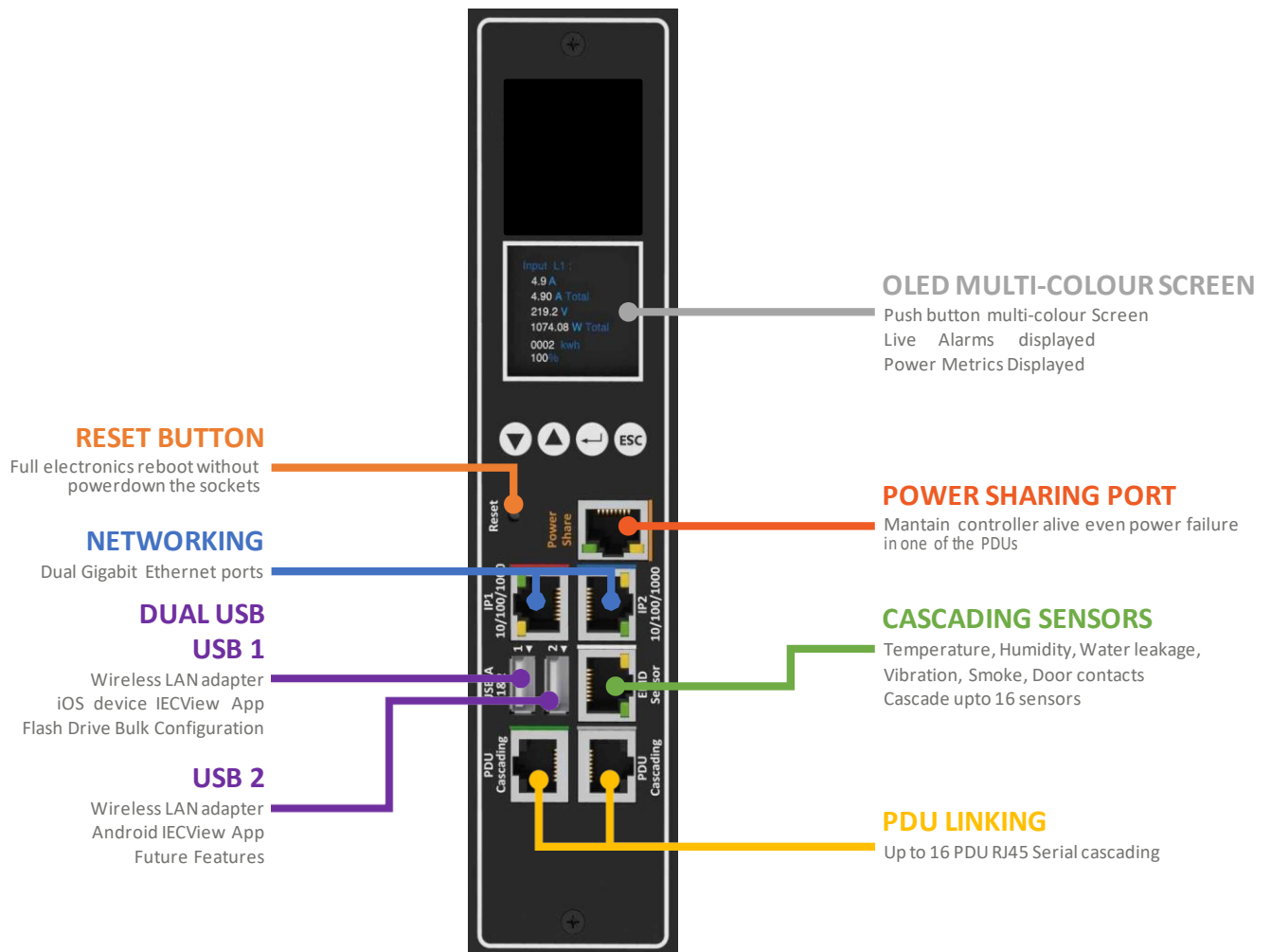


# Getting Started

## Making Connections

The PDU is a versatile product that can be connected to several different types of input and output devices. This makes it a useful tool for connecting devices to it and to monitor the power through its user interface.

IEXv.5 PDU is manufactured with the most advanced hot-swap, field replaceable SNMP IP controller. It is built with dual Gigabit Ethernet ports, an OLED full colour screen, cascading multi-sensor ports, enhanced security, sophisticated alarming and power monitoring across the whole power chain.



# Getting Started

The following procedure describes the basic steps needed to set up the PDU:

1. To set up the hardware, connect power to the power inlet and output devices to the power outlets. Connect devices with normally open or normally close conditions to the digital output ports, and an EMD to the console port.
2. To configure the Power Strip, users can use the console or LAN port. Connect the device to a console and a LAN to enable its configuration through the console or browser menu.
3. After connecting to a console, use a console application such as Telnet or HyperTerminal to access the console menu. Select the TCP/IP submenu under the Network Management to set up the IP address and select the General Setting submenu under the System Management to set up the system date/time. This IP address will be used while accessing the web interface to configure the PDU parameters.
4. After connecting to LAN, open a browser from a PC in the network and use the IP address specified through the console menu to open the web interface for system configuration.

The following sections provide instructions about how to make various connections.

## Connecting Input Power

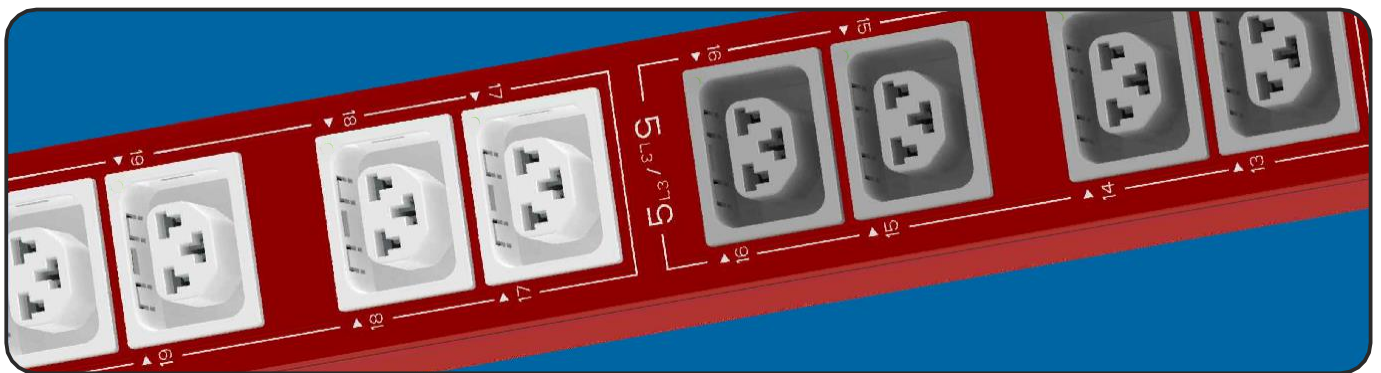
The PDU has different IEC309 power inlets for supplying and managing power for the output devices. For each inlet, connect the power cord to the power inlet and plug the other end into a power outlet as shown:



# Getting Started

## Connecting Output Devices

The Power strips can have a different number of outlets for connecting devices such as workstations, servers, and printers. Connect the power connectors of the devices to each of the power outlets.



The PDUs are available in the following sockets: 220V/16A:

IEC C13/C19 combo

220V/10A IEC C13, IEC C13 (Lock), AS/NZS 3112

220V/16A SEV T13, SEV T23, CEE7, IEC C19, IEC C19 (lock), SEV T23

220V/13A: UK BS1363

220V/15A: AS/NZS 3112

120V/15A: NEMA 5-15P

120V/20A: NEMA5-20P

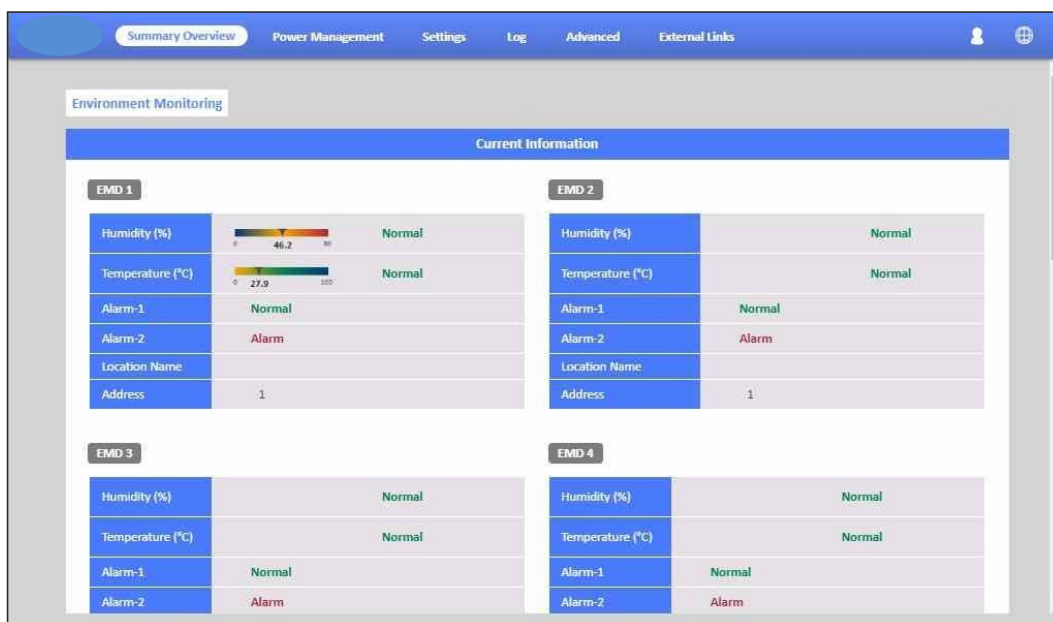
# Getting Started

## Connecting EMD

An Environmental Monitoring Device (EMD) that is connected to sensors for detecting temperature, humidity, and two digital inputs can be connected to the PDU with the console port. The EMD can also be connected to alarms or indicators and controlled through the web browser. Up to 8 EMD can be connected in cascade to monitor the temperature and humidity in different parts of the racks.

1. Connect the EMD to the console port as shown:

After connecting the EMD, open a web browser from a PC and enable environmental sensors on the web user interface, then the temperature and humidity status is automatically displayed on the System Overview page.





# Getting Started

## Connecting the Console

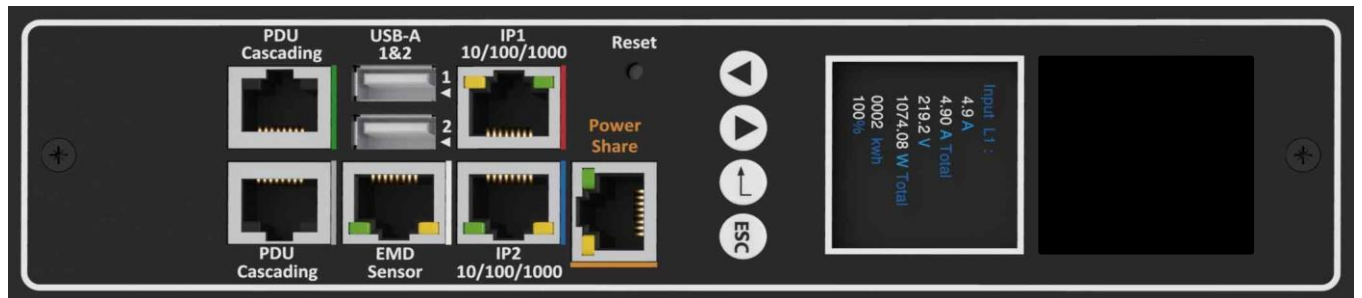
Users can control the output devices and manage the power status through mini USB port with a PC.

Refer to on page 21 to learn how to use the console with a console application such as HyperTerminal or Telnet.

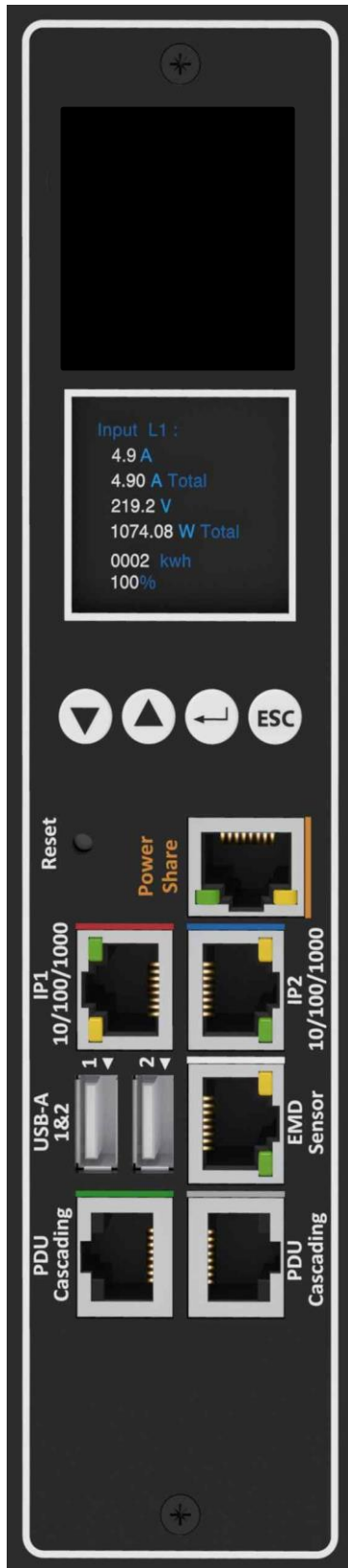
## Connecting to a LAN/WAN

The PDU has two 10/100/1000 RJ-45 network ports that enables users to monitor and manage the power outlets over the network. The PDU has a graphic user interface that allows users to control the device through a web browser.

Connect the device to a free port on the router using an Ethernet cable as shown. Users can control the device from PC, laptop, mobile phone, or PDA which is connected to the router network.



# Getting Started



## Using LCM operational buttons:

The following sections describe the LCM functional operation of the PDU.

The PDU has four buttons to launch particular applications and display the on-screen.


Icon	Buton	Description
	<b>Down</b>	Press the <b>Down</b> button to navigate through the menu options.
	<b>Up</b>	Press the <b>Up</b> button to navigate through the menu options.
	<b>Set</b>	Press the <b>Set</b> button to access the menu options and confirm user selection.
	<b>ESC</b>	Press the <b>ESC</b> button to cancel any configuration or leave to up menu.

There are two kinds of LCM operation screen for the single and three phase as shown following.

User can configure the Screen Direction, of this PDU from the buttons. Regarding to turn on/off outlet, if this PDU has support network function, user can set the whole outlet configuration from **Outlet Control** webpage. The **Outlet Control** page displays.

