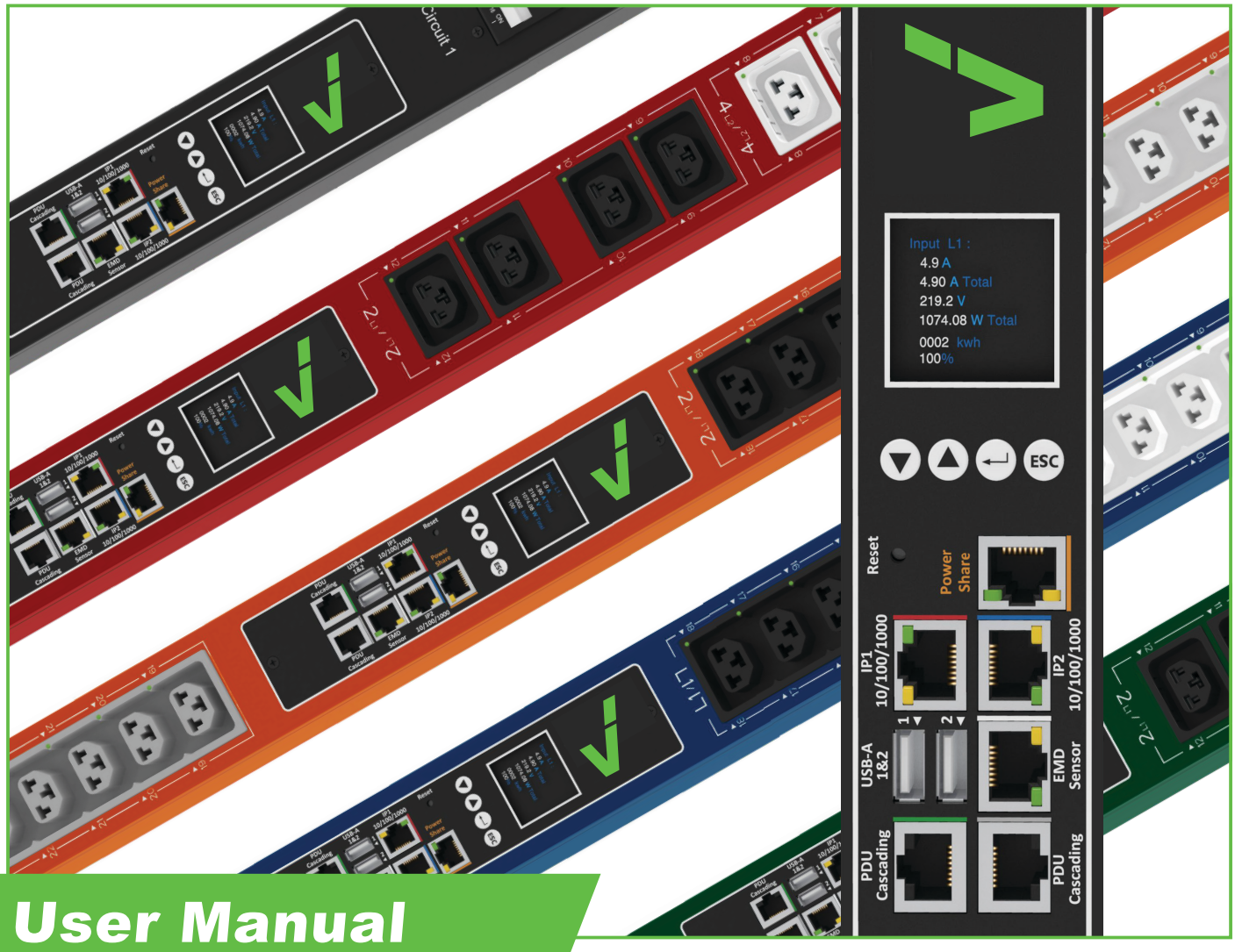
VERICOM®

The Future Of Technology - Today.

VPD, VPS, VPM, and VPO Series PDUs



User Manual

Table of Contents

Table of Contents

Preface

About this Manual

Congratulations on purchasing a Vericom PDU. This user manual covers VPD, VPS, VPM, and VPO Series Smart PDUs and 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

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 contaminates. 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 rating indicated on the product labels.
- Use a harmonized and certified power cord when connecting any device to the outlets.
- The digital outputs on the EMD 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 not to exceed 60°C."

"The openings on the enclosure are for air convection to protect 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 the specifications indicated on the product label. Ensure the voltage of the power source matches the stated voltage of the PDU, and that the total current and output power of the load do not exceed the specifications."

"This equipment must be connected to a reliable earthing system before using."

Product Introduction

Vericom Smart PDUs are an in-cabinet solution for distributing power to rack mount equipment, featuring various levels of intelligence to monitor power consumption at the input, circuit breaker, or outlet level with the ability to automatically email usage history data to management for billing purposes. In addition, VPS and VPO series PDUs provide users the ability to remotely control the power on/off for any device connected to the PDU.

Vericom Smart PDUs are also equipped with a port for connecting up to 8 EMD (Environmental Monitoring Device) sensors in a daisy chain for monitoring temperature and humidity. In addition, each EMD sensor includes two digital ports for connecting other types of sensors, such as a smoke detector, flood detector, or door contact sensor.

Features

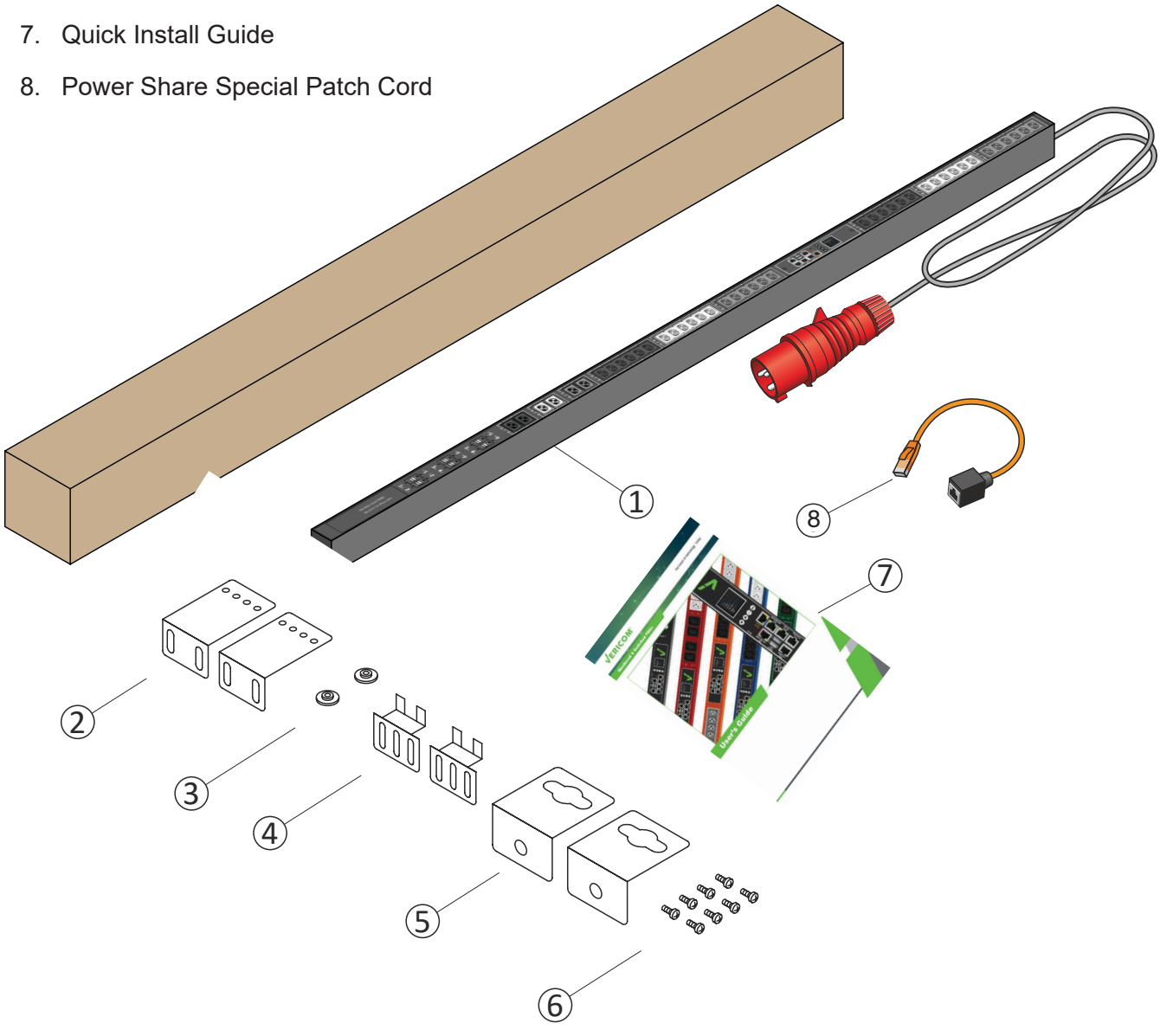
- Calculates power consumption on an hourly and daily basis
- Provides detailed data logging for statistical analysis and diagnostics, with an auto-generated history report emailed daily
- Connect up to 16 PDUs in a daisy chain
- Sequential power-up allows users to configure the sequence in which power is turned on or off for each outlet (VPS and VPO models only)
- Intelligently turn on/off devices based on event occurrence or planned schedule (VPS and VPO models only)
- Event notification by pop-up/Sending Trap or E-Mail
- Up to 42 power outlets can be turned on or off in multiple ways, with easy monitoring of current consumption (VPS and VPO models only)
- Set over-current parameters for each outlet (Threshold settings for over-current warnings and alerts) (VPM and VPO models only)
- 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, SNMP V1,2,3
- Supports 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 upgrades

Product Introduction

Package Contents

Make sure the PDU package has the following items. If any of the items are missing or damaged, contact your Vericom representative.

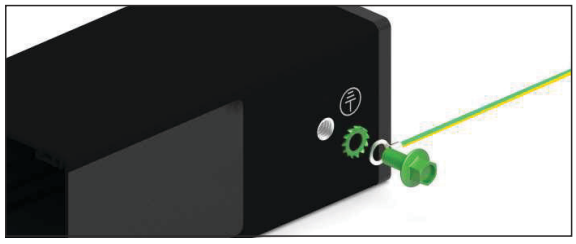
1. PDU
2. Mounting Brackets (x2)
3. Button Mounts (x2)
4. Toolless Mounting Brackets (x2)
5. Button Mount Brackets (x2)
6. Screws (x6)
7. Quick Install Guide
8. Power Share Special Patch Cord



Getting Started

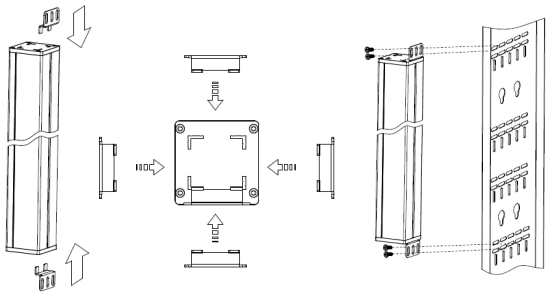
This section provides information about setting up a Vericom Smart PDU, connecting power, and connecting devices to it prior to using it for power management. Read this section carefully to learn how to connect various devices to the PDU.

Connecting the Earth Ground Wire

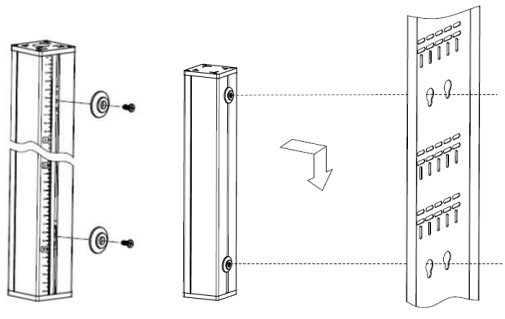


Rack Mounting

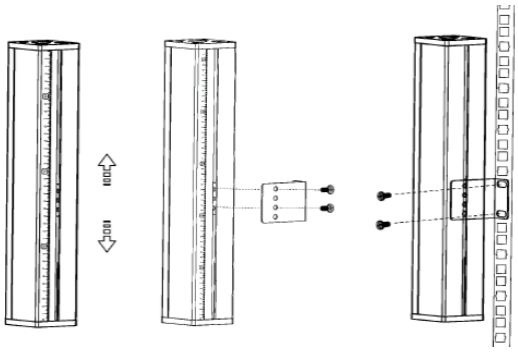
Vericom PDUs can be installed in most standard racks using the various types of brackets and button mounts included in this package:



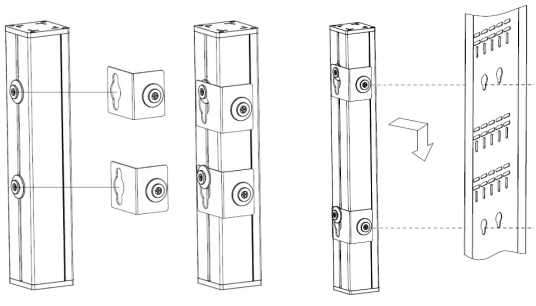
Option 1: Insert the toolless mounting brackets into the ends of the PDU (note the brackets can face all four sides of the PDU; be sure to insert them so that the outlets face the desired direction), then mount the PDU to rack rails using user supplied mounting hardware.



Option 2: Fix the button mounts in the desired position (note the button mounts can be positioned anywhere along the PDU), then mount the PDU into the button mount holes of your rack.



Option 3: Attach the mounting brackets in the desired position (note the brackets can be positioned anywhere along the PDU), then mount the PDU to the rack rails using the user supplied mounting hardware.



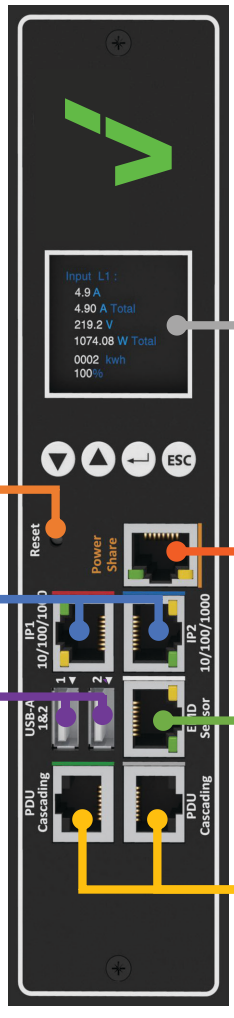
Option 4: Fix the button mounts in the desired position (note the buttons can be positioned anywhere along the PDU), mount the bracket onto the buttons, and then mount the bracket buttons into the button mount holes of your rack.

Getting Started

Making Connections

Vericom PDUs are a versatile product that can be connected to several different types of input and output devices. This makes it a useful tool for delivering and monitoring power to connected devices.

Our smart PDUs are manufactured with an advanced hot-swap, field replaceable SNMP IP controller, featuring dual Gigabit Ethernet ports, an OLED full color screen, cascading multi-sensor ports, enhanced security, sophisticated alarming, and power monitoring across the entire power chain.



OLED MULTI-COLOR SCREEN
Push button multi-color screen
Live alarms displayed
Power metrics displayed

RESET BUTTON
Full electronics reboot without powering down the sockets

NETWORKING
Dual Gigabit Ethernet ports

DUAL USB PORTS
Wireless LAN adapter
Flash Drive Bulk Configuration

NETWORK FAILSAFE PORT
Maintains SNMP controller functionality in a connected PDU even if there is a power failure in one of the PDUs

CASCADING SENSORS
Daisy chain up to 8 temp & humidity sensors and 16 additional sensors including smoke, vibration, door position, and flood detection

PDU CASCADING
Daisy chain up to 16 PDUs under one IP address

Getting Started

The following is an overview of the basic steps needed to set up the PDU:

1. To set up the hardware, connect the PDU power cord to a power supply and the equipment power cords to the PDU outlets. If using the EMD sensor, connect it to the EMD port on the PDU and connect any additional open/close sensors to the EMD.
2. To configure the PDU, users must use the Ethernet port. Connect the device to a LAN to enable its configuration through a browser menu.
3. Use a console application such as Hyper Terminal 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 a LAN, open a browser from a PC in the network and enter the IP address specified through the console menu to open the PDU web interface for system configuration.

Getting Started

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

Connecting Input Power

Vericom PDUs are available with a variety of NEMA and IEC60309 plugs based on the required phase, voltage, and current of the installation. Be sure to only connect each type of plug into a corresponding outlet type.

Connecting Output Devices

Vericom PDUs are available with a variety of outlet types and quantities for connecting equipment such as servers, switches, and routers. Connect equipment power cords to corresponding outlet types on the PDU.

Vericom PDUs are available with the following outlets:

220V/10A IEC C13, IEC C13 (Lock)

220V/16A, IEC C19, IEC C13/C19 combo

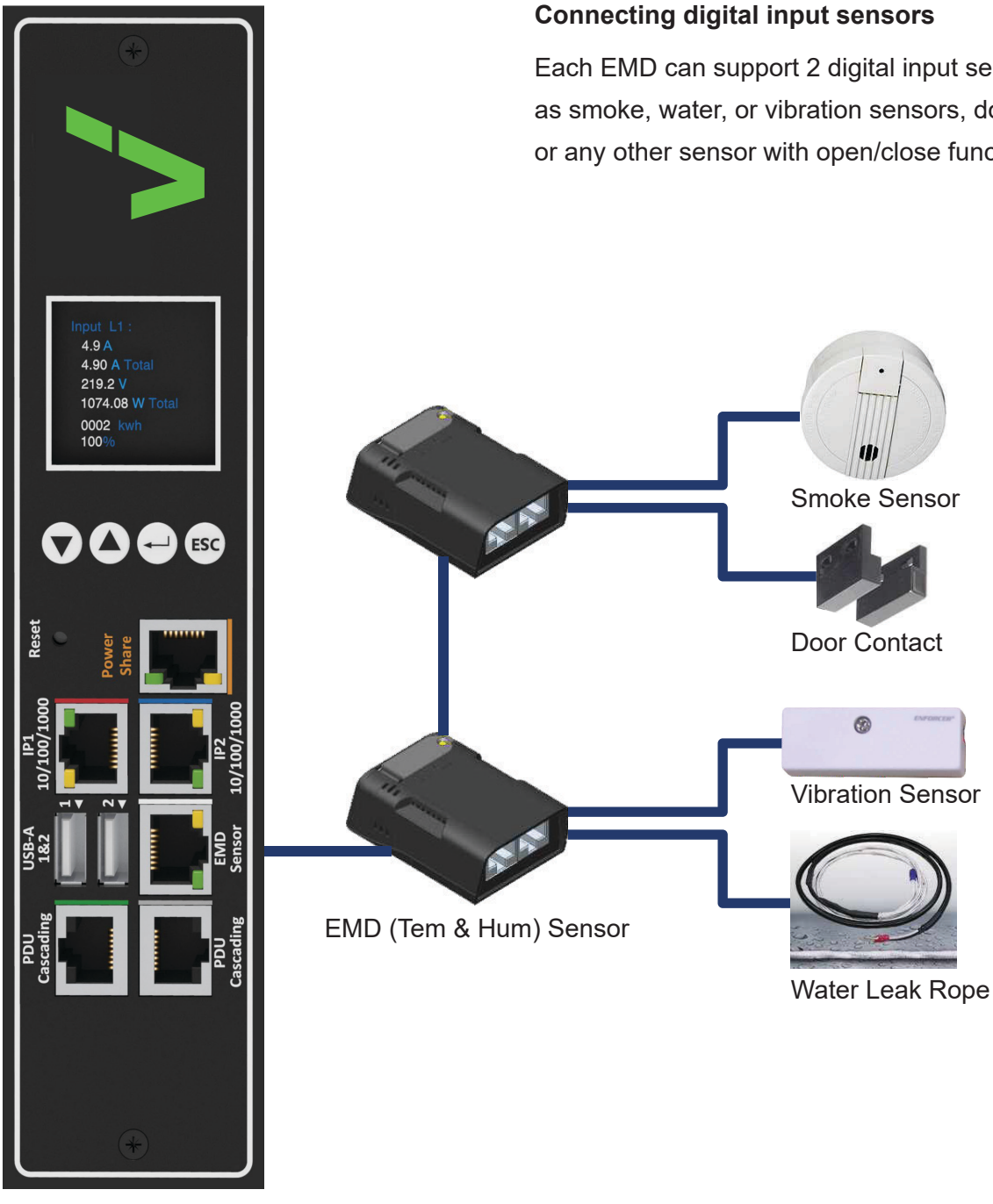
120V/15A: NEMA 5-15P

120V/20A: NEMA 5-20P

Getting Started

Connecting an EMD

An Environmental Monitoring Device (EMD) that includes sensors for detecting temperature and humidity can be connected to Vericom PDUs via an Ethernet cable to the EMD Sensor port. Up to 8 EMD sensors can be connected in a daisy chain to monitor the temperature and humidity in different parts of a rack. In addition, up to 2 open/close sensors, such as smoke, vibration, and/or flood detectors, can be connected to each EMD.

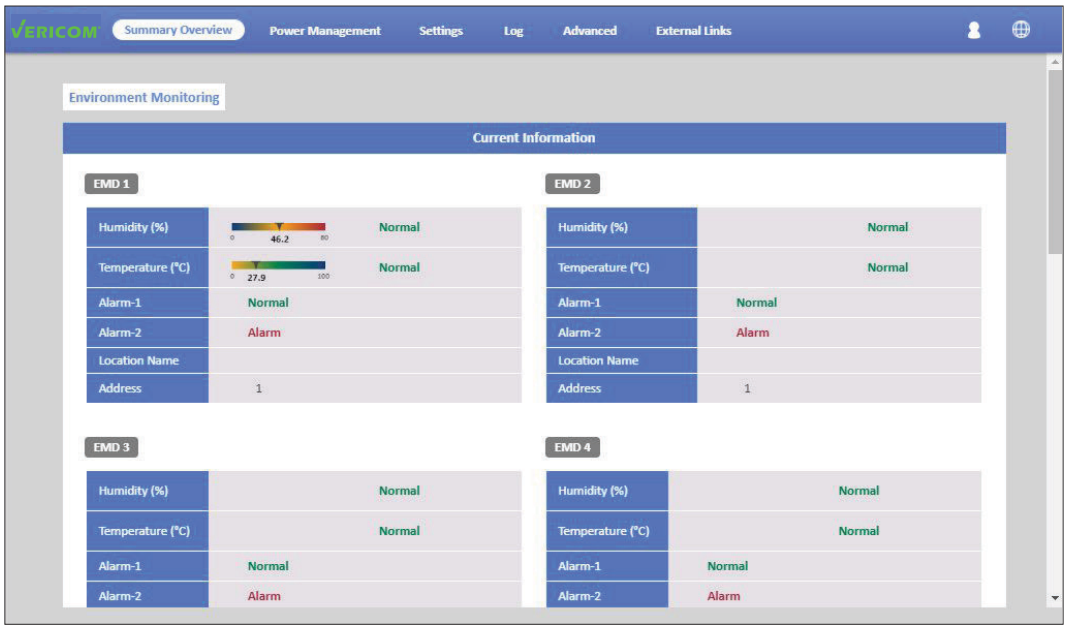


Connecting digital input sensors

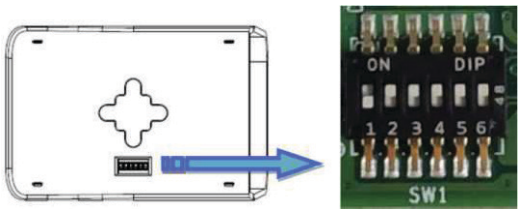
Each EMD can support 2 digital input sensors, such as smoke, water, or vibration sensors, door contacts, or any other sensor with open/close functionality.

Getting Started

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



Dip-Switch for Address Setting



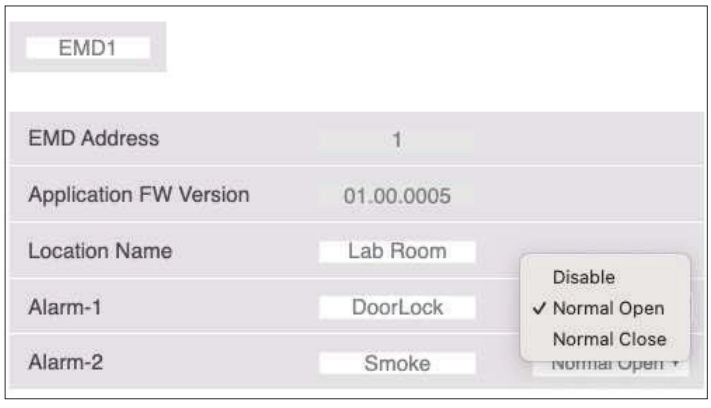
Pin	Function	120 Ω enable	120 Ω disable
6	120 Ω enable	On	Off

Pin 6 function define

Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	MODBUS Adress	
ON	OFF	OFF	OFF	OFF	1	
OFF	ON	OFF	OFF	OFF	2	
ON	ON	OFF	OFF	OFF	3	
OFF	OFF	ON	OFF	OFF	4	
ON	OFF	ON	OFF	OFF	5	
OFF	ON	ON	OFF	OFF	6	
ON	ON	ON	OFF	OFF	7	
OFF	OFF	OFF	ON	OFF	8	

Getting Started

Digital input sensors are connected to the EMD, enable them as pictured below. Enter a location and sensor name(s) for alarm notification purposes.

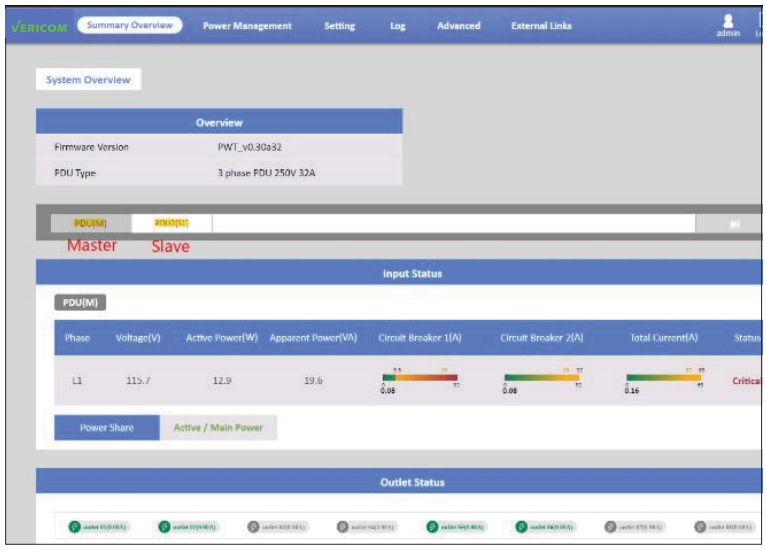


Daisy chaining multiple PDUs

Step 1: To set up the Daisy chain, connect a RJ45 patch cord from the Cascading port OUT on the Primary PDU to Cascading port IN on the Secondary PDU. A maximum of 15 Secondary PDUs are permitted.