# Getting Started


### Main Menu Screen of Single Phase PDU



IP:  
XXX.XXX.XXX.XXX

Input:  
XXX.XV


### Main Menu Screen of Three Phase PDU




IP:  
XXX.XXX.XXX.XXX

Input:  
L1: XXX.X V

### LCM Direction Screen

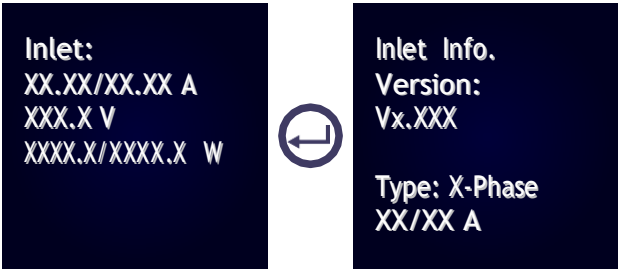


LCM Direction  
XX




LCM Direction  
Setting: XX

### Inlet Screen




Inlet:  
XX.XX/XX.XX A  
XXX.X V  
XXXX.X/XXXX.X W



Inlet Info.  
Version:  
Vx.XXX

Type: X-Phase  
XX/XX A

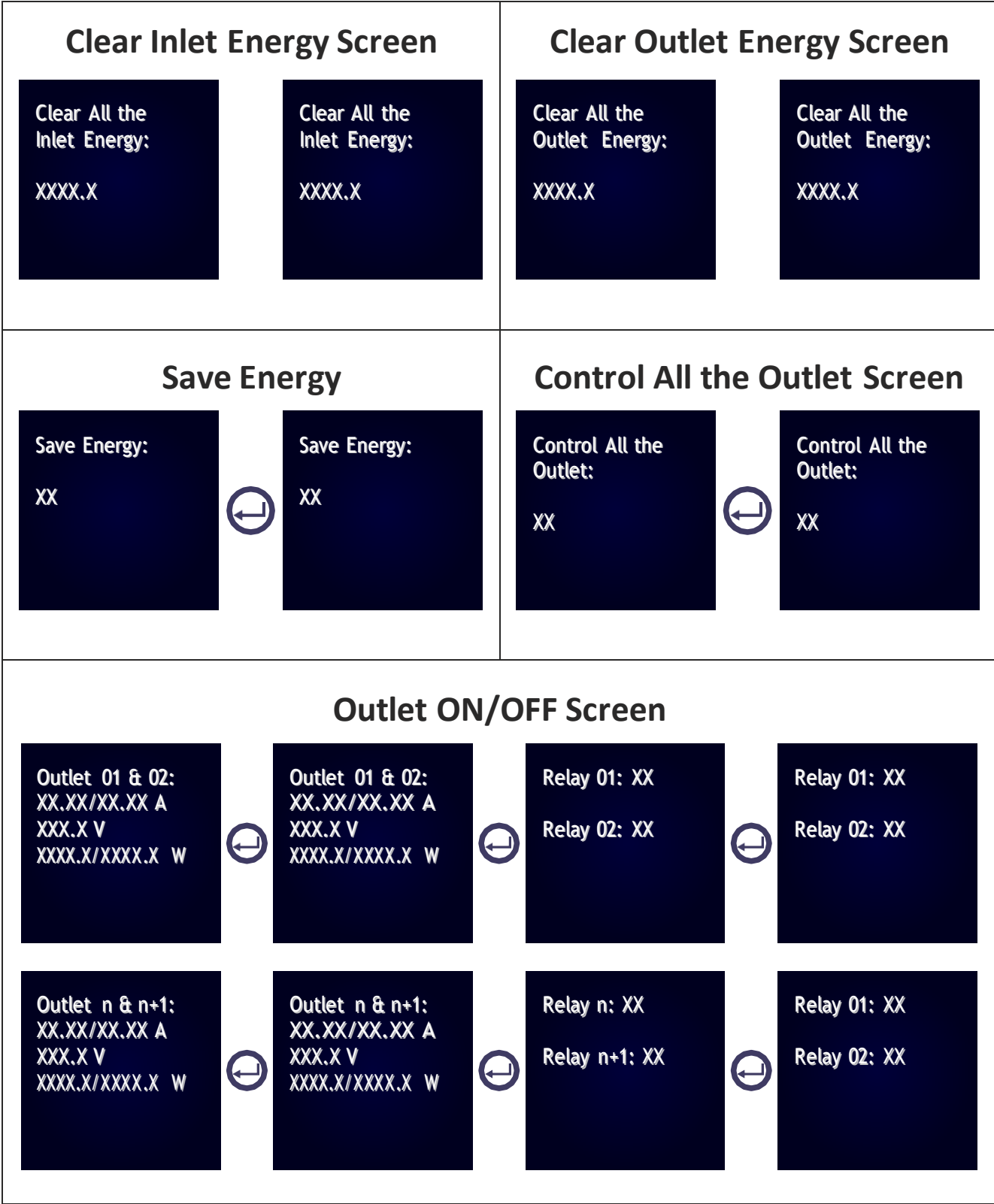
### Total Power Screen



Total Power:  
XXXXX.X W

Total Energy:  
XXXXX.X kwh

# Getting Started



# Getting Started

## Using the (RCM) Residual Current Monitoring:

When a residual current device is triggered, besides the LCM keep flashing will display the “WARNING” signal as shown.



Users can set the related setting of residual current from the Inlet Configuration webpage as shown.

1. Alarm there holds a setting range for 3mA to 50mA, There holds default setting is 20mA, when residual current greater than or equal to threshold value,an alarm is triggered.
2. When DC residual current is greater than or equal to 5mA,an alarm is triggered.
3. When AC residual current is greater than or equal to 20mA,an alarm is triggered.
4. When the alarm threshold value setting is less than or equal to 5mA, If DC residual current or AC residual are active, an alarm is triggered.
5. When the alarm threshold value setting is less than or equal to 20mA, If AC residual current is active, an alarm is triggered and DC residual current will be ignored.

The screenshot displays the Inlet Configuration webpage with the following sections:

- Phase Load Management:** A table showing real-time data for PDU A across three phases. Phase 1 is Normal, Phase 2 is Warning, and Phase 3 is Critical.
- Configuration:** A table for setting alarm thresholds for PDU A. It includes Over Load Alarm (kw) and Load Balance Alarm (%) for Critical and Warning levels, and a detailed table for Over Current Alarm (A), Over Total Current Alarm (A), and Over Voltage Alarm (V) for each phase.
- Status:** A summary table showing Power (0 W, Normal), Total Energy (0 kWh), Phase 1-3 Energy (0 kWh), and Load Balance (0%, Normal).

Phase	Current(A) Total(CB1/CB2)	Voltage(V)	Frequency (Hz)	Power Factor(%)	Power(W/VA) Active/Apparent	Reactive Power (var)	Status
1	0.00(0.00/0.00)	112.7	59.92	0.0	0.00	0.0	Normal
2	0.00(0.00/0.00)	113.4	59.90	0.0	0.00	0.0	Warning
3	0.00(0.00/0.00)	113.0	59.90	0.0	0.00	0.0	Critical

	Over Load Alarm(kw)		Load Balance Alarm(%)		Critical	Over Current Alarm (A)		Over Total Current Alarm (A)	Over Voltage Alarm (V)
	Critical	Warning	Critical	Warning		CB1	CB2		
Critical	5.8	4.6	100	50	Critical	1	16	32	250
Warning	5.8	4.6	100	50		2	16	32	250
						3	16	32	250
Warning	5.8	4.6	100	50	1	16	16	32	250
					2	16	16	32	250
					3	16	16	32	250

Power	0 W	Normal
Total Energy	0 kWh (from 06/08/2020 11:19:19)	
Phase 1 Energy	0 kWh (from 06/08/2020 11:19:19)	
Phase 2 Energy	0 kWh (from 06/08/2020 11:19:19)	
Phase 3 Energy	0 kWh (from 06/08/2020 11:19:19)	
Load Balance	0%	Normal

# Using the Web Interface

The PDU provides a graphic user interface that can be viewed from a web browser such as Internet Explorer. This enables users to access and control the device outlets and subsequently, its output devices remotely from users' desktop, laptop, PDA, or even users' mobile phones. This section provides instructions about how to use the web interface to configure and control the PDU remotely.

## Summary Overview-System Overview

Start a web browser such as Internet Explorer from the host PC or laptop and enter the IP address of the Power Strip in the address bar. For details about setting the IP address of the system. You will be prompted to enter a Username and Password. Click Go and the main status page of the PDU web interface is displayed.

The default settings are:

DHCP: Enabled

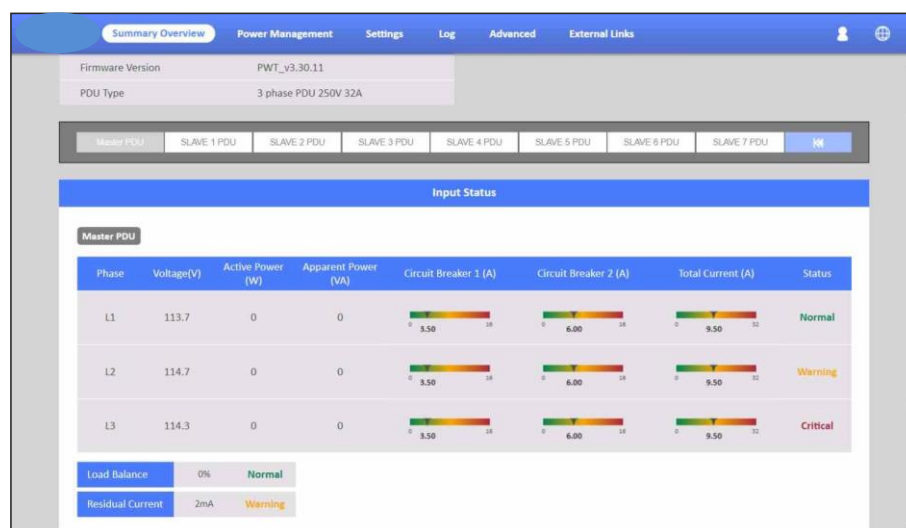
IP Address: 192.168.1.250

Subnet Mask: 255.255.255.0

Gateway: 192.168.1.10

Username: admin

Password: admin



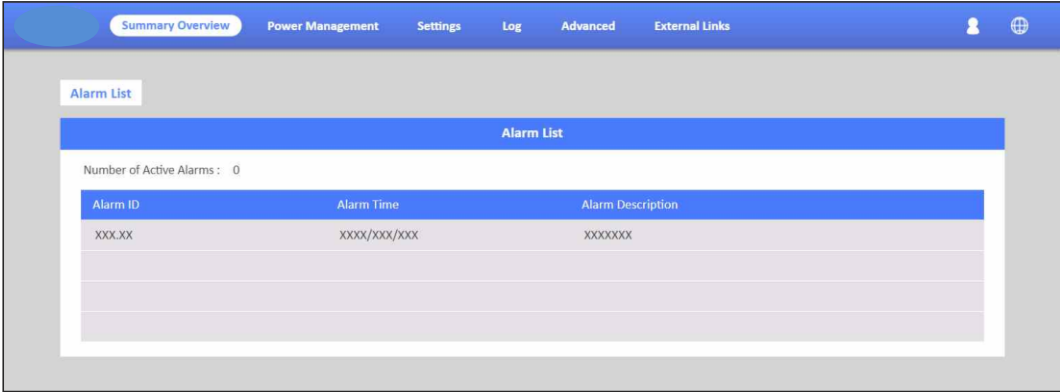
The main page shows a graphic representation of the Power Strip outlets and inputs status as described below:

- The panel shows the various menus and submenus. Click any menu to display the menu options, expand the menu items, and modify the menu options as required.
- The right panel shows the current status of the Power strip.

# Using the Web Interface

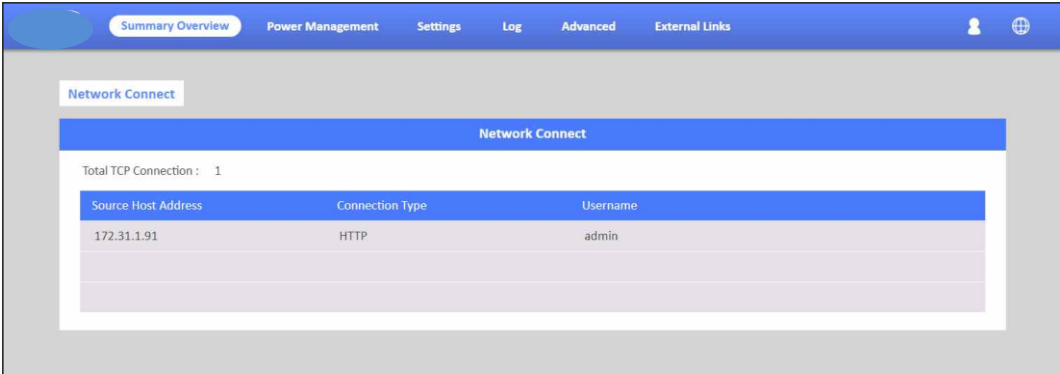
## Summary Overview-Alarm List

The “Alarm List” page shows the list of Alarms, which were set by the user. PDU will follow the rules of an alarm to send out notification to the user.



## Summary Overview-Network Connection

The Network Connection page shows a list of user's connections.

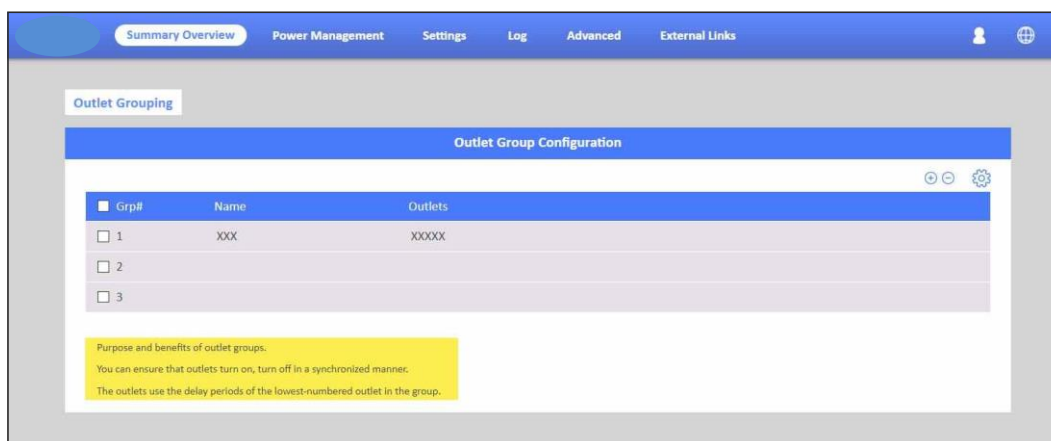


# Using the Web Interface

## Power Management-Outlet Grouping

This page shows the group list and let user enable Outlet Group.

User can add/delete/modify the group list. The group list is up to 8 groups. Take Group\_1 for example, I have set Outlet\_1 of PDU\_A, Outlet\_3 of PDU\_B and Outlet\_4 of PDU\_C into Group\_1. When I set action to Outlet\_3 of PDU\_B and apply, Action will apply to all PDUs of Group1.





# Using the Web Interface

## Power Management-Outlet Control

This page let user trigger action by drop-down list. After you select an action and click "Apply", server will accord to the instruction to complete the task remotely.

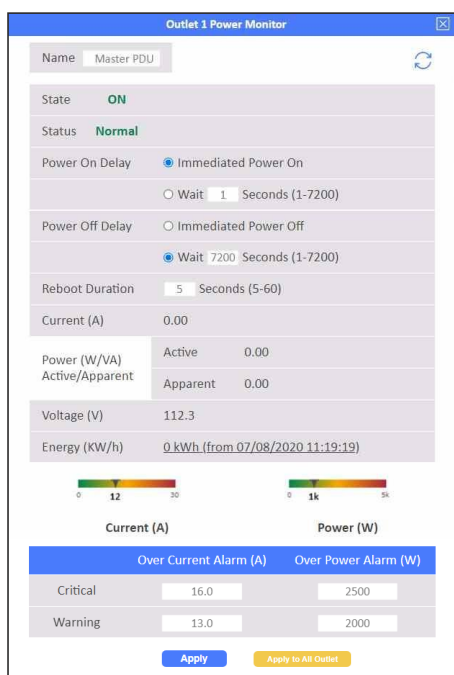
Click "See Details" to open the page as shown:

In this page, you can set "How many seconds delay" when Power ON/OFF Delay action are triggered.

You can also set the seconds of "Reboot Duration".



After set, you can click "Apply" to apply to this Outlet or click "Apply to All Outlet" to make this setting apply to all Outlets.



Take Outlet4 for example (Set Power ON/ OFF Delay=3 seconds /Reboot Duration=10 seconds), when you select Action "Off Delay" and click Apply. Outlet4 will power off after 3 seconds.

If you select Action "Power Cycle Immediate" and click Apply, Outlet4 will reboot and this procedure will cost 10 seconds.

If you select Action "Power Cycle Delay" and click Apply, Outlet4 will reboot and this procedure will cost 16 seconds. (Include 3 seconds for "Power ON Delay", 3 seconds for "Power Off Delay" and 10seconds for "Reboot Duration").

# Using the Web Interface

## Power Management-Inlet Configuration

This page lets the user configure Inlet load. You can set the condition of "Critical" and "Warning". (The value of "Critical" must be larger than "Warning").

When Inlet Power is over the condition you set, the light of status will become the corresponding colour.(Red means "Critical", Yellow means "Warning" and Green means "Normal") And you will receive the notification mail if you have set it in Email Notification.

The screenshot displays the 'Phase Load Management' and 'Configuration' sections for PDU A. The 'Phase Load Management' table shows real-time data for three phases, with Phase 3 in a 'Critical' status. The 'Configuration' section allows setting alarm thresholds for 'Over Load Alarm(kw)', 'Load Balance Alarm(%)', 'Over Current Alarm (A)', 'Over Total Current Alarm (A)', and 'Over Voltage Alarm (V)'. The 'Over Current Alarm (A)' is further divided into 'CB1' and 'CB2' for each phase and status level.

Phase Load Management							
PDU A							
Phase	Current(A) Total(CB1/CB2)	Voltage(V)	Frequency (Hz)	Power Factor(%)	Power(W/VA) Active/Apparent	Reactive Power (var)	Status
1	0.00(0.00/0.00)	112.7	59.92	0.0	0.00	0.0	Normal
2	0.00(0.00/0.00)	113.4	59.90	0.0	0.00	0.0	Warning
3	0.00(0.00/0.00)	113.0	59.90	0.0	0.00	0.0	Critical

Configuration					
		Over Current Alarm (A)		Over Total Current Alarm (A)	Over Voltage Alarm (V)
		CB1	CB2		
Critical	1	16	16	32	250
	2	16	16	32	250
	3	16	16	32	250
Warning	1	16	16	32	250
	2	16	16	32	250
	3	16	16	32	250

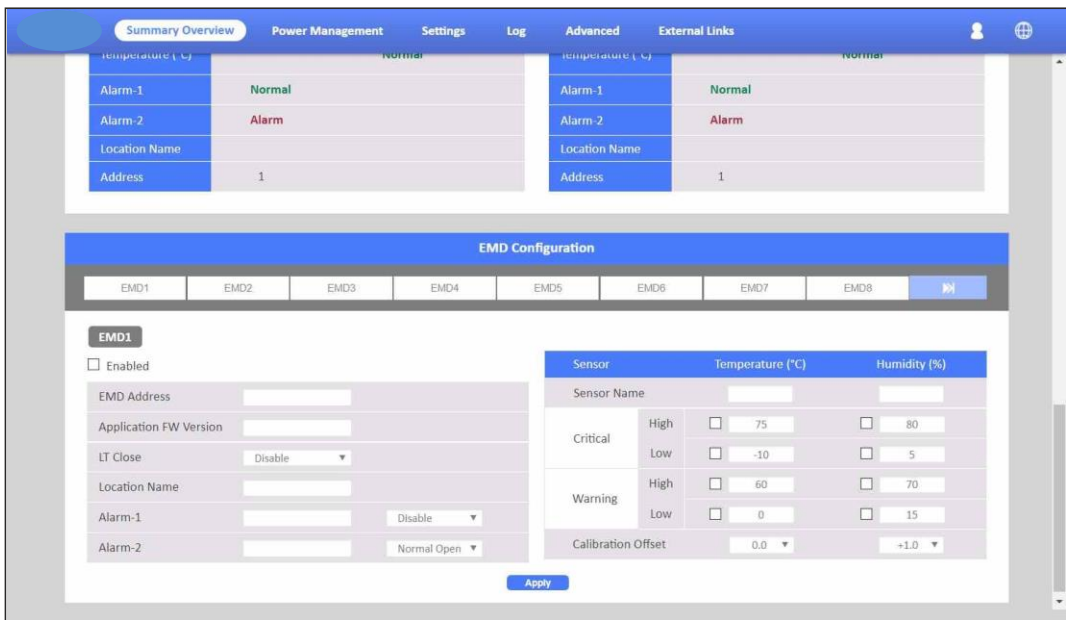
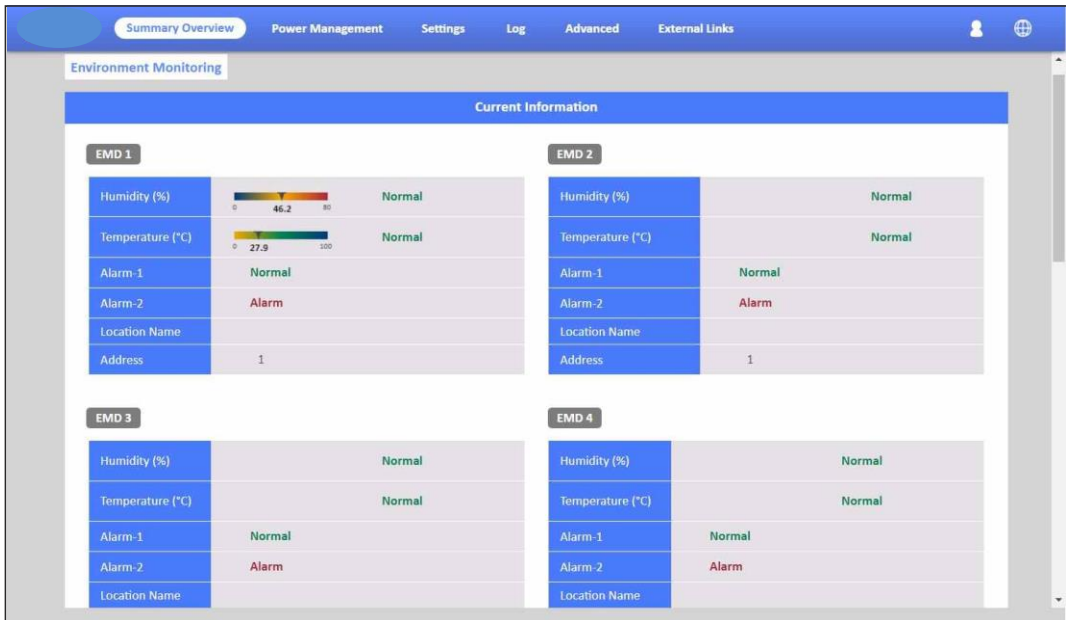
  

PDU A		
Over Load Alarm(kw)	Load Balance Alarm(%)	
Critical	5.8	100
Warning	4.6	50

# Using the Web Interface

## Power Management-Environment Monitoring

This page shows the status of EMD and lets users set the alarm configuration. You can set the "Alarm Condition" of "Critical" and "Warning". (The value of "Critical" must be larger than "Warning") It will follow the Email Notification rule you set to send out mails.

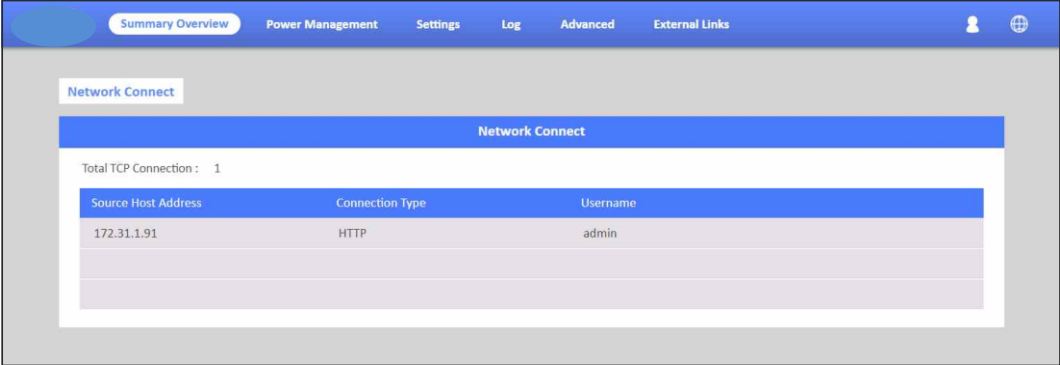


PDU supports 8 EMD sensors in cascade each one with 2 digital inputs of . you can set 2 alarms for each EMD sensor. There are 3 options(Normal Open/Normal Close/Disable) of the EMD sensor. If you set "Normal Open", the EMD sensor will become "Warning"(Yellow light) when closed.

# Using the Web Interface

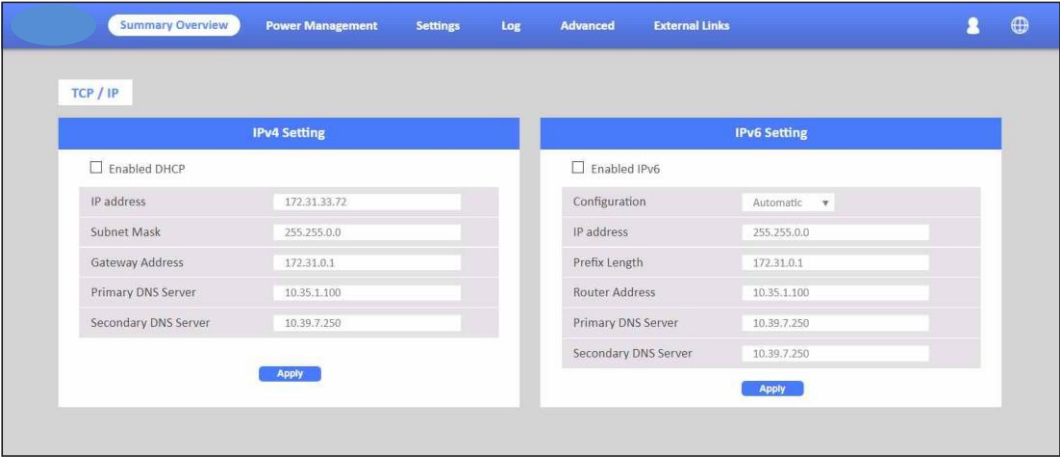
## Network-TCP/IP

This page lets users enable DHCP and set an IP address manually.



## Network Management-Accessible IP SeEng

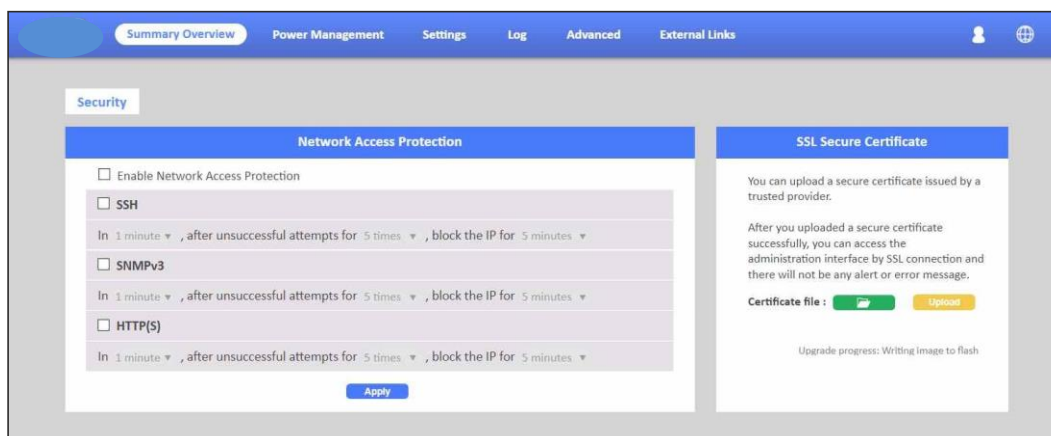
This page lets users add/delete/modify accessible IP list.