Step 2: The related parameters of the Primary and Secondary PDU will display in the System Overview, Inlet Configuration, Outlet Control, Environment Monitoring, Outlet Group and Schedule…etc.

The **System Overview** of **System Overview** webpage:



Getting Started

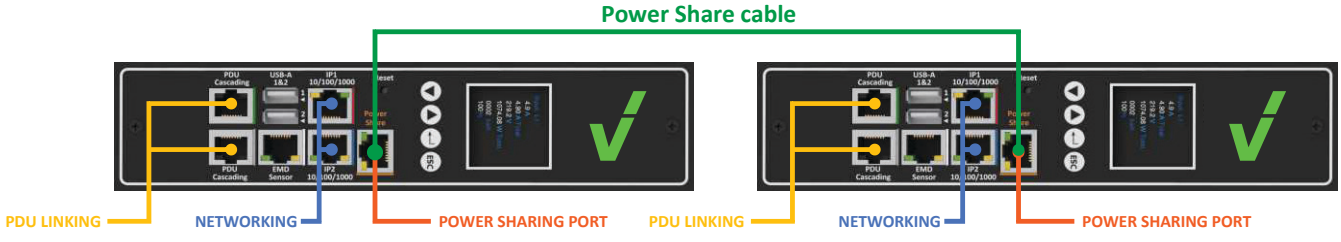
Connecting two PDUs using the Network Failsafe/Power Share port

An Environmental Monitoring Device (EMD) that includes sensors for detecting temperature and humidity can be connected to Vericom PDUs via an Ethernet cable to the EMD Sensor port. Up to 8 EMD sensors can be connected in a daisy chain to monitor the temperature and humidity in different parts of a rack. In addition, up to 2 open/close sensors, such as smoke, vibration, and/or flood detectors, can be connected to each EMD.

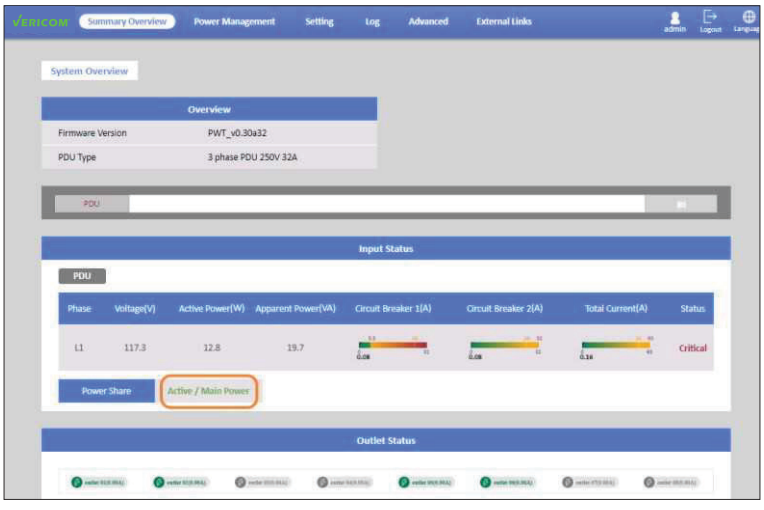
> ***USE THE ORANGE RJ45 ADAPTOR CABLE (PROVIDED) AND A USER-PROVIDED STANDARD TIA/EIA568 PATCH***

Step 1: To set up the PDU, connect the Power Share adaptor cable (orange color) to the Power Share port of one of the PDUs (PDU A) then a standard patch cord

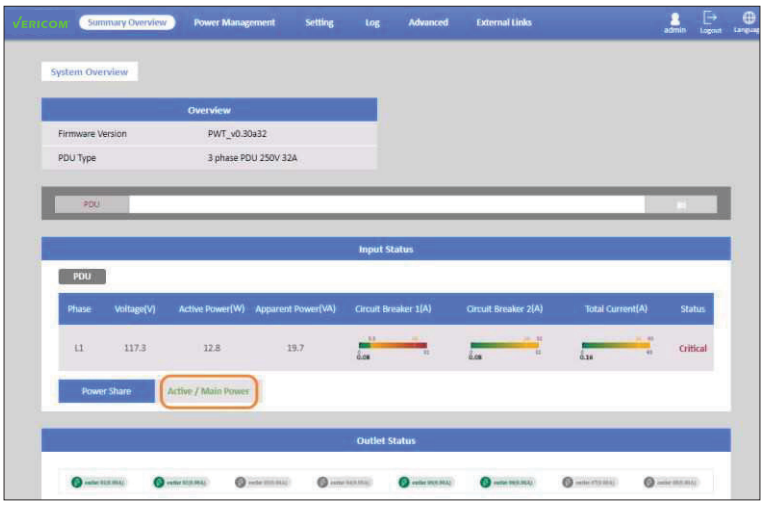
from the adapter cable to PDU B.



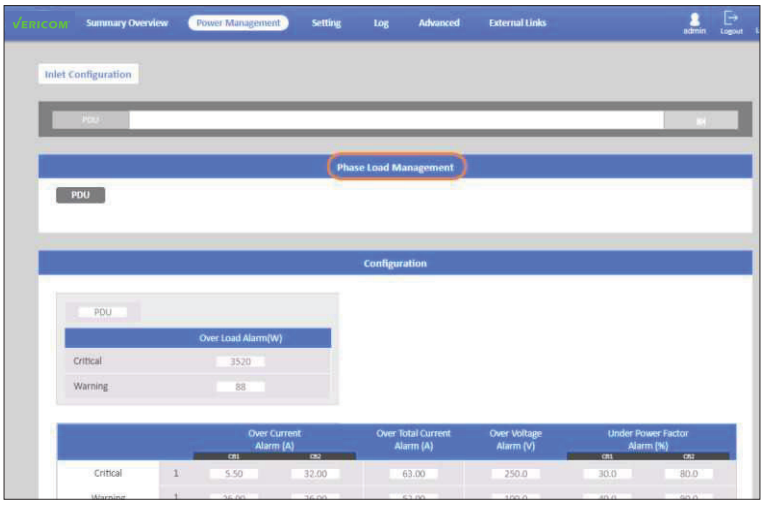
Step 2: After connecting the patch cable, open a web browser from a PC. The status of the power share is automatically displayed on the **System Overview** webpage. If PDU A is master PDU then the status of power share will display **Active/Main Power** on the **System Overview** webpage.



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

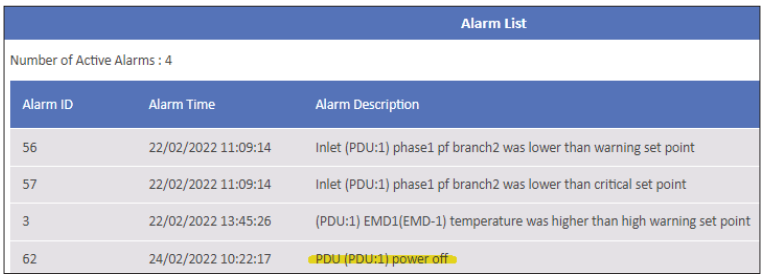


Step 4: At the same, the information of inlet phase load management will not display on the Inlet **Configuration** of the **Power Management** webpage.



Step 5: Also, outlet information will not display on the **Outlet Control** of the **Power Management** webpage.

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

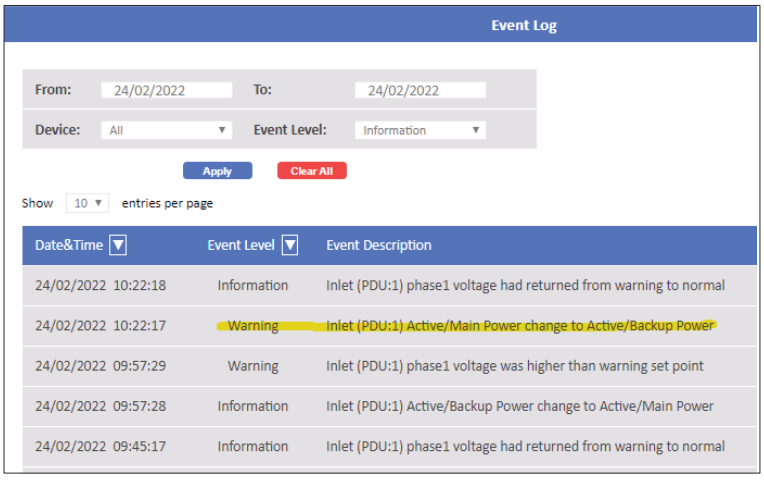


Alarm List

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	PDU (PDU:1) power off

Step 7: The related log and trap will be recorded on the **Log** of the **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

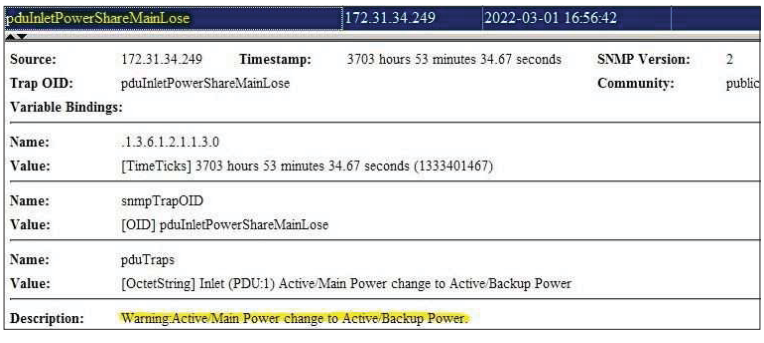
From: 24/02/2022 To: 24/02/2022

Device: All Event Level: Information

Apply 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	Warning	Inlet (PDU:1) Active/Main Power change to Active/Backup Power
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 172.31.34.249 2022-03-01 16:56:42

Source: 172.31.34.249 **Timestamp:** 3703 hours 53 minutes 34.67 seconds **SNMP Version:** 2

Trap OID: pduInletPowerShareMainLose **Community:** public

Variable Bindings:

Name: .1.3.6.1.2.1.1.3.0

Value: [TimeTicks] 3703 hours 53 minutes 34.67 seconds (1333401467)

Name: snmpTrapOID

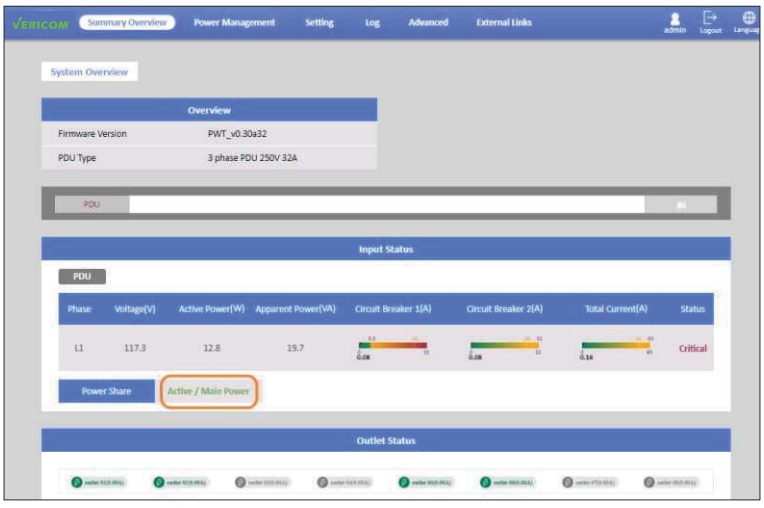
Value: [OID] pduInletPowerShareMainLose

Name: pduTraps

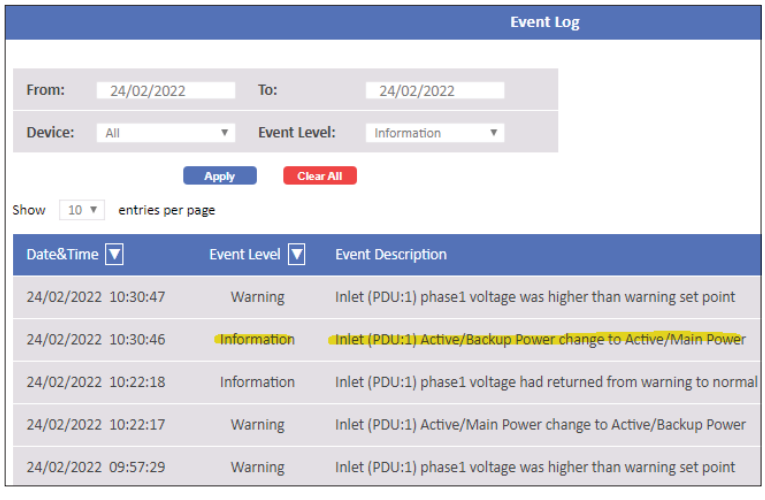
Value: [OctetString] Inlet (PDU:1) Active/Main Power change to Active/Backup Power

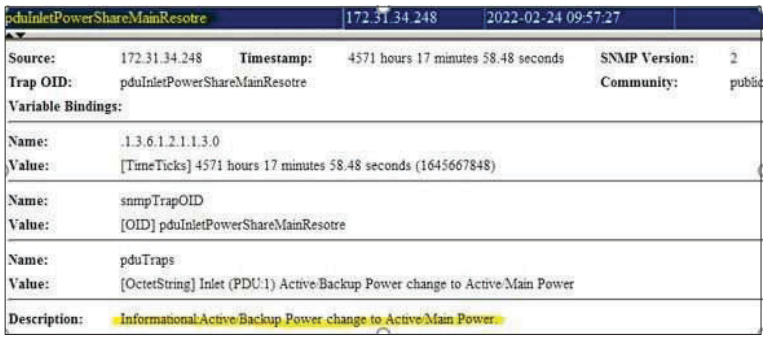
Description: Warning:Active/Main Power change to Active/Backup Power.