# Using the Web Interface

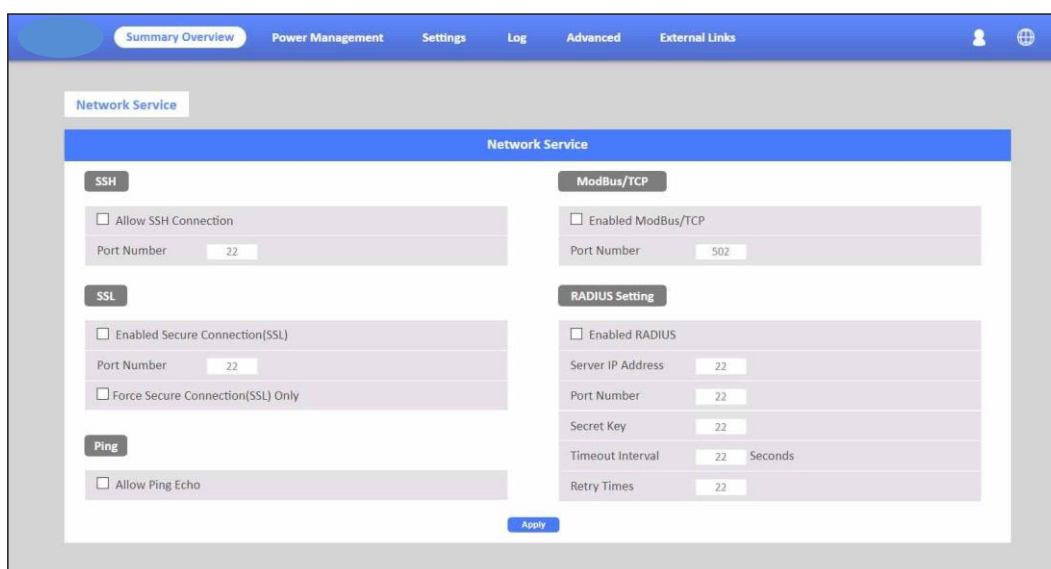
## Network Management-Security

This page lets users enable DHCP and set an IP address manually.



## Network Management-Network Service

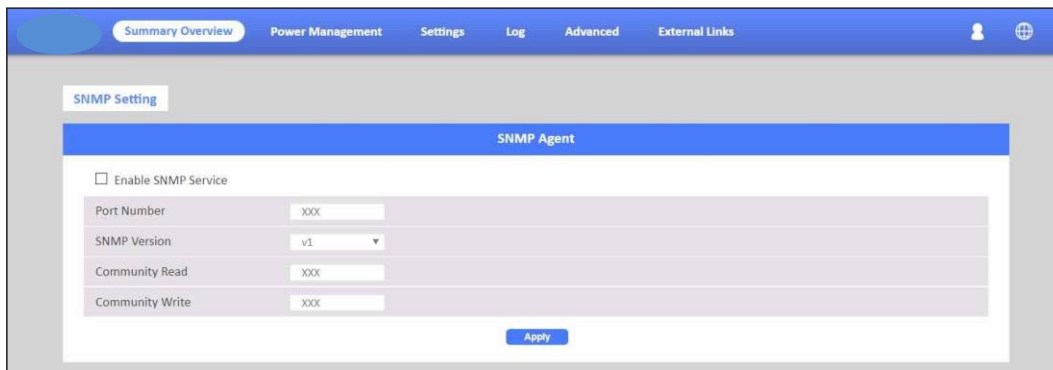
This page lets the user set SSH/SSL/Ping/RADIUS Setting. If a user wants to add Radius User(from Settings menu), they have to "Enable RADIUS" on this page first.



# Using the Web Interface

## Network Management-SNMP Segments

This page lets users set the SNMP Agent.



The screenshot shows a web interface for configuring the SNMP Agent. The top navigation bar includes links for Summary Overview, Power Management, Settings, Log, Advanced, and External Links. The main content area is titled "SNMP Setting" and contains a sub-section "SNMP Agent".

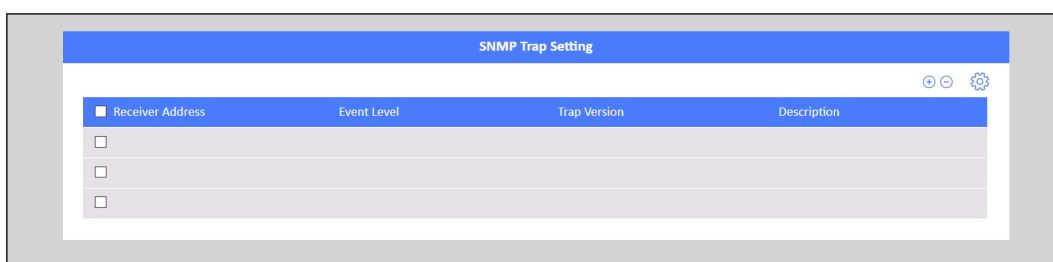
Configuration options include:

- Enable SNMP Service
- Port Number:
- SNMP Version:
- Community Read:
- Community Write:

An "Apply" button is located at the bottom right of the configuration area.

## Network Management-SNMP Trap Segmenting

This page lets users add/delete/modify SNMP trap settings.



The screenshot shows a web interface for configuring SNMP Trap settings. The page title is "SNMP Trap Setting".

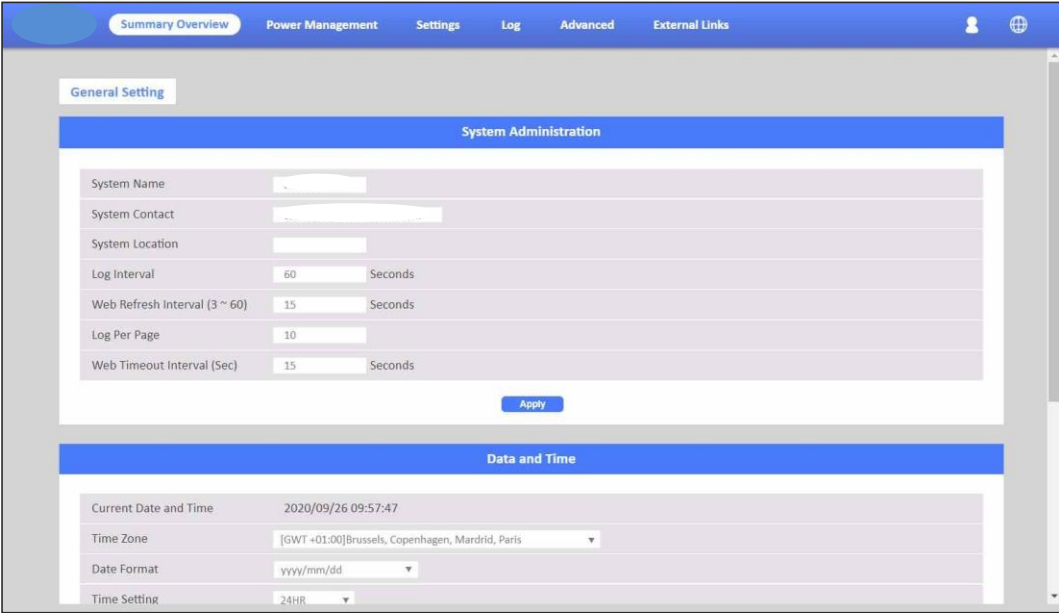
<input type="checkbox"/>	Receiver Address	Event Level	Trap Version	Description
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

Navigation icons (back, forward, refresh, settings) are visible in the top right corner of the table area.

# Using the Web Interface

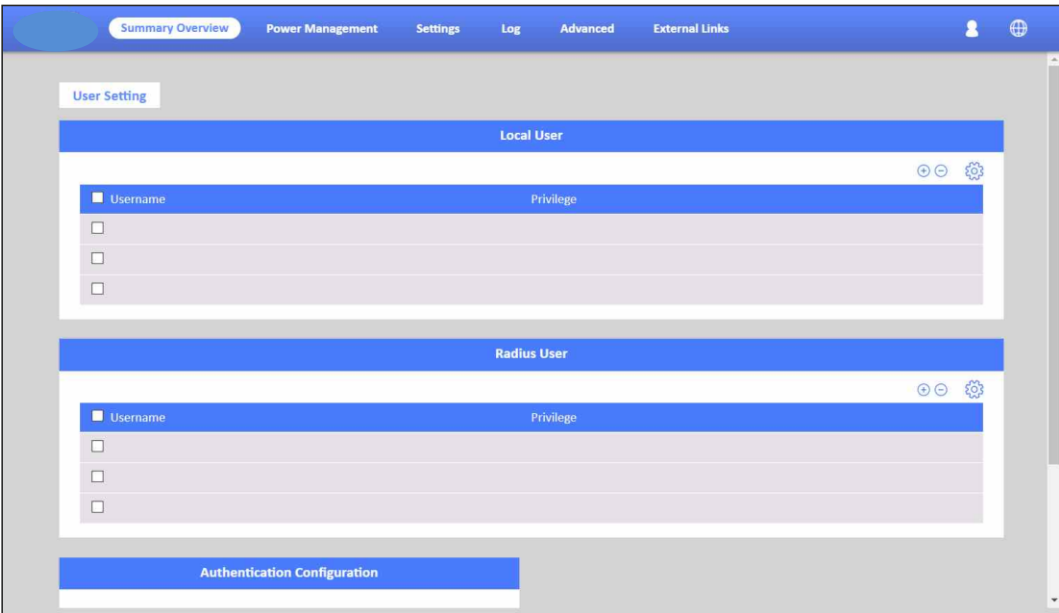
## SiGns-General Segmenting

This page lets the user set General Settings.



## User management

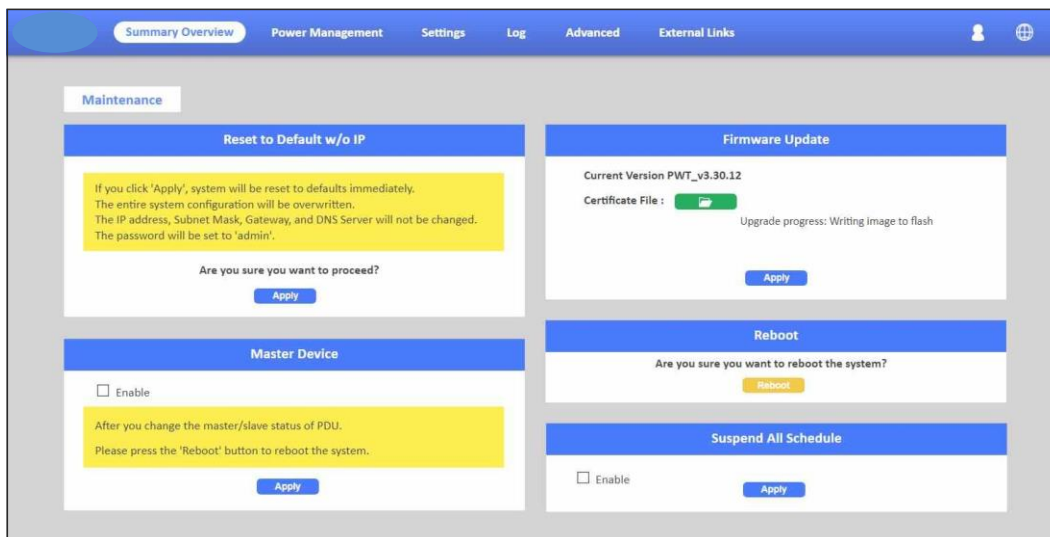
This page lets the user enable new users and passwords.



# Using the Web Interface

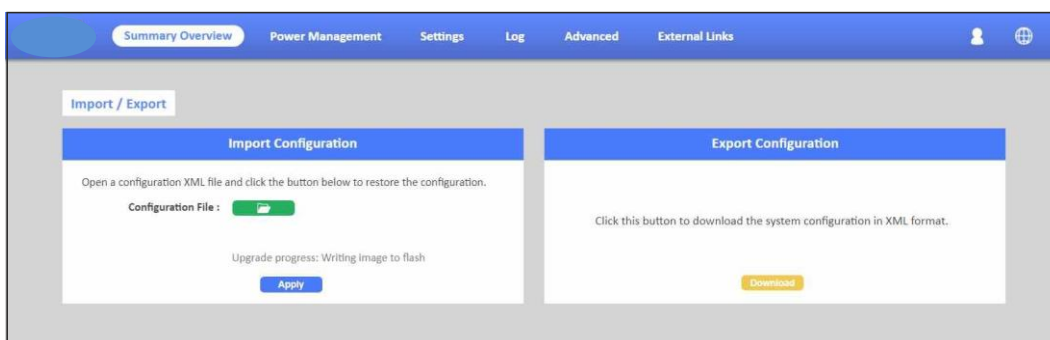
## SiGns-Maintenance

This page lets the user set Reset/Upgrade/Reboot.



## SeGments-Import/export

This page lets users import/export XML file to restore/download the configuration.






# Using the Web Interface

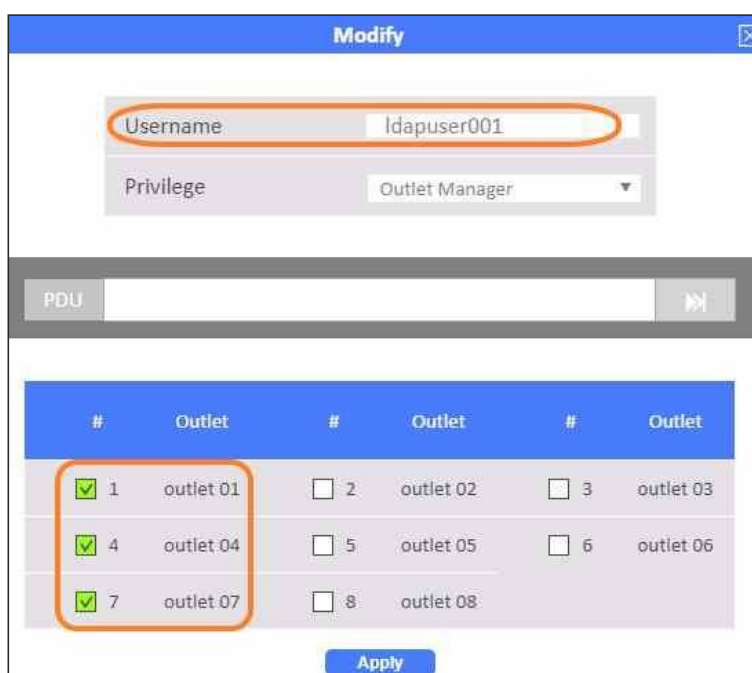
The section provides information about seEng up the LDAP step by step.

**Step 1:** To set up the PDU, please configure the related LDAP parameters on the **SeEng of Network Service** webpage as shown screen. For example, to enable LDAP, enter Host IP and Port Number...etc.



The screenshot shows the 'LDAP Setting' configuration page. It includes a checkbox for 'Enabled LDAP' which is checked. Below this are input fields for 'Host' (172.31.35.186), 'Port Number' (389), 'TLS Connection' (checked), and 'Base DN' (dc=qetest,dc=com).

**Step 2:** Please press  icon to add LDAP user then configure the related LDAP parameters on the **SeEng of User SeEng** webpage as shown screen. For example, set LDAP Username, select Privilege to "Outlet Manager" and select the related outlets.

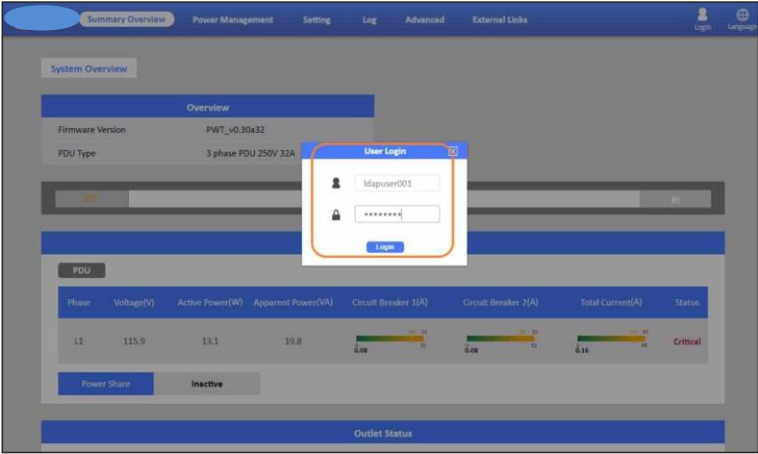


The screenshot shows the 'Modify' configuration page for an LDAP user. The 'Username' field is set to 'ldapuser001' and the 'Privilege' dropdown is set to 'Outlet Manager'. Below this is a 'PDU' field. At the bottom, there is a table of outlets with checkboxes for selection. The first three outlets (1, 4, and 7) are checked and highlighted with an orange box.

#	Outlet	#	Outlet	#	Outlet
<input checked="" type="checkbox"/>	1 outlet 01	<input type="checkbox"/>	2 outlet 02	<input type="checkbox"/>	3 outlet 03
<input checked="" type="checkbox"/>	4 outlet 04	<input type="checkbox"/>	5 outlet 05	<input type="checkbox"/>	6 outlet 06
<input checked="" type="checkbox"/>	7 outlet 07	<input type="checkbox"/>	8 outlet 08		

# Using the Web Interface

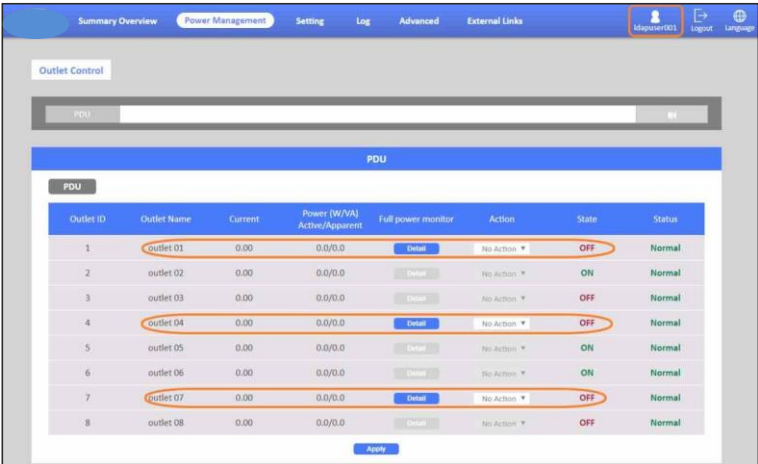
**Step 3:** After configured LDAP parameter, please logout and close web browser. To enter LDAP username and password then login web browser.



**Step 4:** To check the login LDAP username on the **Network Connect** of **Summary Overview** webpage as shown screen.

Network Connect		
Total TCP Connection : 1		
Source Host Address	Connection Type	Username
172.31.34.222	HTTP	ldapuser001

**Step 5:** The LDAP user can control the related outlets on the **Outlet Control** of **Power Management** webpage.



# Using the Web Interface

The section provides information about seEng up the TACACS+ step by step.

**Step 1:** To set up the PDU, please configure the related TACACS+ parameters on the **SeEng of Network Service** webpage as shown screen. For example, to enable TACACS+, enter Host IP and Port Number...etc.



**TACACS+ Setting**

Enabled TACACS+

Host: 172.31.35.184

Port Number: 49

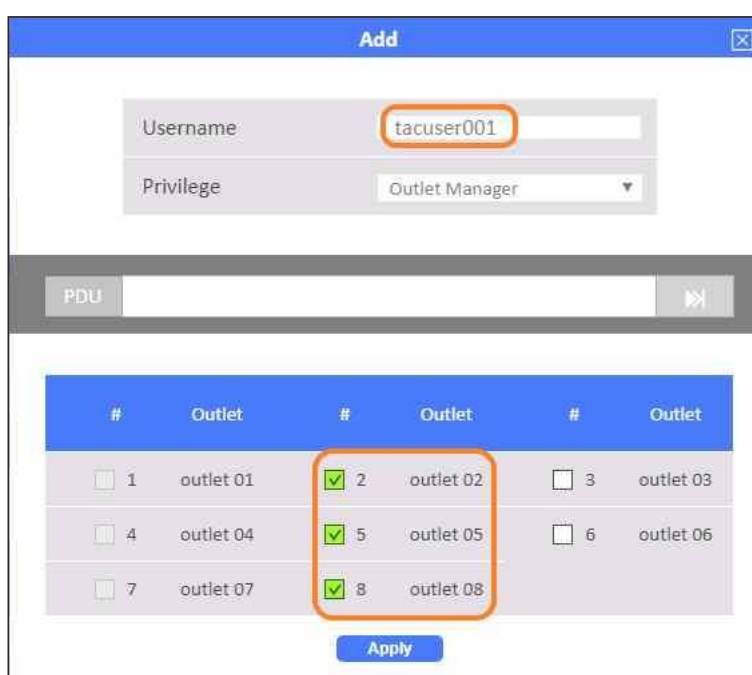
Secret Key: .....

Timeout(Sec): 5

Retry Count: 3

Authentication Mode: ASCII

**Step 2:** Please press “+” icon to add TACACS+ user then configure the related TACACS+ parameters on the **SeEng of User SeEng** webpage as shown screen. For example, set TACACS+ Username, select Privilege to “Outlet Manager” and select the related outlets.



**Add**

Username: tacuser001

Privilege: Outlet Manager

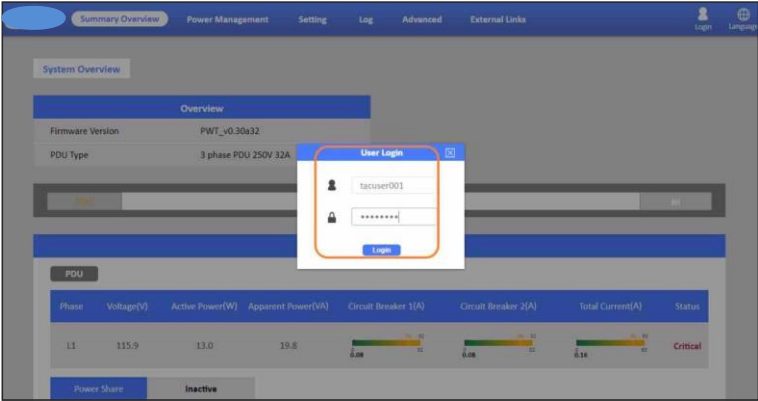
PDU: [ ]

#	Outlet	#	Outlet	#	Outlet
<input type="checkbox"/> 1	outlet 01	<input checked="" type="checkbox"/> 2	outlet 02	<input type="checkbox"/> 3	outlet 03
<input type="checkbox"/> 4	outlet 04	<input checked="" type="checkbox"/> 5	outlet 05	<input type="checkbox"/> 6	outlet 06
<input type="checkbox"/> 7	outlet 07	<input checked="" type="checkbox"/> 8	outlet 08		

**Apply**

# Using the Web Interface

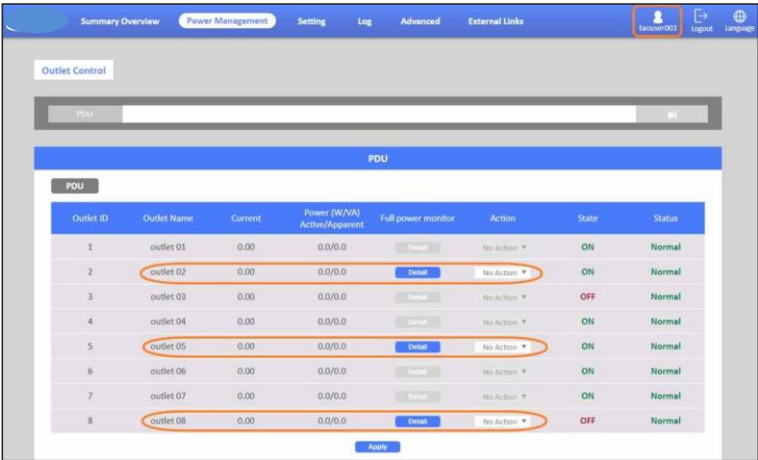
**Step 3:** After configured TACACS+ parameter, please logout and close web browser. To enter TACACS+ username and password then login web browser.



**Step 4:** To check the login TACACS+ username on the **Network Connect** of **Summary Overview** webpage as shown screen.

Network Connect		
Source Host Address	Connection Type	Username
172.31.34.222	HTTP	tacuser001

**Step 5:** The TACACS+ user can control the related outlets on the **Outlet Control** of **Power Management** webpage.



# Using the Web Interface

## SiGns-Radius User

This page lets power admin to Add/Delete/Modify Radius users.

You have to Enable RADIUS and set ready in the Network Service. Then you can add a Radius User and set outlet control for this user. The Grouping & Schedule function also supports radius users.

The screenshot displays the 'Network Service' configuration page. The page has a blue header with navigation tabs: 'Summary Overview', 'Power Management', 'Settings', 'Log', 'Advanced', and 'External Links'. The main content area is titled 'Network Service' and contains several configuration sections:

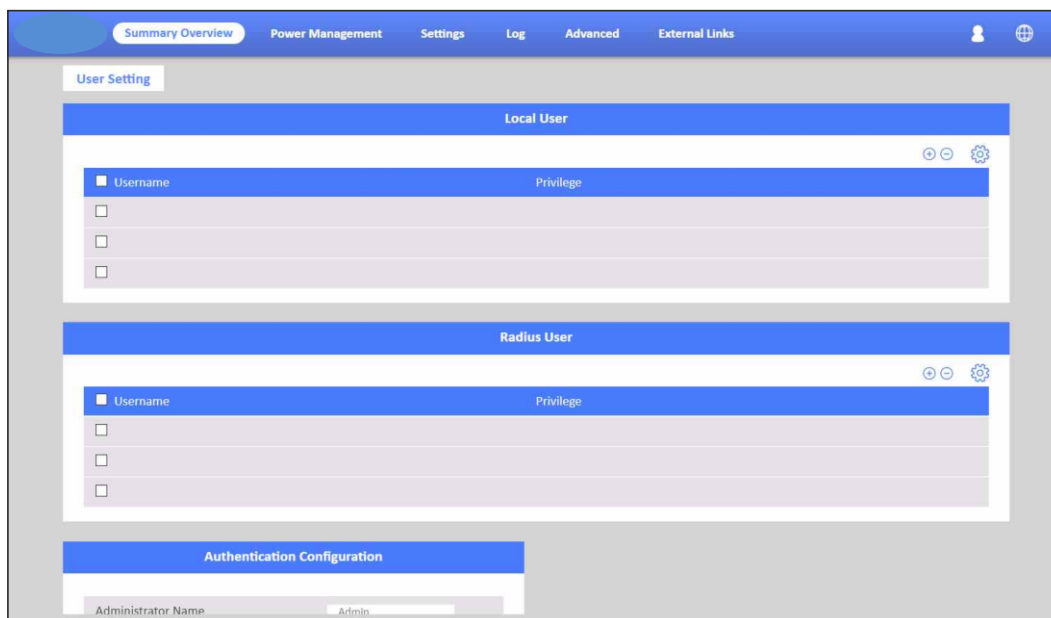
- SSH:** Includes a checkbox for 'Allow SSH Connection' and a 'Port Number' field set to 22.
- ModBus/TCP:** Includes a checkbox for 'Enabled ModBus/TCP' and a 'Port Number' field set to 502.
- SSL:** Includes checkboxes for 'Enabled Secure Connection(SSL)' and 'Force Secure Connection(SSL) Only', and a 'Port Number' field set to 22.
- Ping:** Includes a checkbox for 'Allow Ping Echo'.
- RADIUS Setting:** Includes a checkbox for 'Enabled RADIUS', and fields for 'Server IP Address' (22), 'Port Number' (22), 'Secret Key' (22), 'Timeout Interval' (22 Seconds), and 'Retry Times' (22).

An 'Apply' button is located at the bottom center of the configuration area.

NOTE: If there are 2 users with the same name both existed in Local User & Radius User, Local user will become a priority in PDU.

# Using the Web Interface

## SeNGS-LOCAL User



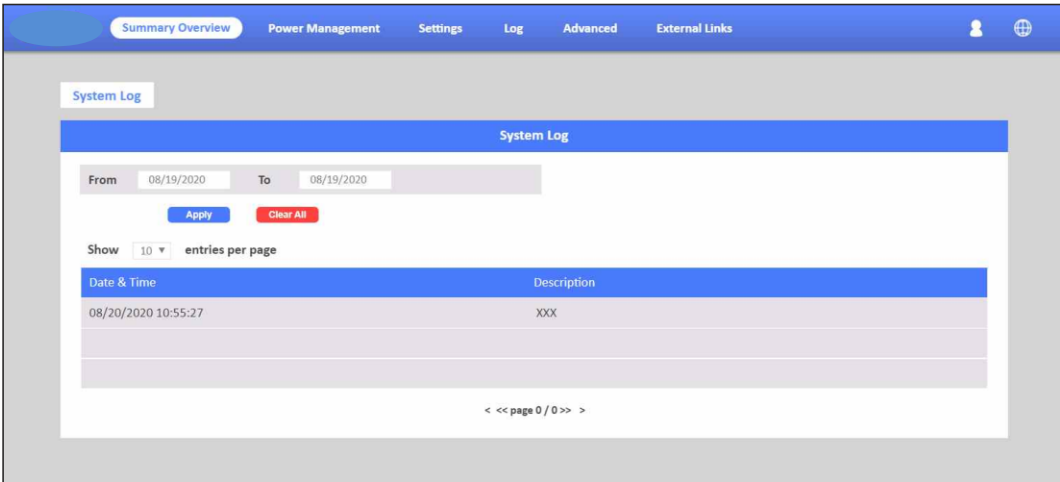
This page shows the user list and admin that can add/delete/modify it. The list can be upto 8 users. There are 4 kinds of privileges for the user account, the definition is as below:

Privilege	Definition
Power Admin	Users can manage all functions.
Admin	Admin users cannot manage [User Management], [Outlet Grouping], [FW Upgrade & Inlet/Outlet Upgrade], [Reset Default] function, and the others can still manage.
Supervision	Supervision users only manage [Power Monitoring] beside [Outlet Grouping], [Inlet/outlet upgrade] function.
User	Cannot manage any function. Read only.