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



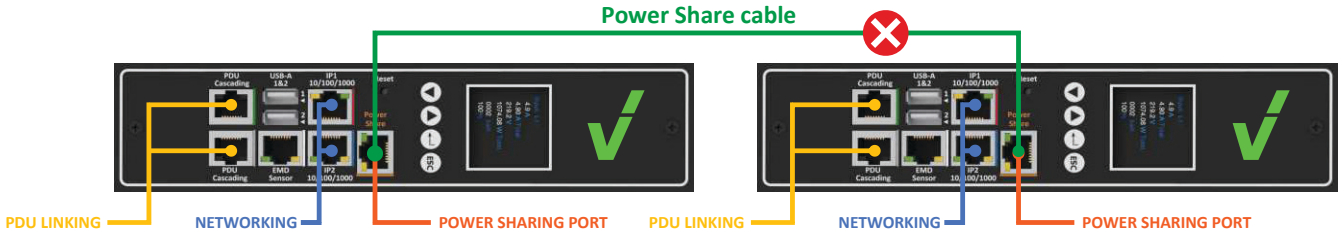
Step 9: The related log and trap will be recorded on the **Log** of the **Event Log** webpage and NMS. The log and trap will be “Information: Inlet (PDU:1) Active/Backup Power change to Active/Main Power”.

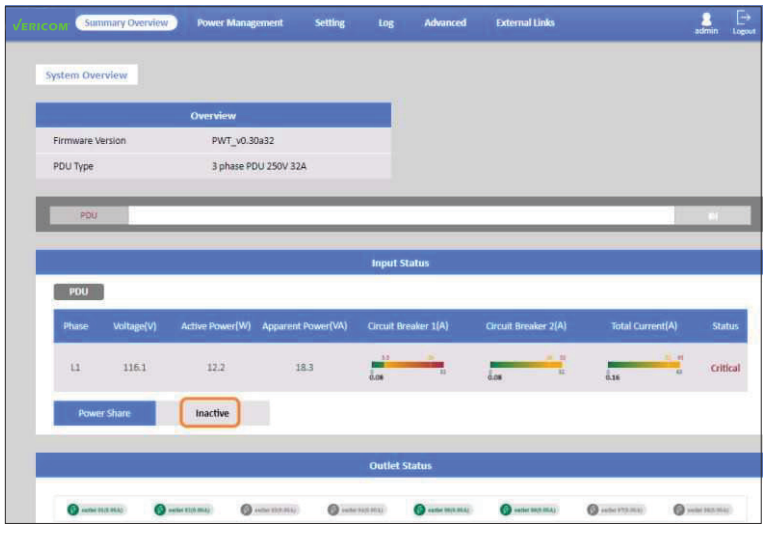




Getting Started

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





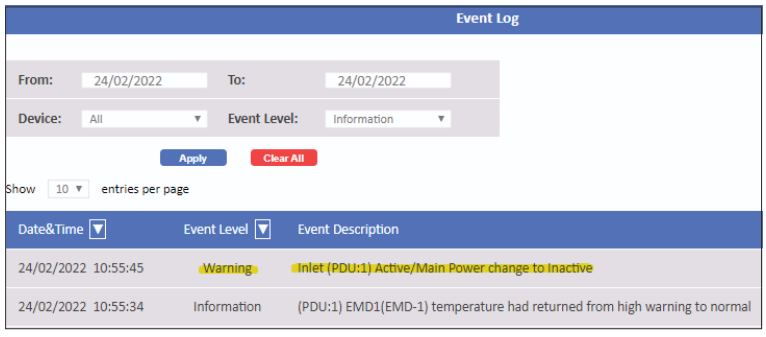
Step 11: The related alarm will appear on the **Alarm List** of the **Summary Overview** webpage. The alarm will be “PDU Power Share disconnected”.

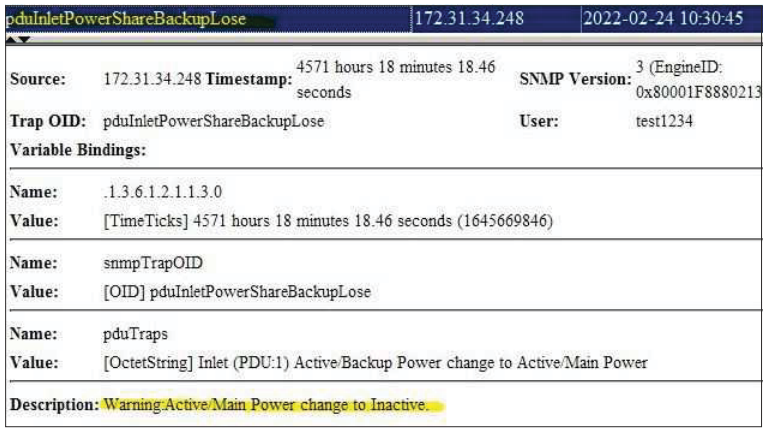
Alarm List

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	PDU (PDU:1) Power Share disconnected

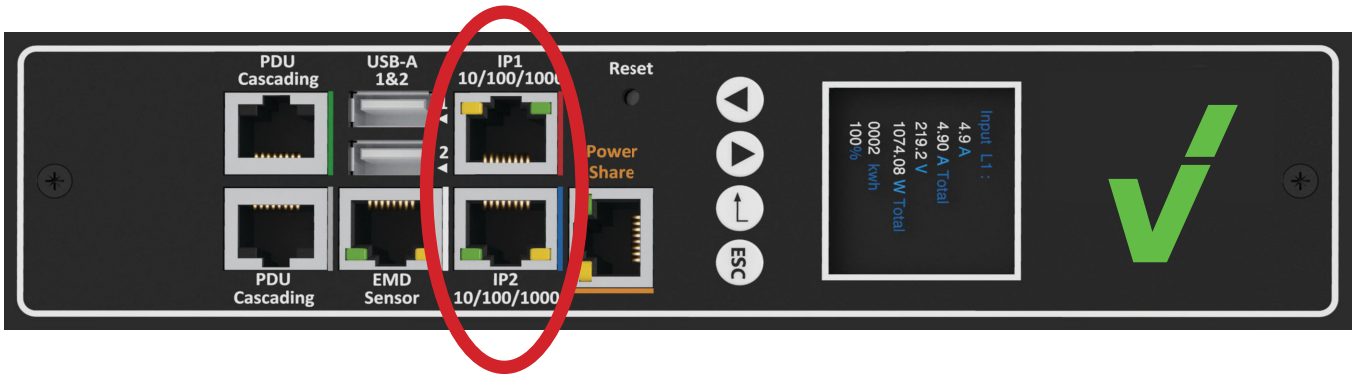
Step 12: The related log and trap will be recorded on the **Log** of the **Event Log** webpage and NMS. The log and trap will be “Warning: Inlet (PDU:1) Active/Main Power change to Inactive”.



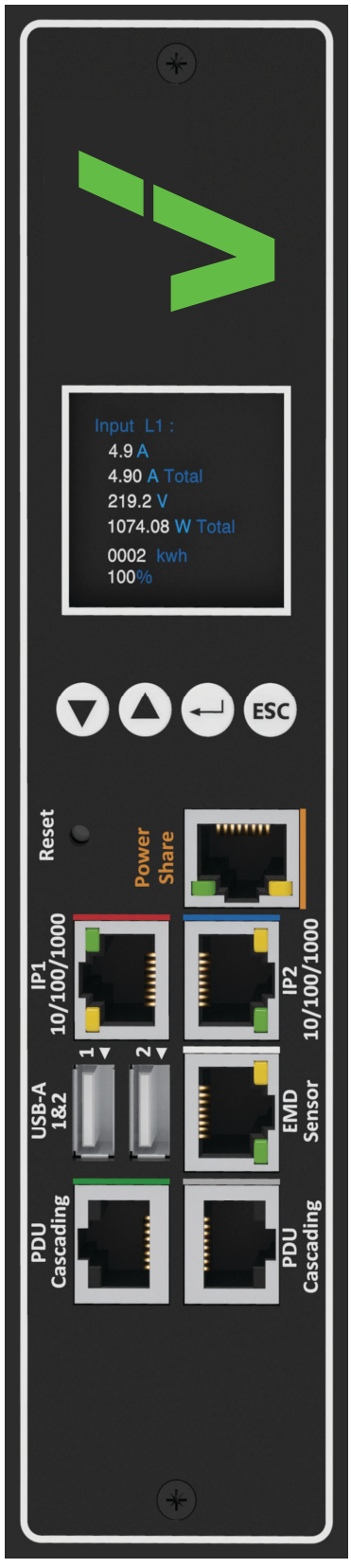


Connecting to a LAN/WAN

Vericom PDUs have a graphic user interface that allows users to control the device through a web browser. Simply connect the PDU to a free port on a router using an Ethernet cable. Users can control the PDU from a PC, laptop, or mobile device connected to the internet. Refer to page 26 for details.



Getting Started



Using the OLED operational buttons:

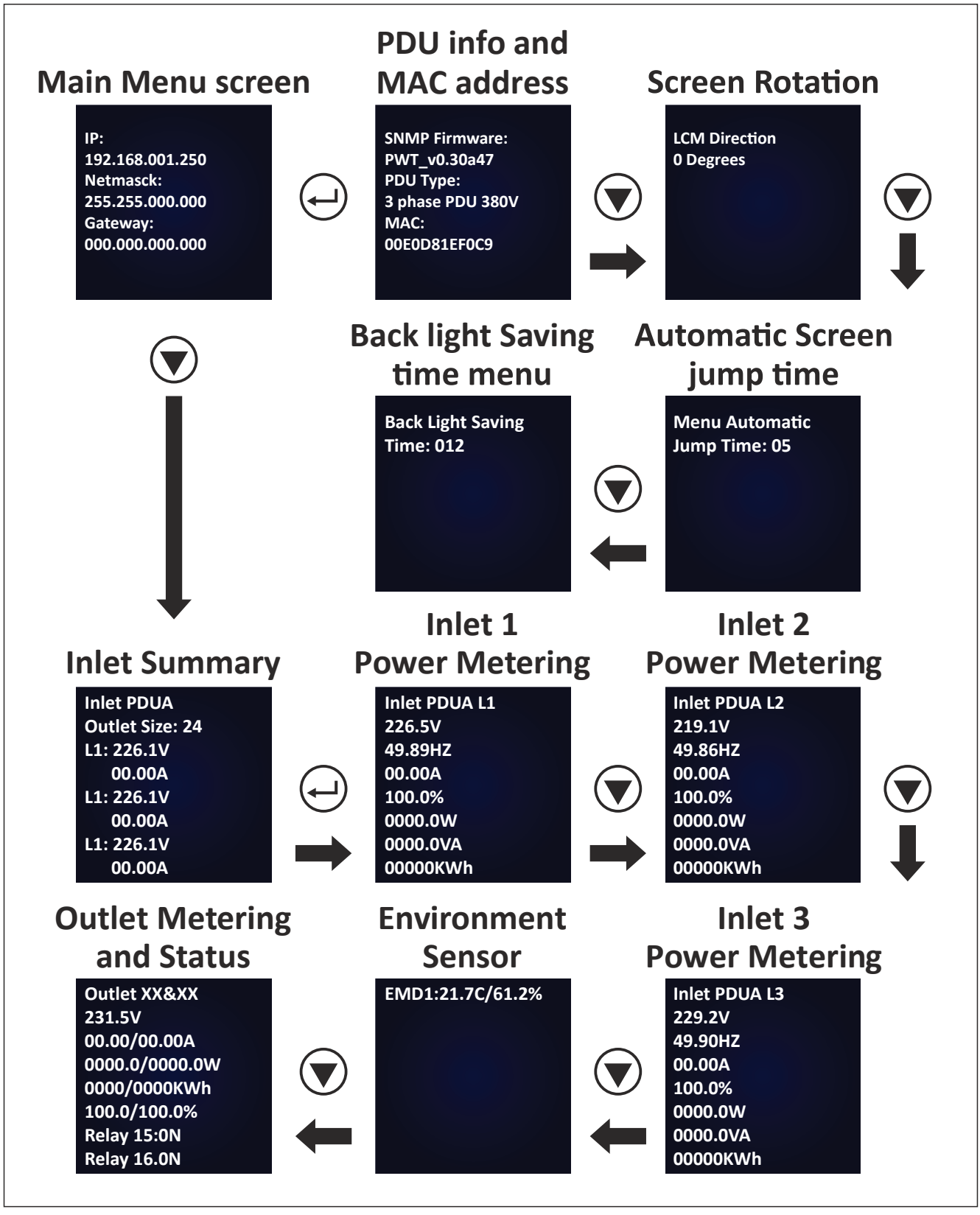
The following sections describe the how to use the OLED to view various settings of the PDU.

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

Icon	Button	Description
▼	**Down**	Press the **Down** button to navigate through the menu options.
▲	**Up**	Press the **Up** button to navigate through the menu options.
↵	**Set**	Press the **Set** button to access the menu options and confirm user selection.
ESC	**ESC**	Press the **ESC** button to cancel any configuration or leave to up menu.

Users can configure the direction of the OLED screen using these buttons. However, outlet configuration should be handled via the Outlet Control web page.