# Using the Web Interface

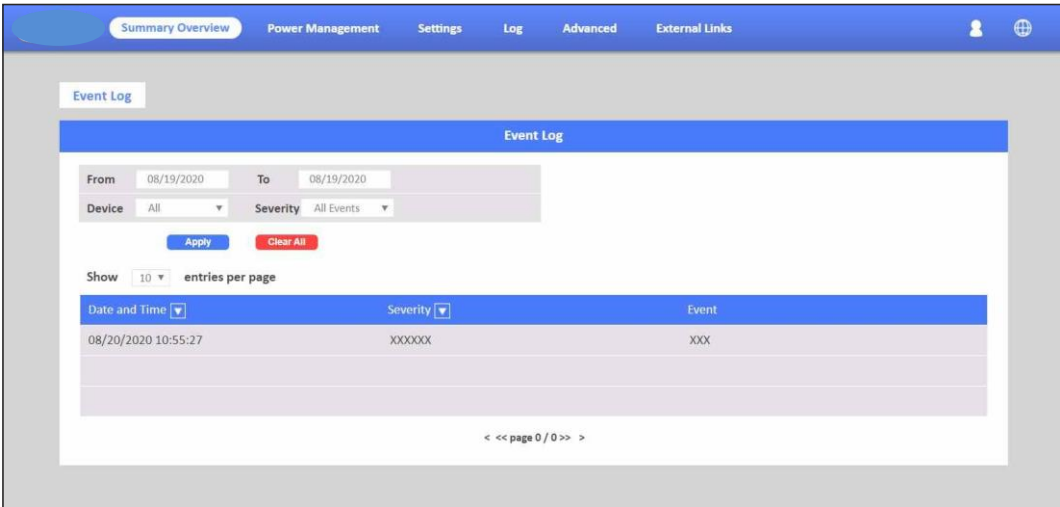
## Log and Notification-System Log

This page shows the system log



## Log and Notification-Event Log

This page shows the warnings and alarms history log.



# Using the Web Interface

## SiGns-Configure SMTP Server

This page let user configure SMTP server.

The screenshot shows the 'SNMP Setting' page in a web interface. The top navigation bar includes 'Summary Overview', 'Power Management', 'Settings', 'Log', 'Advanced', and 'External Links'. The main content area is titled 'SNMP Setting' and contains two sections: 'SNMP Agent' and 'SNMP Trap Setting'. The 'SNMP Agent' section has a checkbox for 'Enable SNMP Service' and input fields for 'Port Number' (XXX), 'SNMP Version' (v1), 'Community Read' (XXX), and 'Community Write' (XXX). An 'Apply' button is located below these fields. The 'SNMP Trap Setting' section features a table with columns for 'Receiver Address', 'Event Level', 'Trap Version', and 'Description'. The table currently contains three empty rows, each with a checkbox in the first column.

## SeGments-Email Notification SeEngs

This page lets the user set Email notification settings. Click "+" to set a new setting. Input "Receiver Address", select "Email Type"/"Event Level" and "Description", then click "Apply" to save settings. You can send a test mail to confirm the setting is correct or not through clicking "Send Test". After setting well, you will get a notification email when the event has been triggered.

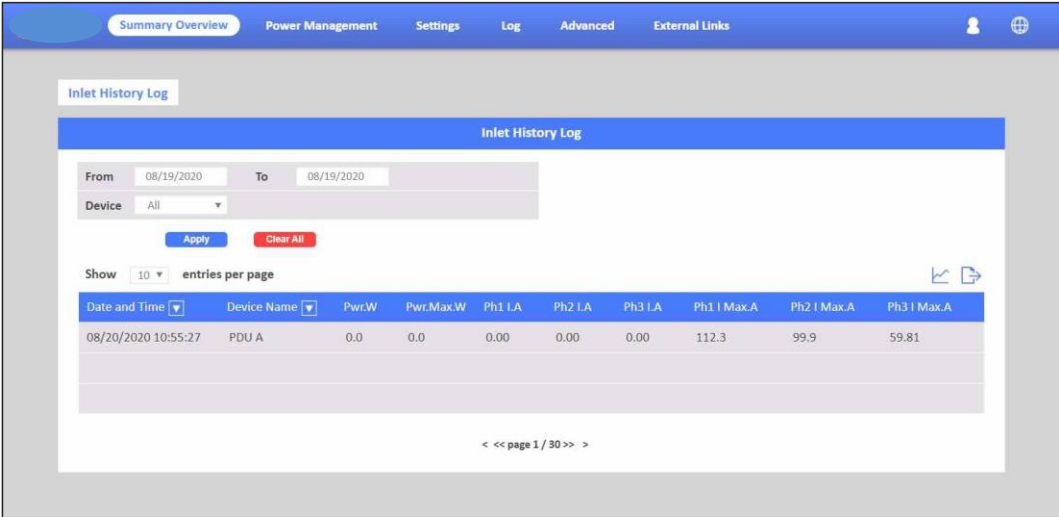
The screenshot shows the 'Email Settings' page in a web interface. The top navigation bar is the same as in the previous screenshot. The main content area is titled 'Email Settings' and contains two sections: 'Configure SMTP Server' and 'Email Notification Setting'. The 'Configure SMTP Server' section has input fields for 'SMTP Server' (XXXX), 'Port Number' (25), 'Sender Email Address' (xxxxx@xxx.xxx), 'Prefix' (xxx), 'User Name' (xxx), and 'Password' (masked with asterisks). There is a checkbox for 'Enable SMTP Authentication'. An 'Apply' button is located below these fields. The 'Email Notification Setting' section features a table with columns for 'Receiver Address', 'Email Type', 'Event Level', and 'Description'. The table contains one row with a checkbox, 'xxx.xxx.xxx', 'xxx', 'xxxx', and 'x'. There are two empty rows below it, each with a checkbox.



# Using the Web Interface

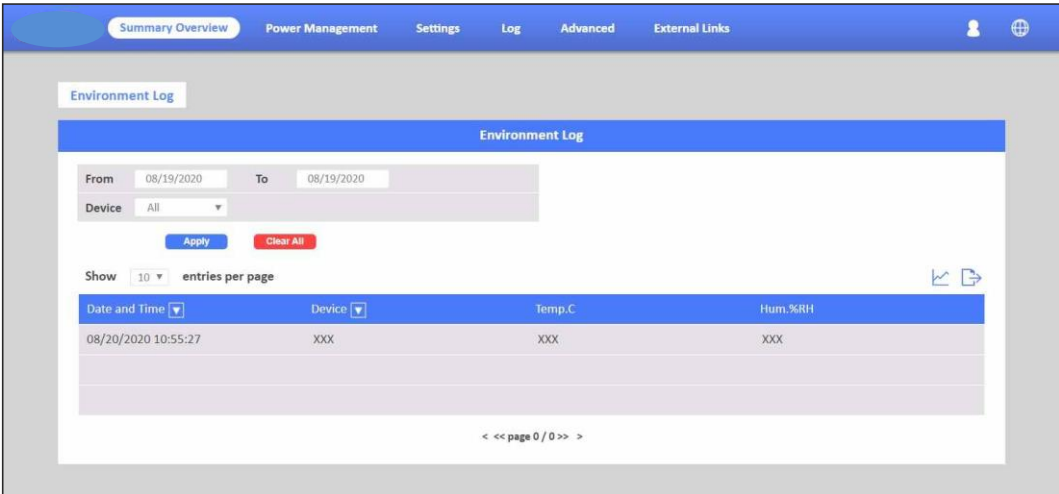
## Log and Notification-Inlet History Log

This page shows the inlet history log. You can set the log interval in General Setting under the System Management.



## Log and Notification-Environment History Log

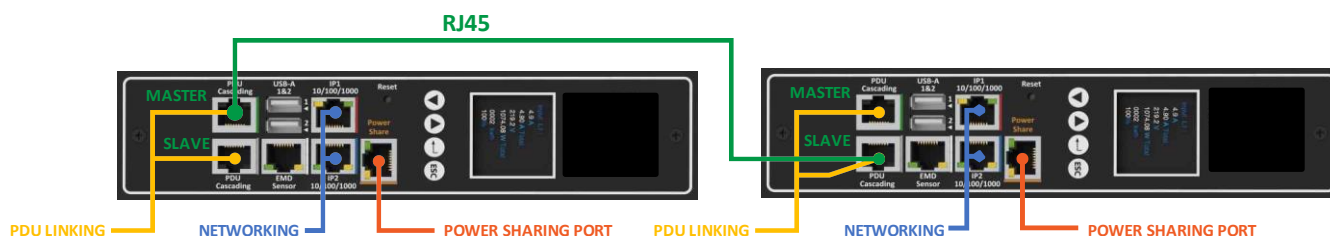
This page shows the environment history log. You can set the log interval in General Setting under System Management.



# Using the Web Interface

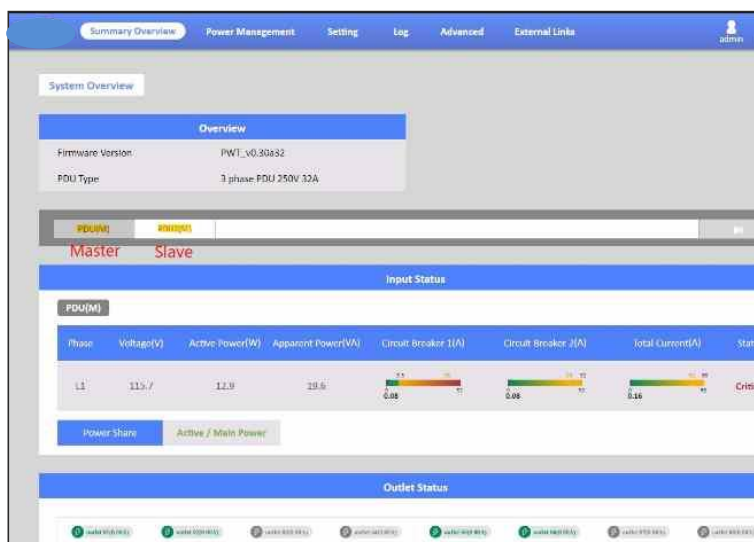
The section provides information about seEng up the Daisy Chain step by step.

**Step 1:** To set up the PDU, connect RJ45 serial cable from Cascading port of the Master PDU to Cascading port of the Slaver PDU.



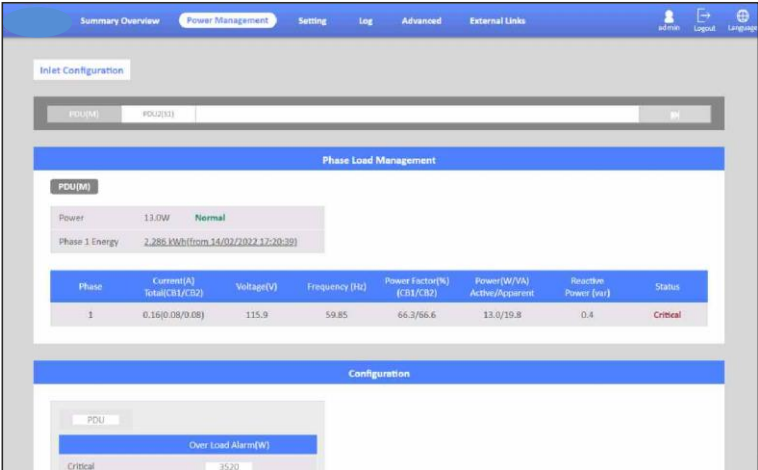
**Step 2:** The related parameters of the Master and Slaver PDU will display in the System Overview, Inlet Configuration, Outlet Control, Environment Monitoring, Outlet Group and Schedule ...etc. For more the details of the Master and Slaver PDU, please check the related webpage as below.

The **System Overview** of **System Overview** webpage as shown screen.

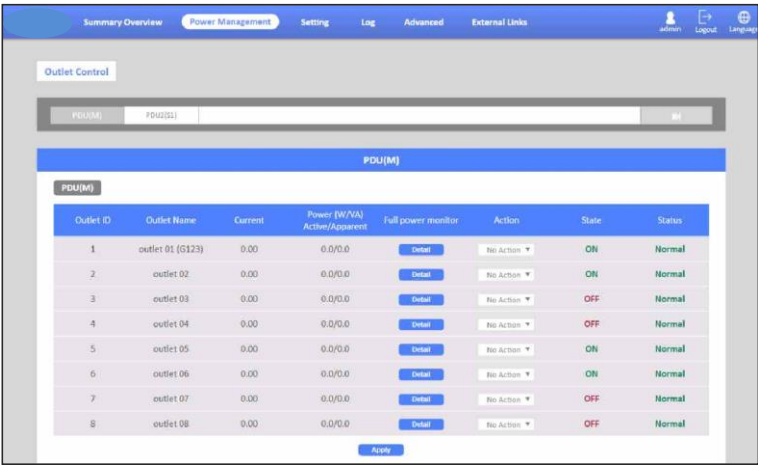


# Using the Web Interface

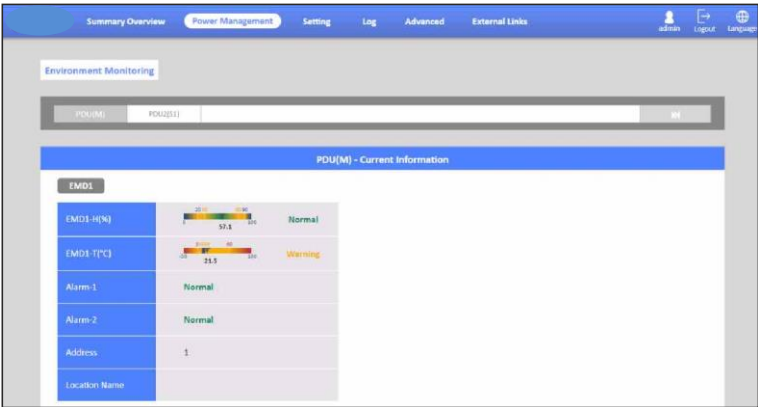
The **Inlet Configuration** of **Power Management** webpage as shown screen.



The **Outlet Control** of **Power Management** webpage as shown screen.