Getting Started



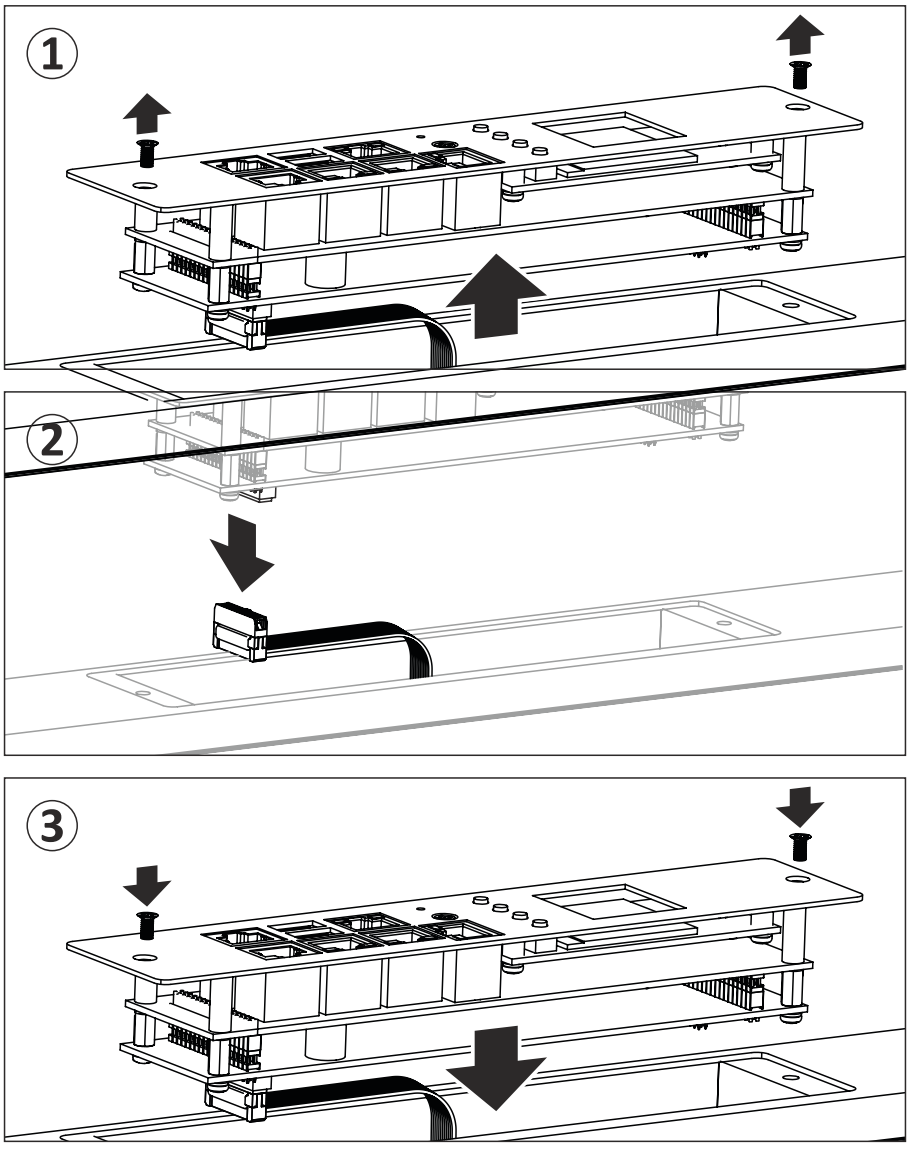
Hotswap Replaceable Controller

The controller of all Vericom Smart PDUs can be easily replaced should the unit fail. Simply return the controller to Vericom for repair or replacement.

How to replace a controller:

1. The PDU is not required to be powered off. To remove the controller, loosen the screws at each end and then pull up on the controller.
2. Disconnect the PDU's controller cable from the controller.
3. Connect the cable to the new controller, insert the controller back into the PDU, and install the two screws to fasten the controller to the PDU.

Note: the torque limit to secure the controller is 0.8N.m - 1.0N.m



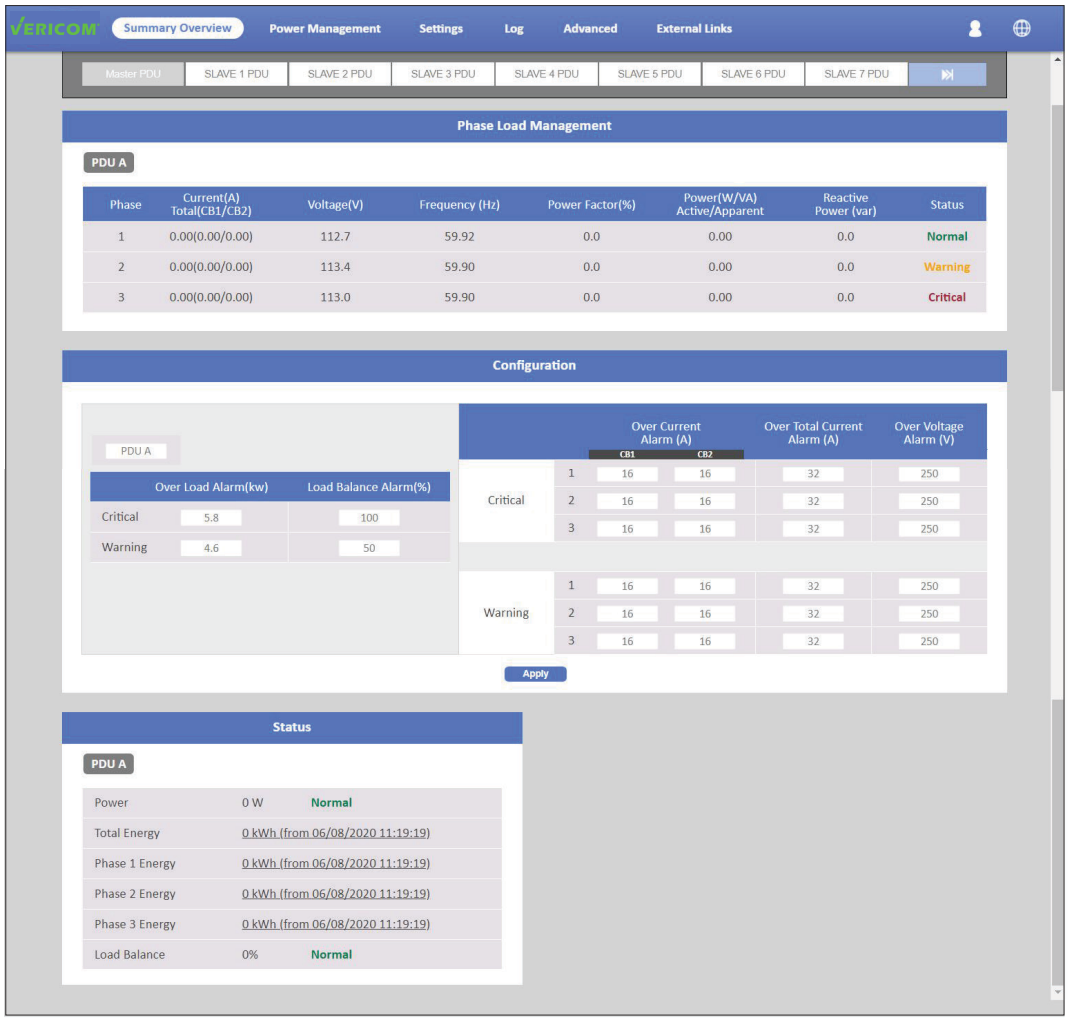
Using (RCM) Residual Current Monitoring (OPTIONAL):

When a residual current device is triggered, the OLED screen will flash and display the “WARNING” sign as shown.

Residual Current Monitoring is an optional feature and not included on all models.

Users can customize the residual current settings from the Inlet Configuration webpage as shown.

1. The alarm threshold setting range is 3mA to 50mA (the default setting is 20mA). An alarm is triggered anytime the residual current is greater than or equal to the threshold value.
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, an alarm is triggered if the AC or DC residual current is active.
5. When the alarm threshold value setting is less than or equal to 20mA, an alarm is triggered if the AC residual current is active, while the DC residual current will be ignored.



(SPD) Surge Protection Monitor (OPTIONAL):

When PDUs equipped with replaceable surge protection detect an Overvoltage, the OLED screen will flash and display the “WARNING” sign as shown. Also, an alarm will be displayed on the graphic user interface.

Surge characteristics: Singe phase

Type		BT PCM20 TT1+1 275 RM-1
Art.-No.		870 114
Nominal a.c. voltage	U_N	230V~
Rated voltage (max. contnuous voltage)	U_c	275V~(L-N); 255V~(N-PE)
Nominal discharge current (8/20)	I_n	10kA (L-N); 20kA (N-PE)
Max. discharge current (8/20)	I_{max}	20kA (L-N); 40kA (N-PE)
Voltage protection level at I_n	U_p	≤ 1.0kV (L-N); ≤ 1.25kV (N-PE)
Voltage protection level at 3kA	U_p	≤ 0.8kV (L-N)
Response time	t_A	≤ 25ns (L-N); ≤ 100ns (N-PE)
Max. back up fuse		125A gL/gG
Operating temperature range	T_u	-40°C...+80°C
Cross- section area (L/N)		1.5mm² ~ 10mm² solid / flexible
Cross-section area (PE)		6.0mm² ~ 25mm² solid / flexible
Mounting on		35mm DIN rail
Enclosure material		Light grey thermoplastic, UL94-V0
Dimension		1 mod
Test standards		IEC 61643-11; EN 64643-11
Certification		CE(LVD, EMC)
Type of remote signalling contact		Switching contact
Switching capacity	U_N/I_N	AC:250V/0.5A DC:250V/0.1A,125V/0.2A,75V/0.5A
Cross-sectional area for remote signalling contact		Max. 1.5mm² solid / flexible

Three phase

Type		BT PCM20 TT3+1 275 RM-1
Art.-No.		870 154
Nominal a.c. voltage	U_N	230V~
Rated voltage (max. contnuous voltage)	U_c	275V~(L-N); 255V~(N-PE)
Nominal discharge current (8/20)	I_n	10kA (L-N); 20kA (N-PE)
Max. discharge current (8/20)	I_{max}	20kA (L-N); 40kA (N-PE)
Voltage protection level at I_n	U_p	≤ 1.0kV (L-N); ≤ 1.25kV (N-PE)
Voltage protection level at 3kA	U_p	≤ 0.8kV (L-N)
Response time	t_A	≤ 25ns (L-N); ≤ 100ns (N-PE)
Max. back up fuse		125A gL/gG
Operating temperature range	T_u	-40°C...+80°C
Cross- section area (L/N)		1.5mm² ~ 10mm² solid / flexible
Cross-section area (PE)		6.0mm² ~ 25mm² solid / flexible
Mounting on		35mm DIN rail
Enclosure material		Light grey thermoplastic, UL94-V0
Dimension		2 mod
Test standards		IEC 61643-11; EN 64643-11
Certification		CE(LVD, EMC)
Type of remote signalling contact		Switching contact
Switching capacity	U_N/I_N	AC:250V/0.5A DC:250V/0.1A,125V/0.2A,75V/0.5A
Cross-sectional area for remote signalling contact		Max. 1.5mm² solid / flexible

Using the Web Interface

Vericom Smart PDUs provide a graphical user interface that can be viewed from a web browser. This enables users to access and control the device outlets and subsequently, its output devices remotely from a user's desktop, laptop, or even a mobile phone. This section provides instructions on how to use the web interface to configure and control the PDU remotely.

Summary Overview - System Overview

Launch a web browser from the host PC or laptop and enter the IP address of the PDU in the address bar (for details about setting the IP address of the system, refer to instructions on page 10). You will be prompted to enter a Username and Password. Click Go and the main status page of the Vericom PDU web interface is displayed.

The default settings are:

DHCP: Enabled

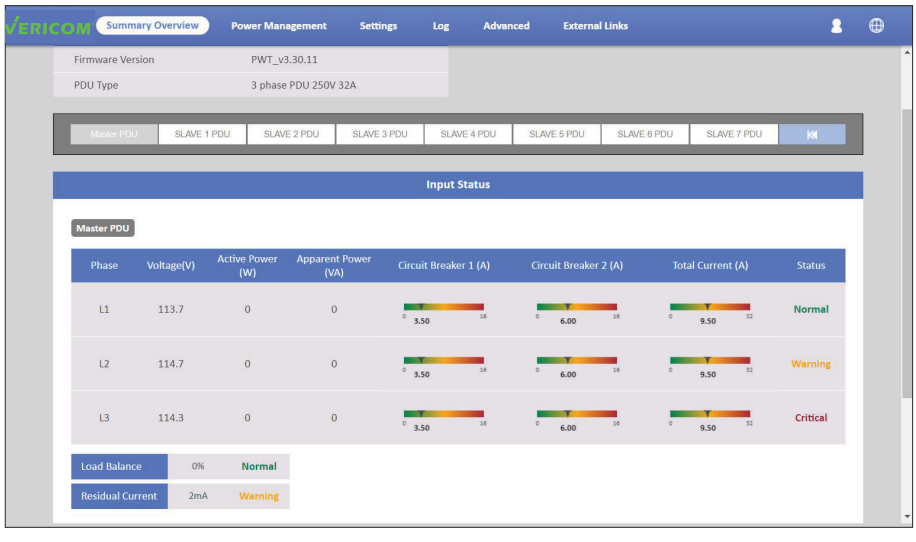
IP Address: 192.168.1.250

Subnet Mask: 255.255.255.0

Gateway: 192.168.1.10

Username: admin

Password: admin

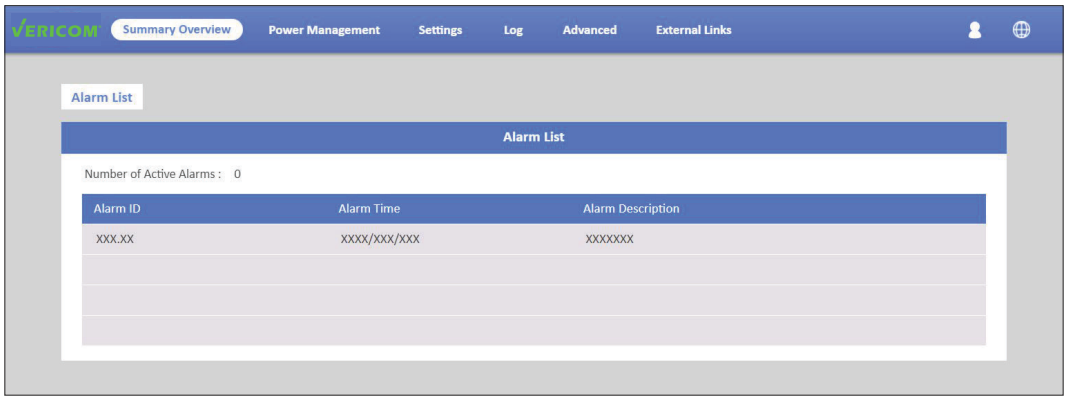


The main page shows a graphical representation of the PDU outlets and inputs status as described below:

- The panel shows the various menus and submenus. Click on 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 PDU.