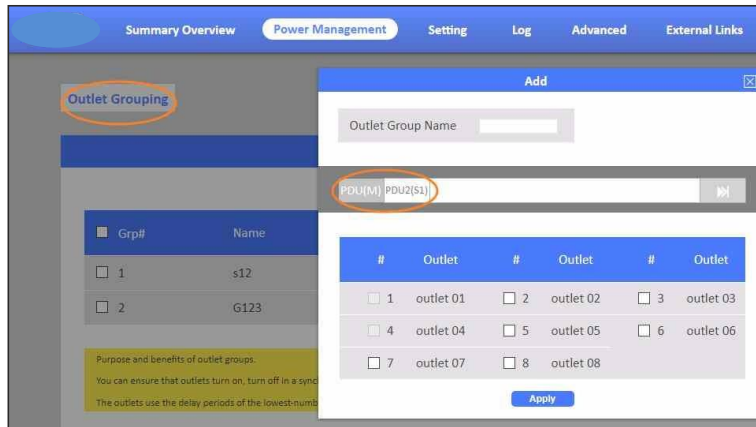


The **Environment Monitoring** of **Power Management** webpage as shown screen.

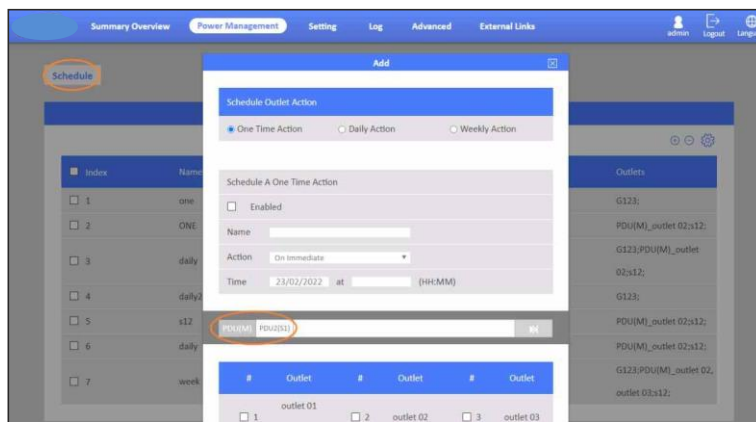


# Using the Web Interface

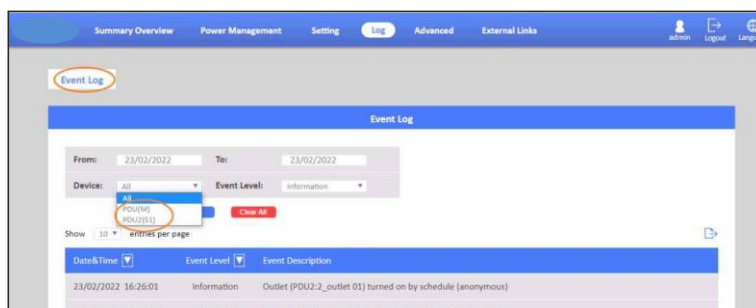
The **Outlet Group** of **Power Management** webpage as shown screen.



The **Schedule** of **Power Management** webpage as shown screen.

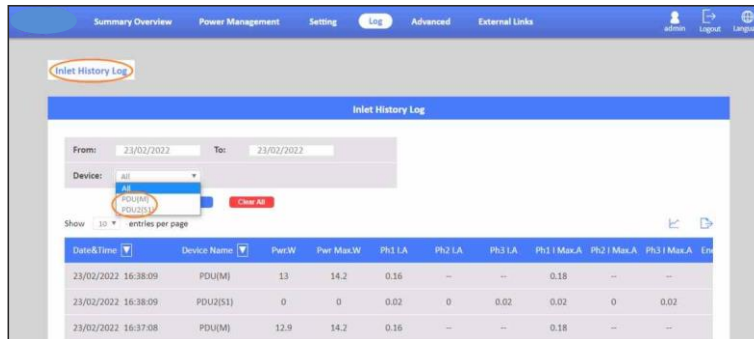


The **Event Log** of **Log** webpage as shown screen.

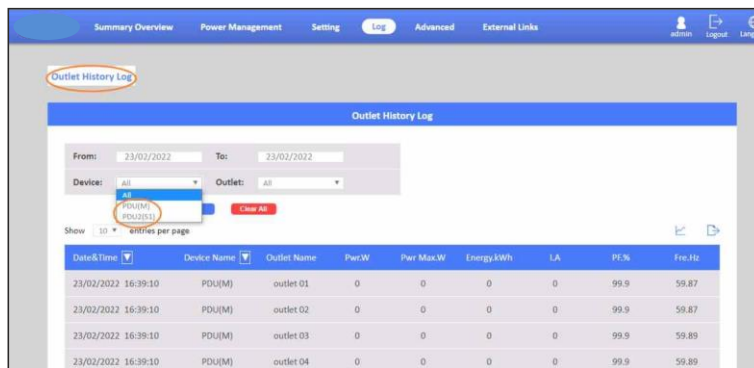


# Using the Web Interface

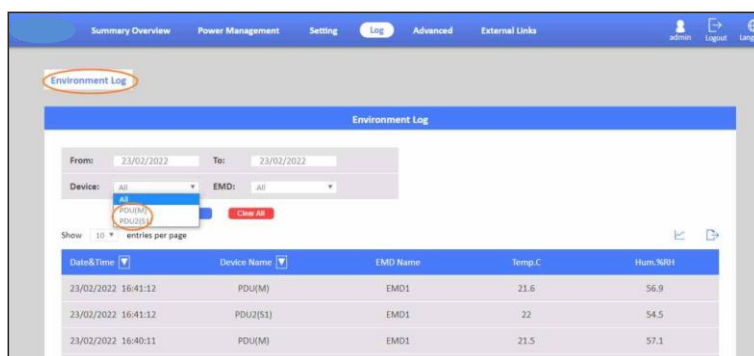
The Inlet History Log of Log webpage as shown screen.



The Outlet History Log of Log webpage as shown screen.

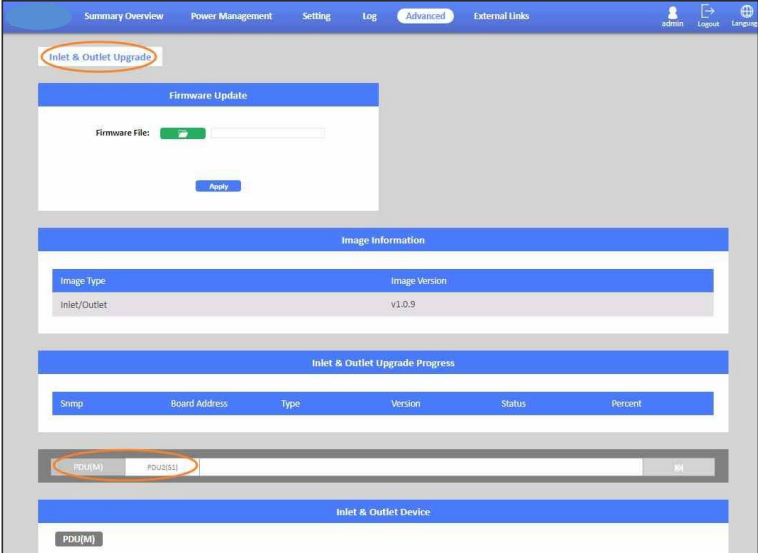


The Environment Log of Log webpage as shown screen.

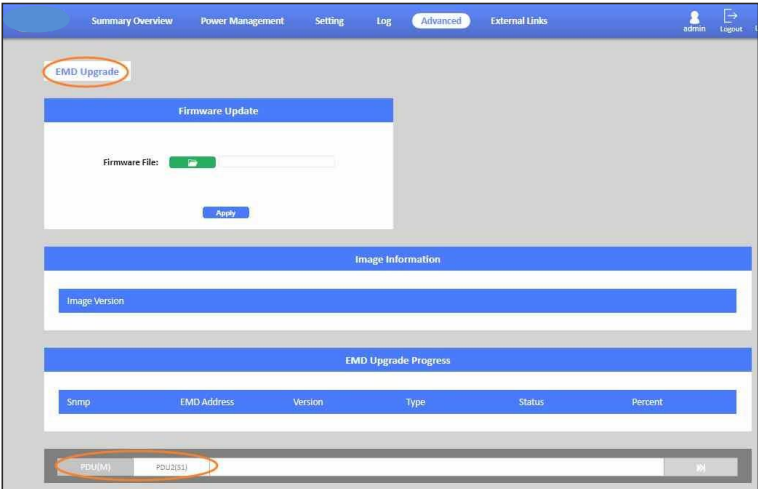


# Using the Web Interface

The **Inlet & Outlet Upgrade** of **Advanced** webpage as shown screen.



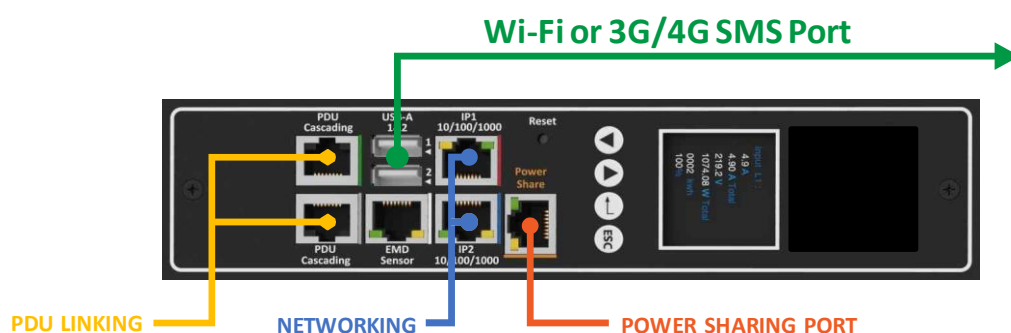
The **EMD Upgrade** of **Advanced** webpage as shown screen.



# Using the Web Interface

The section provides information about seEng up the **Wi-Fi step by step.**

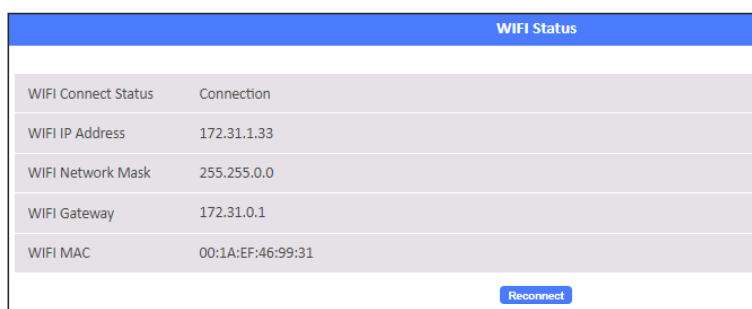
**Step 1:** To set up the PDU, plug the Wi-Fi dongle into USB-A (1 or 2) port.



**Step 2:** To configure the related Wi-Fi parameters on the **Wi-Fi SeEng of Advanced** webpage as shown screen. For example, to enable Wi-Fi Control, enter Wi-Fi SSI: TOTOLINK\_A1004...etc

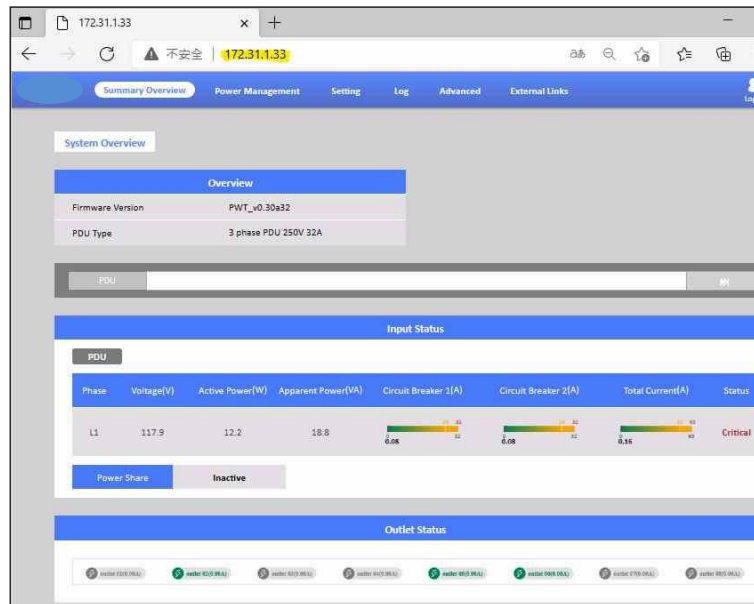


**Step 3:** After configured Wi-Fi parameters, the related Wi-Fi status is automatically displayed on the **Wi-Fi Status**. For example, to enable Wi-Fi Control, enter Wi-Fi SSI: TOTOLINK\_A1004...etc as shown screen



# Using the Web Interface

**Step 4:** Please access the Wi-Fi IP address (example IP: 172.31.1.33) from web browser and make sure the Wi-Fi dongle has workable.



**Step 5:** Please use the ping command to Wi-Fi IP address (example IP: 172.31.1.33) then make sure the Wi-Fi dongle has workable.

```
C:\ 命令提示字元 - ping 172.31.1.33 -t
Microsoft Windows [版本 10.0.19043.928]
(c) Microsoft Corporation. 著作權所有，並保留一切權利。
C:\Users\phoebe.DESKTOP-A42VPII>ping 172.31.1.33 -t

Ping 172.31.1.33 (使用 32 位元組的資料):
回覆自 172.31.1.33: 位元組=32 時間<1ms TTL=64
回覆自 172.31.1.33: 位元組=32 時間<1ms TTL=64
回覆自 172.31.1.33: 位元組=32 時間<1ms TTL=64
回覆自 172.31.1.33: 位元組=32 時間<1ms TTL=64
回覆自 172.31.1.33: 位元組=32 時間<1ms TTL=64
回覆自 172.31.1.33: 位元組=32 時間<1ms TTL=64
```



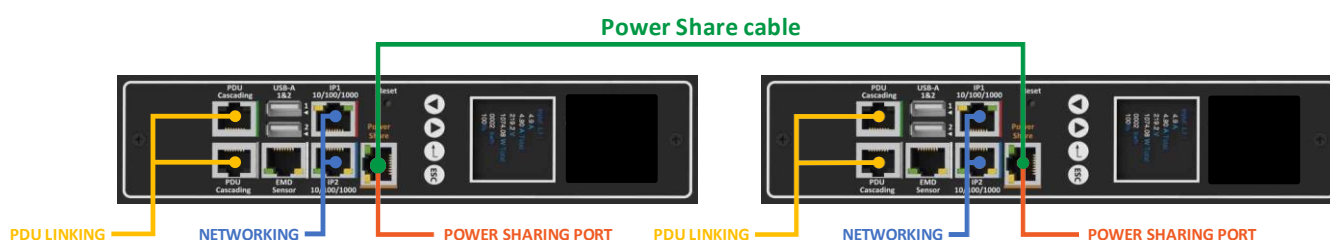
# Using the Web Interface

The section provides information about seEng up the Power Share step by step.