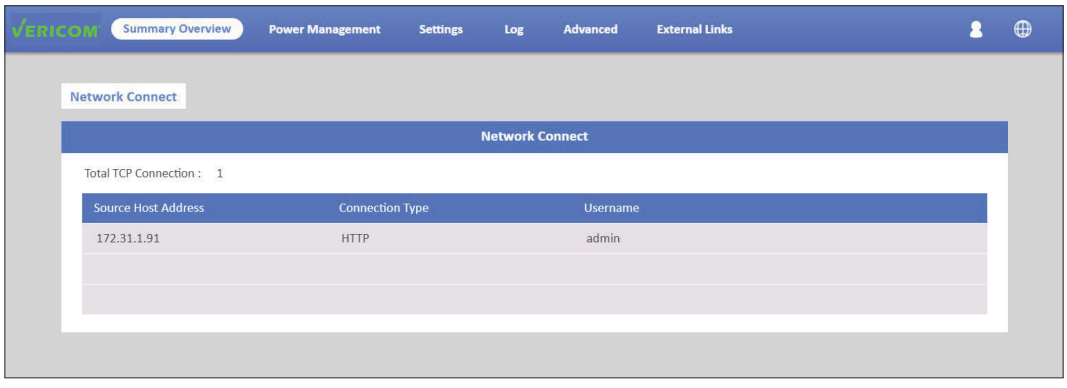
Summary Overview - Alarm List

The “Alarm List” page shows the list of alarms that were set by the user. The PDU will follow the rules of an alarm to send out notifications to the user.



Summary Overview - Network Connection

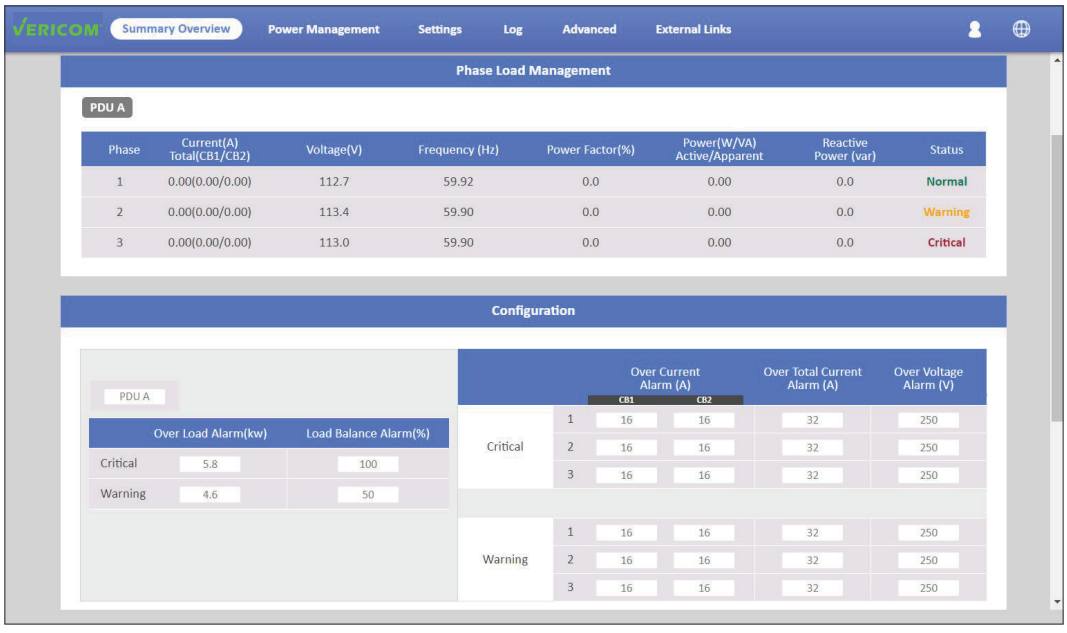
The Network Connection page shows a list of user’s connections.



Power Management - Inlet Configuration

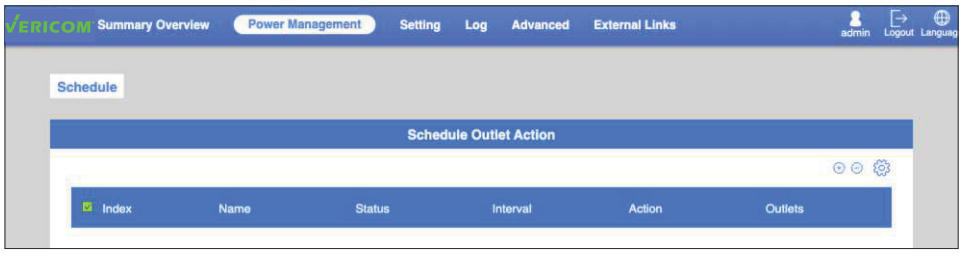
This page lets the user configure Inlet load. You can set the parameters for “Critical” and “Warning” status (the value of “Critical” must be larger than “Warning”).

When Inlet power is higher than the parameter you set, the status light will change color (red for Critical, Yellow for Warning, and Green for Normal) and you will receive a notification email if you have set it up in Email Notification.

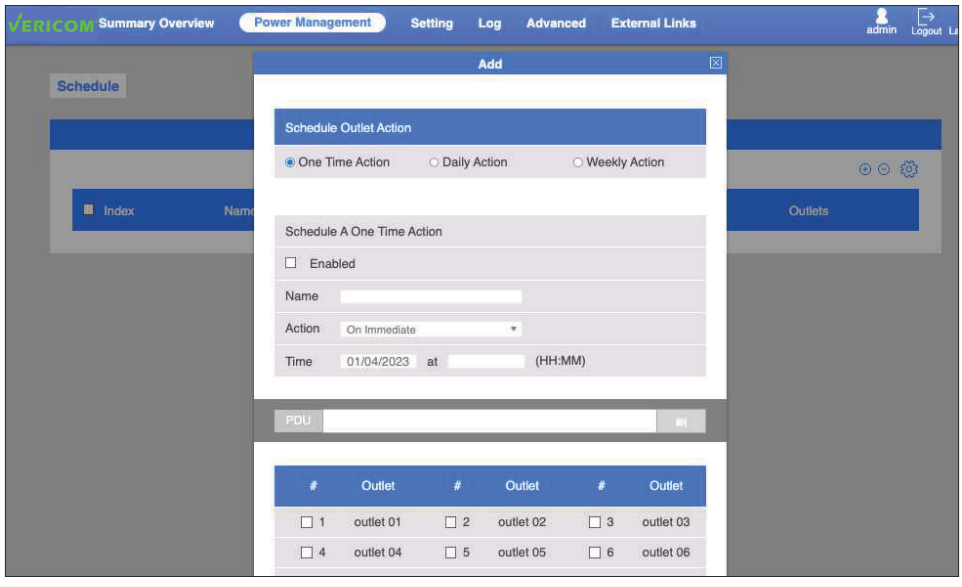


Power Management - Outlet Schedule

The Outlet Schedule function allows the user to Schedule an action to the desired outlet or group of outlets once, daily, or weekly.

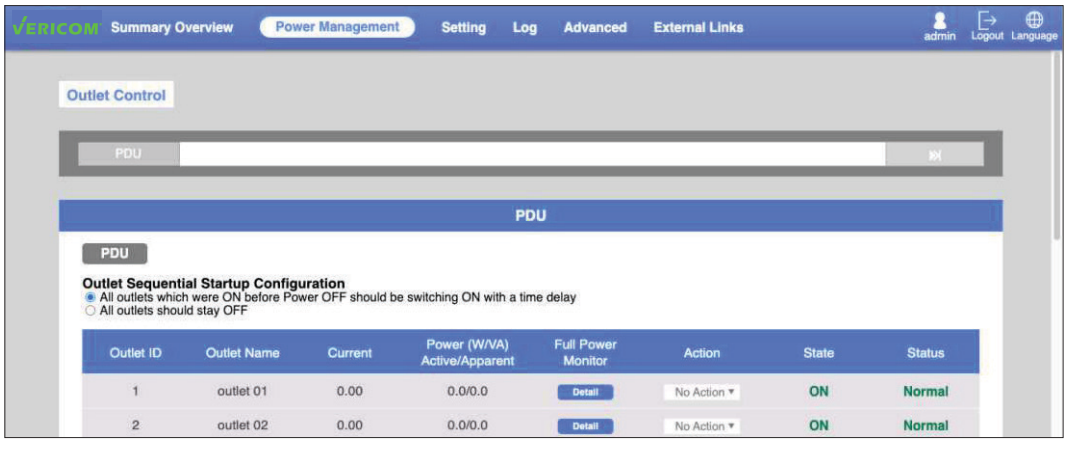


Click “+” and the menu with action options and outlets will appear, then choose your desired action, date and time.



Outlet Sequential Startup

To prevent inrush currents, Vericom PDUs use a time delay sequence between each outlet. This happens anytime the PDU is powered up, including initial startup and any subsequent power ups after the power has been shut off/disconnected. As well as in case of accidental or equipment maintenance POWER OFF. By default the PDU turns ON all the outlets that were ON before POWER OFF. Optionally, you can choose to turn all the outlets OFF once POWER ON again.



Using the Web Interface

Power Management - Outlet Control

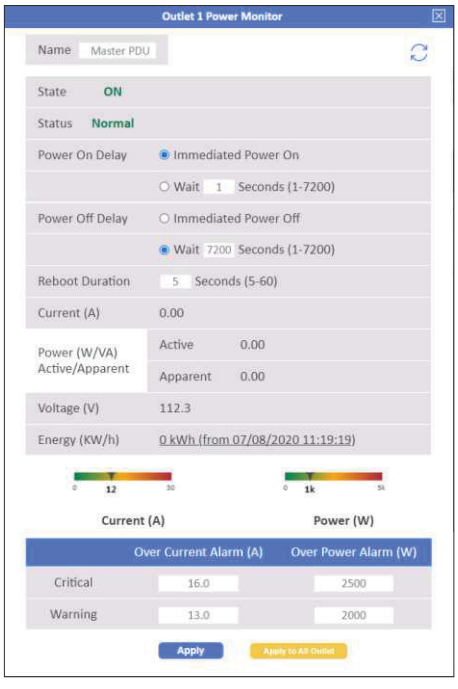
This page lets user trigger action by drop-down list. After you select and action and click “Apply”, the server will accord to the instruction to complete the task remotely.

Click “See Details” to open the page as shown:

In this page, you can set “How many seconds delay” when Poer ON/OFF Delay action is 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.

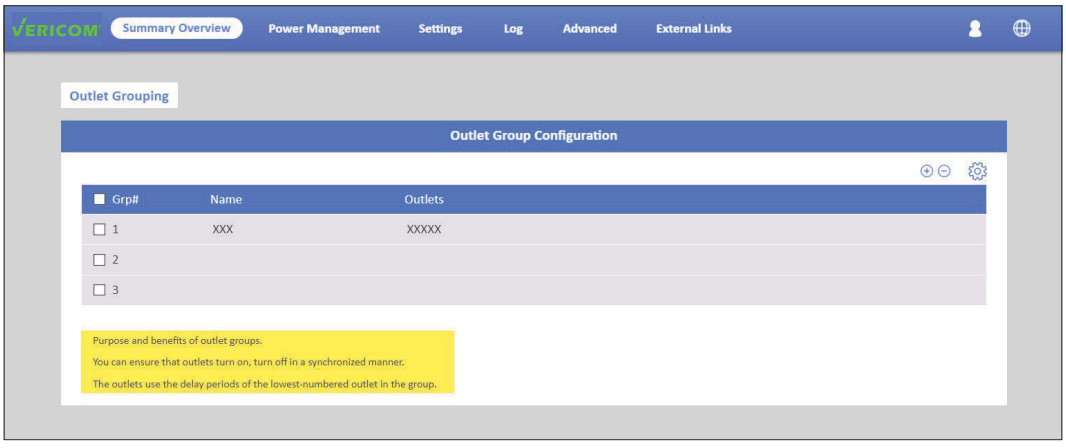
If you select Action “Power Cycle Immediate” and click Apply, Outlet4 will reboot and this procedure will cost 10 seconds.

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 10 seconds for “Reboot Duration”).