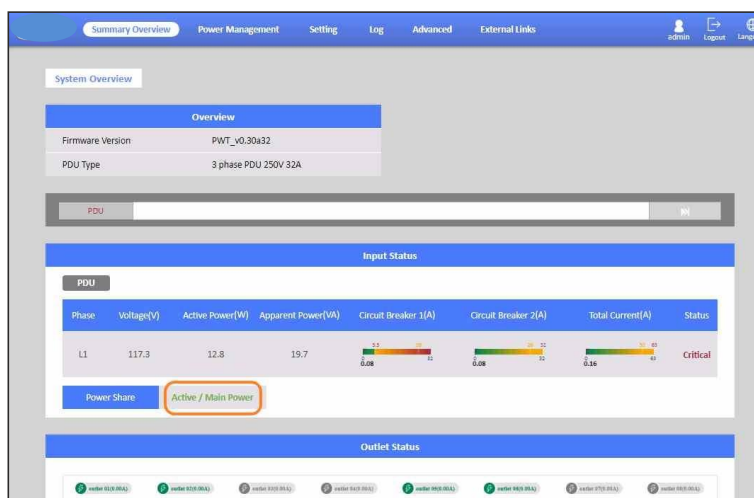


**ONLY USE THE SPECIAL PATCH CABLE SUPPLIED BY THE MANUFACTURER, CONNECT A STANDARD PATCH CABLE WILL DAMAGE THE ELECTRONICS**

**Step 1:** To set up the PDU, connect Power Sharing cable (orange color) from Power Share port of the PDU A to Power Share port of the PDU B.

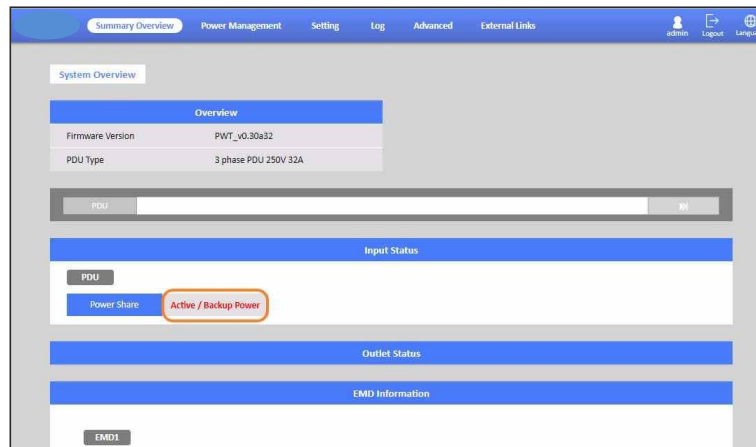


**Step 2:** After connecting power sharing cable, open a web browser from a PC, then the status of the power share is automatically displayed on the **System Overview** webpage. If PDU A is master PDU then the status of power share will display **Active/Main Power** on the **System Overview** webpage.

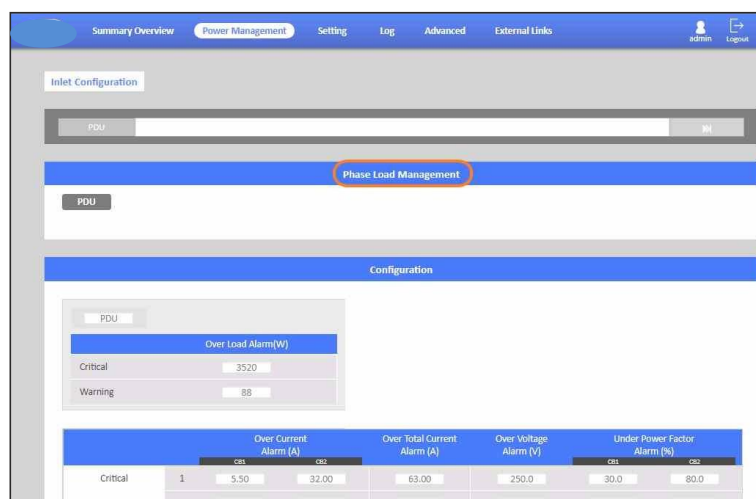


# Using the Web Interface

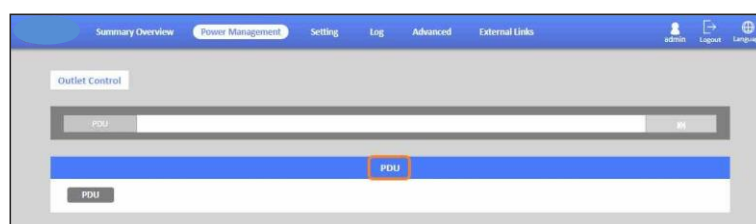
**Step 3:** When PDU A has utility power fail, the status of power share will display **Active/Backup Power** on the **System Overview** webpage.



**Step 4:** At the same, the information of inlet phase load management will not display on the Inlet **Configuration** of the **Power Management** webpage.



**Step 5:** Another, there are some outlets information will not display on the **Outlet Control** of **Power Management** webpage



# Using the Web Interface

**Step 6:** The related alarm will be occurred on the **Alarm List of Summary Overview** webpage. The alarm will be “PDU (PDU:1) power off”.

Alarm List		
Number of Active Alarms : 4		
Alarm ID	Alarm Time	Alarm Description
56	22/02/2022 11:09:14	Inlet (PDU:1) phase1 pf branch2 was lower than warning set point
57	22/02/2022 11:09:14	Inlet (PDU:1) phase1 pf branch2 was lower than critical set point
3	22/02/2022 13:45:26	(PDU:1) EMD1(EMD-1) temperature was higher than high warning set point
62	24/02/2022 10:22:17	<b>PDU (PDU:1) power off</b>

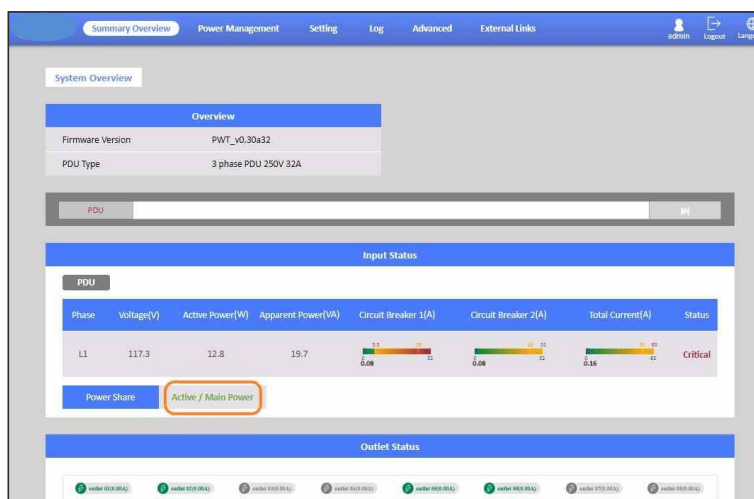
**Step 7:** The related log and trap will be recorded on the **Log of Event Log** webpage and NMS. The log and trap will be “warning: Inlet (PDU:1) Active/Main Power change to Active/Backup Power ”.

Event Log		
From:	24/02/2022	To: 24/02/2022
Device:	All	Event Level: Information
<input type="button" value="Apply"/> <input type="button" value="Clear All"/>		
Show	10	entries per page
Date&Time	Event Level	Event Description
24/02/2022 10:22:18	Information	Inlet (PDU:1) phase1 voltage had returned from warning to normal
24/02/2022 10:22:17	<b>Warning</b>	<b>Inlet (PDU:1) Active/Main Power change to Active/Backup Power</b>
24/02/2022 09:57:29	Warning	Inlet (PDU:1) phase1 voltage was higher than warning set point
24/02/2022 09:57:28	Information	Inlet (PDU:1) Active/Backup Power change to Active/Main Power
24/02/2022 09:45:17	Information	Inlet (PDU:1) phase1 voltage had returned from warning to normal

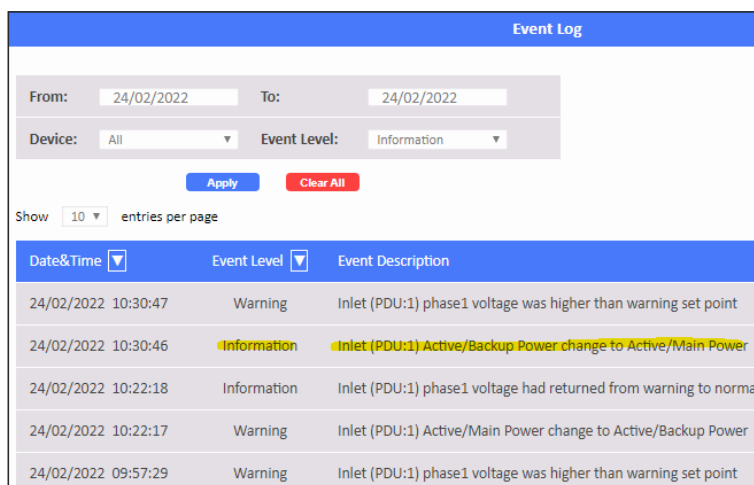
pduInletPowerShareMainLose			
Source:	172.31.34.249	Timestamp:	3703 hours 53 minutes 34.67 seconds
Trap OID:	pduInletPowerShareMainLose	SNMP Version:	2
		Community:	public
<b>Variable Bindings:</b>			
Name:	.1.3.6.1.2.1.1.3.0		
Value:	[TimeTicks] 3703 hours 53 minutes 34.67 seconds (1333401467)		
Name:	snmpTrapOID		
Value:	[OID] pduInletPowerShareMainLose		
Name:	pduTraps		
Value:	[OctetString] Inlet (PDU:1) Active/Main Power change to Active/Backup Power		
Description:	<b>Warning:Active/Main Power change to Active/Backup Power</b>		

# Using the Web Interface

**Step 8:** When PDU A has utility power restore, the status of power share will display **Active/Main Power** on the **System Overview** webpage.

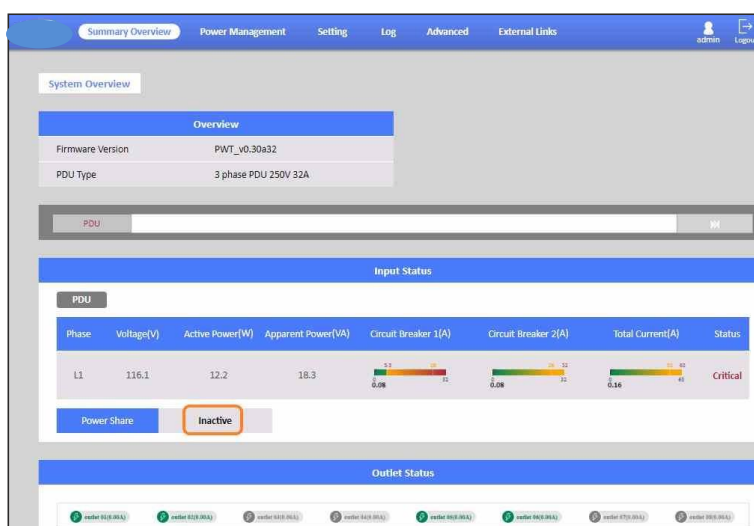
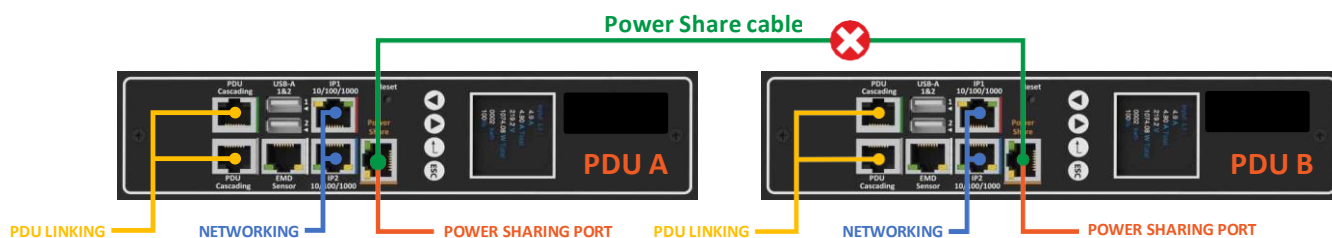


**Step 9:** The related log and trap will be recorded on the **Log of Event Log** webpage and NMS. The log and trap will be “Information: Inlet (PDU:1) Active/Backup Power change to Active/Main Power”.



# Using the Web Interface

**Step 10:** When user remove power sharing cable, the status of power share will display **Inactive** on the **System Overview** webpage.



**Step 11:** The related alarm will be occurred on the **Alarm List** of **Summary Overview** webpage. The alarm will be “PDU Power Share disconnected”.

Alarm List		
Number of Active Alarms : 4		
Alarm ID	Alarm Time	Alarm Description
56	22/02/2022 11:09:14	Inlet (PDU:1) phase1 pf branch2 was lower than warning set point
57	22/02/2022 11:09:14	Inlet (PDU:1) phase1 pf branch2 was lower than critical set point
37	24/02/2022 10:30:48	Inlet (PDU:1) phase1 voltage was higher than warning set point
63	24/02/2022 10:55:45	<b>PDU (PDU:1) Power Share disconnected</b>

# Using the Web Interface

**Step 12:** The related log and trap will be recorded on the **Log of Event Log** webpage and NMS. The log and trap will be “Warning: Inlet (PDU:1) Active/Main Power change to Inactive”.

Event Log		
From:	24/02/2022	To: 24/02/2022
Device:	All	Event Level: Information
<input type="button" value="Apply"/> <input type="button" value="Clear All"/>		
Show	10	entries per page
Date&Time	Event Level	Event Description
24/02/2022 10:55:45	Warning	Inlet (PDU:1) Active/Main Power change to inactive
24/02/2022 10:55:34	Information	(PDU:1) EMD1(EMD-1) temperature had returned from high warning to normal

pduInletPowerShareBackupLose		172.31.34.248	2022-02-24 10:30:45
<b>Source:</b>	172.31.34.248	<b>Timestamp:</b> 4571 hours 18 minutes 18.46 seconds	<b>SNMP Version:</b> 3 (EngineID: 0x80001F8880213)
<b>Trap OID:</b>	pduInletPowerShareBackupLose		<b>User:</b> test1234
<b>Variable Bindings:</b>			
<b>Name:</b>	.1.3.6.1.2.1.1.3.0		
<b>Value:</b>	[TimeTicks] 4571 hours 18 minutes 18.46 seconds (1645669846)		
<b>Name:</b>	snmpTrapOID		
<b>Value:</b>	[OID] pduInletPowerShareBackupLose		
<b>Name:</b>	pduTraps		
<b>Value:</b>	[OctetString] Inlet (PDU:1) Active-Backup Power change to Active/Main Power		
<b>Description:</b> Warning: Active/Main Power change to Inactive.			