Power Management - Outlet Grouping

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

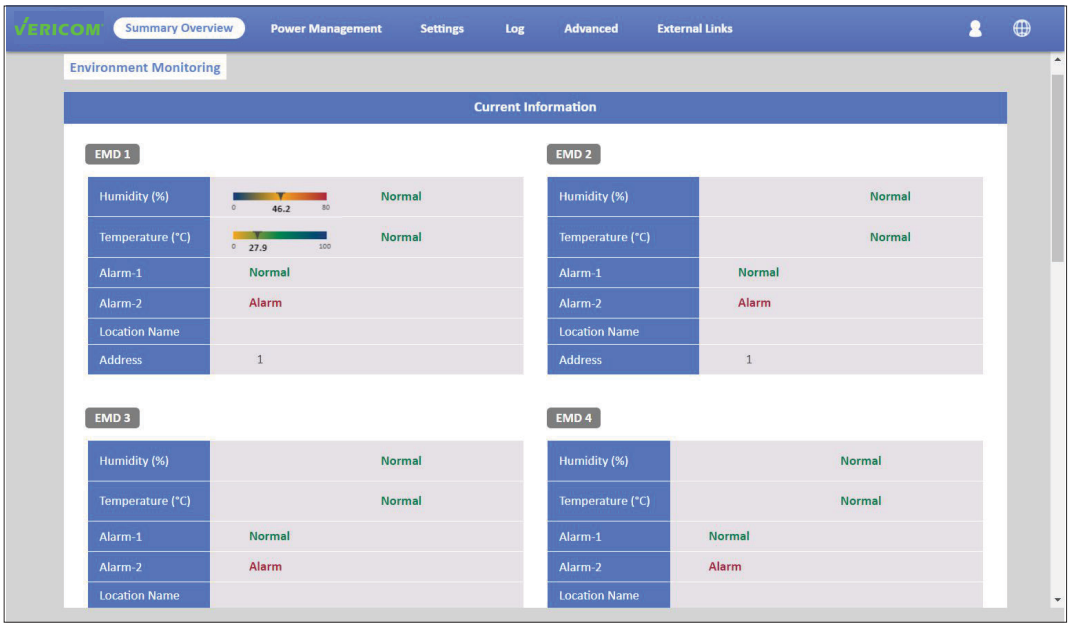
Users can add/delete/modify up to 8 outlet groups. For example, Group_1 includes Outlet_1 of PDU_A, Outlet_3 of PDU_B and Outlet_4 of PDU_C. When an action is set for Outlet_3 of PDU_B and applied, the action will apply to all PDUs of Group1.

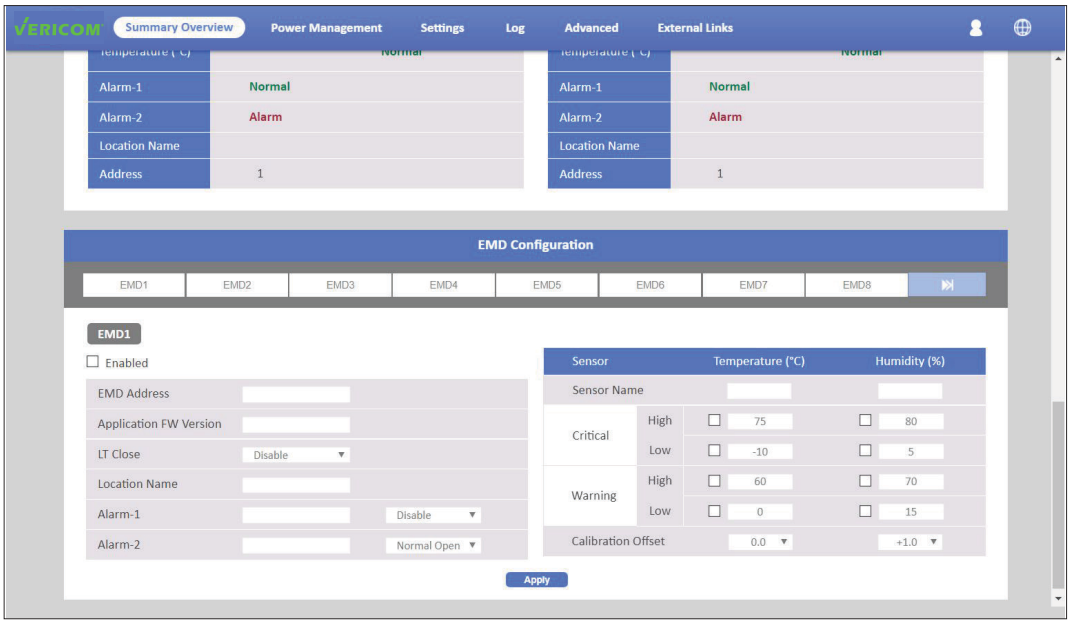


Using the Web Interface

Power Management - Environment Monitoring

This page shows the status of EMD sensors and lets users set alarm configurations. You can set alarm parameters for “Critical” and “Warning” (The value of “Critical” must be larger than “Warning”). Email Notification rules can also be set from this page.

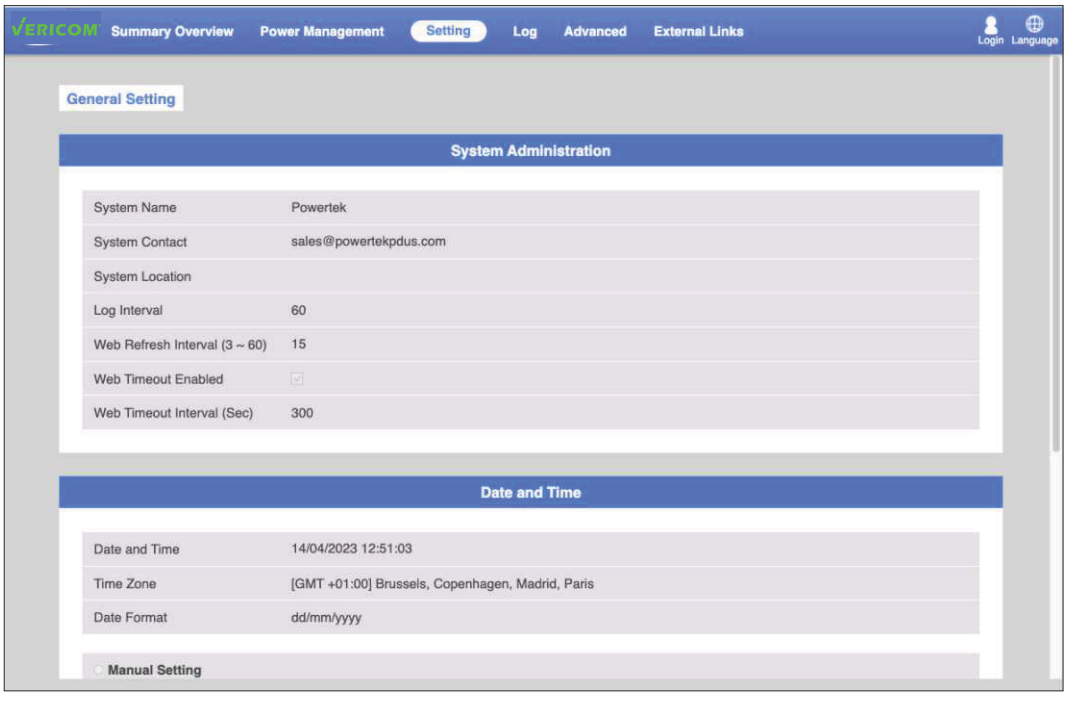




Vericom Smart PDUs support up to 8 EMD sensors connected in a daisy chain. Each EMD can be connected to two additional open/close sensors with open/close functionality, such as smoke, vibration, door contact, and water detectors. Each sensor has 3 settings: Normal Open, Normal Close, and Disable. If Normal Open is set, an alarm will trigger when in a closed status, and vice versa.

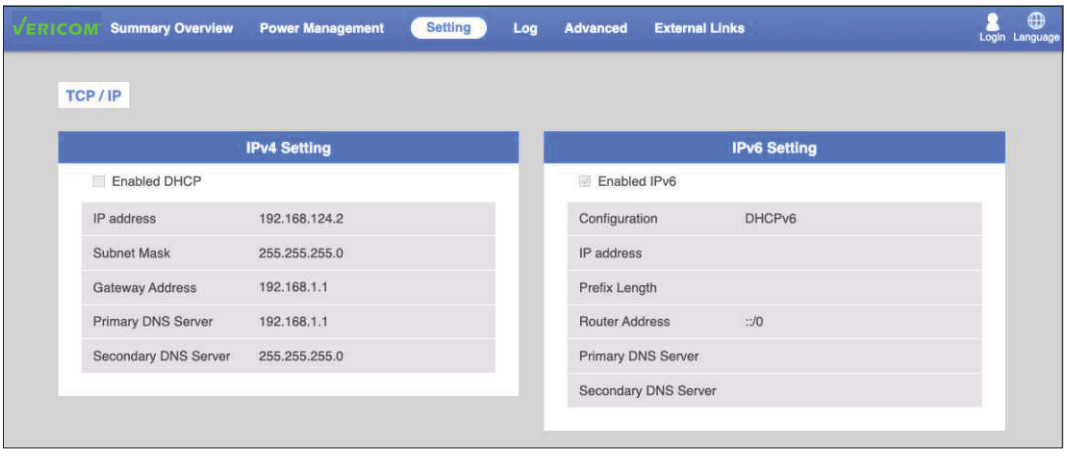
Setting - General Setting

This page lets users setup the system administration and date and time.



Setting - TCP/IP

This page lets users enable/Disable DHCP under IPv4 or enable IPv6.

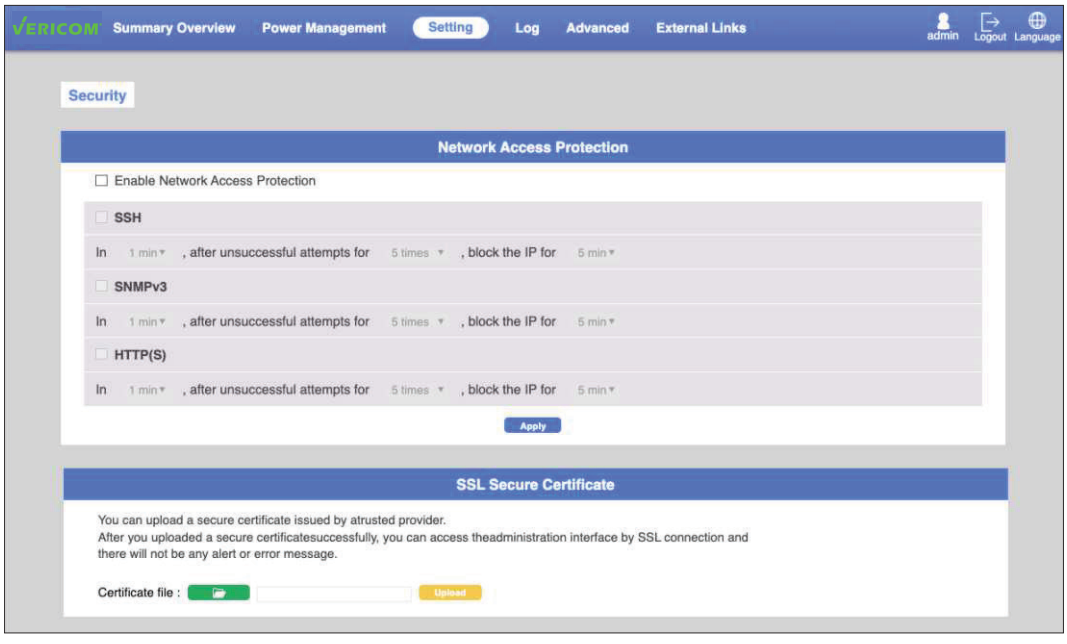


Setting - Accessible IP Setting

This page allows users to enable accessible IP lists.

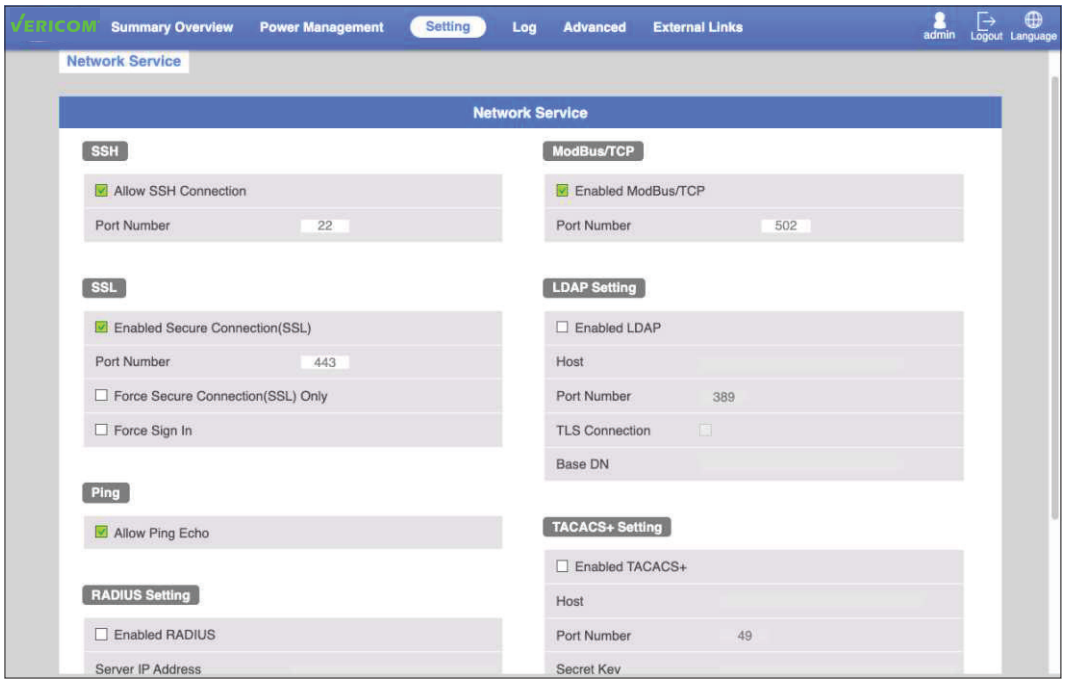
Setting - Network Access Protection

This page lets the user set their network protection and upload SSL certificates.



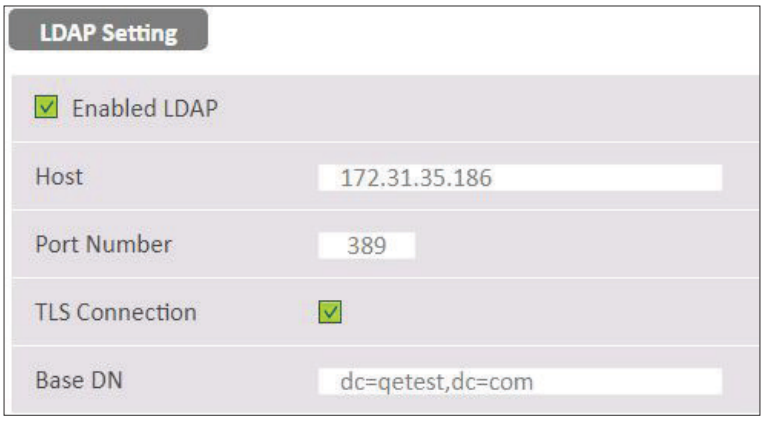
Setting - Network Service

This page allows you to setup your network settings: SSH, MODBUS TCP/IP, SSL, LDAP, PING, RADUIS and TACACS+.

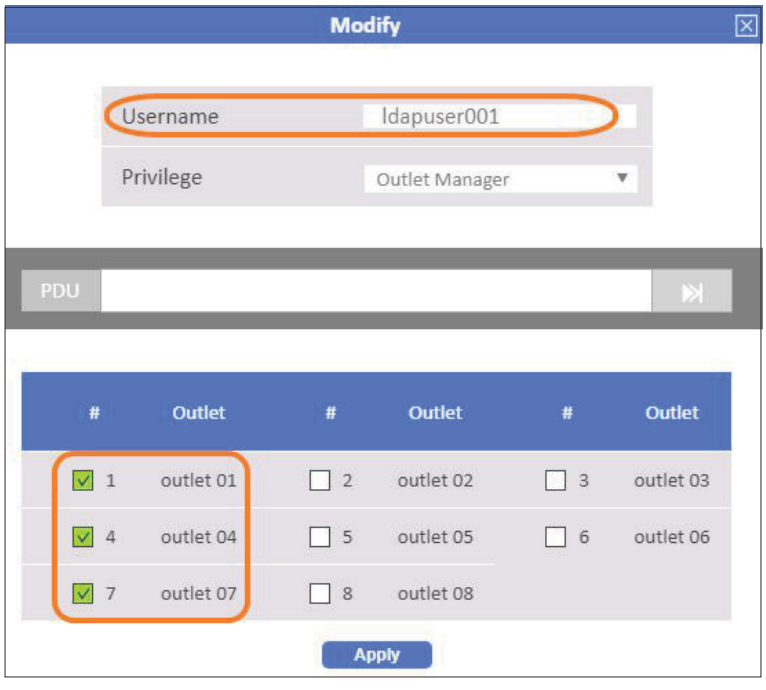


Setting up LDAP

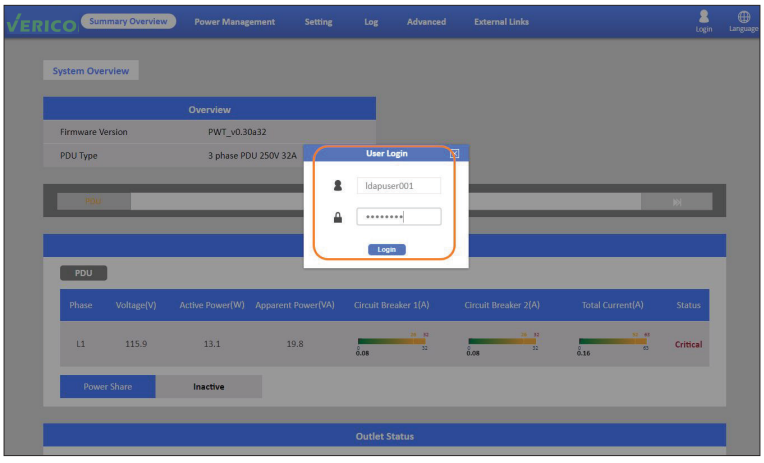
Step 1: To set up the PDU, please configure the related LDAP parameters on the **Setting** of **Network Service** webpage as shown. For example, to enable LDAP, enter Host IP and Port Number… etc.



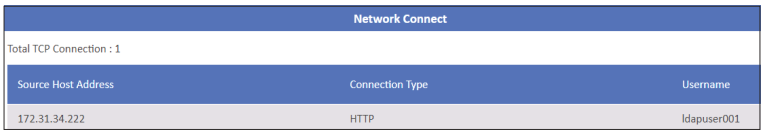
Step 2: Please press " ⊕ " icon to add LDAP user then configure the related LDAP parameters on the **Setting** of **User Setting** webpage as shown below. For example, set LDAP Username, select Privilege to "Outlet Manager" and select the related outlets.



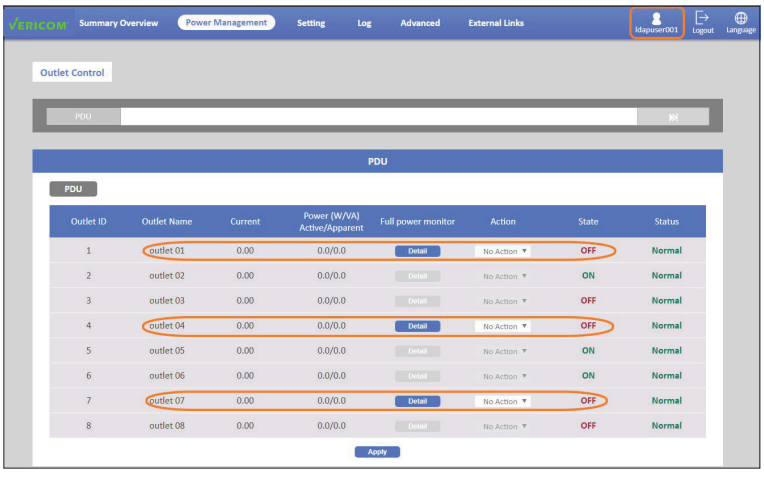
Step 3: After configuring LDAP parameters, please logout and close the web browser. To utilize LDAP, log in to the web browser using the LDAP username and password.



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

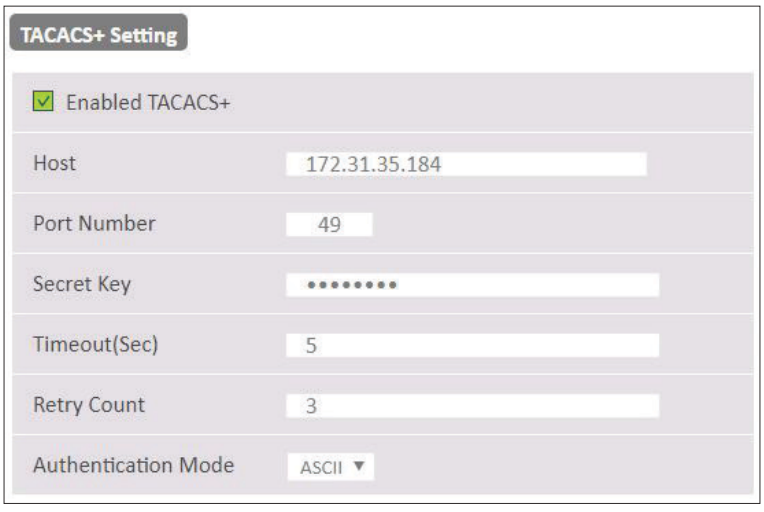


Step 5: The LDAP user can control the related outlets on the **Outlet Control** of the Power Management webpage.

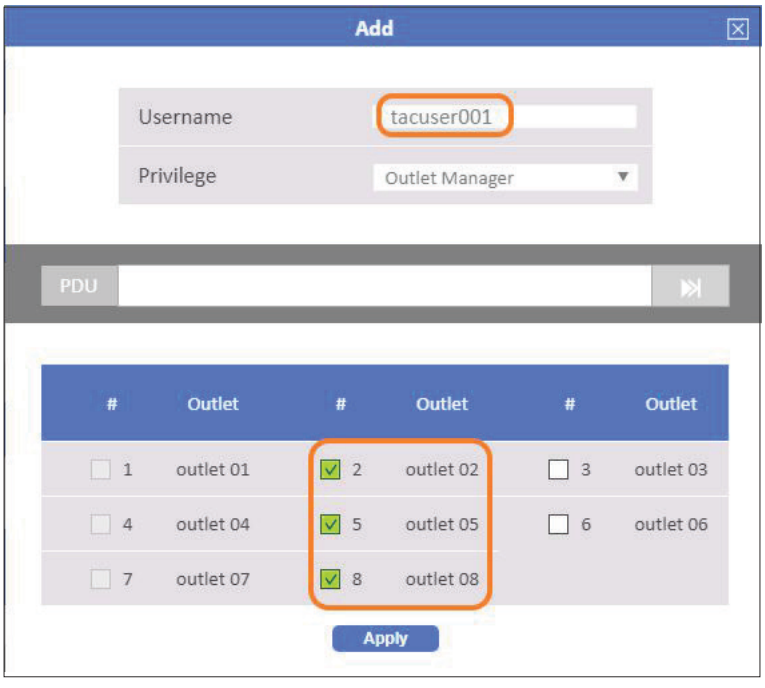


Setting up TACACS+

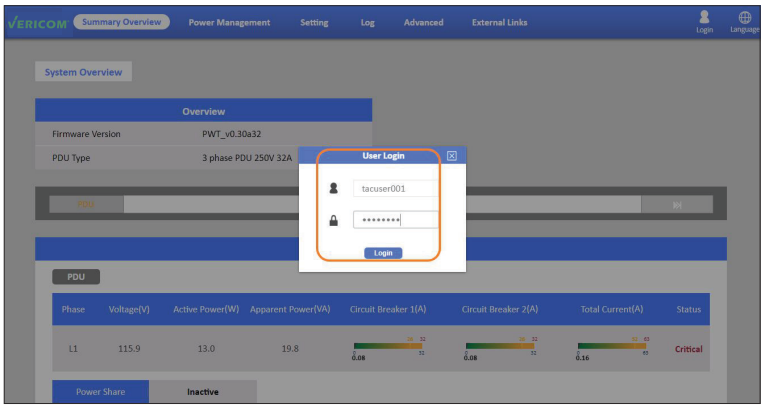
Step 1: To set up the PDU, please configure the related TACACS+ parameters on the **Setting** of **Network Service** webpage as shown below. For example, to enable TACACS+, enter Host IP and Port Number…etc.



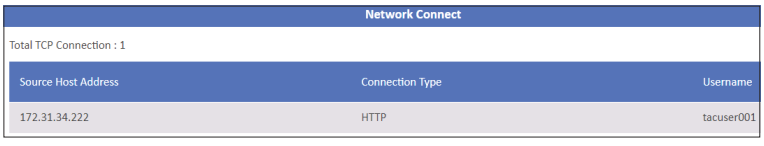
Step 2: Click on the "⊕" icon to add TCACS+ user then configure the related TACACS+ parameters on the **Setting** of **User Setting** webpage as shown below. For example, set TACACS+ Username, select Privilege to "Outlet Manager" and select the related outlets.



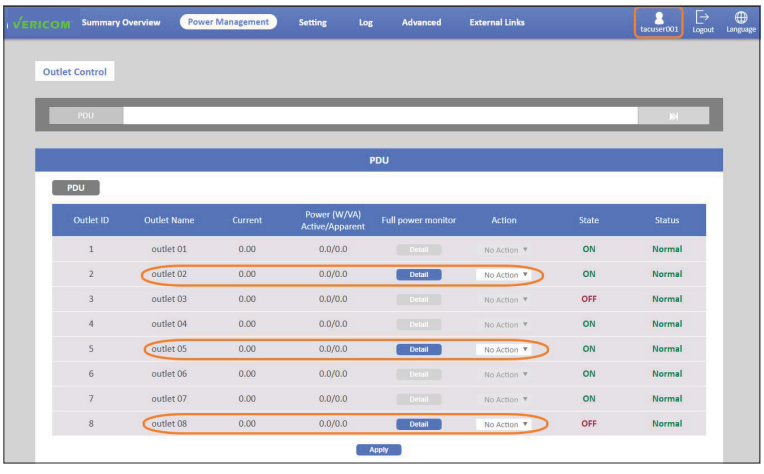
Step 3: After configuring TACACS+ parameters, please logout and close web browser. To utilize TACACS+, log in to the web browser using the TACACS+ username and password.



Step 4: Check the login TACACS+ username on the **Network Connect** of **Summery Overview** webpage as shown.



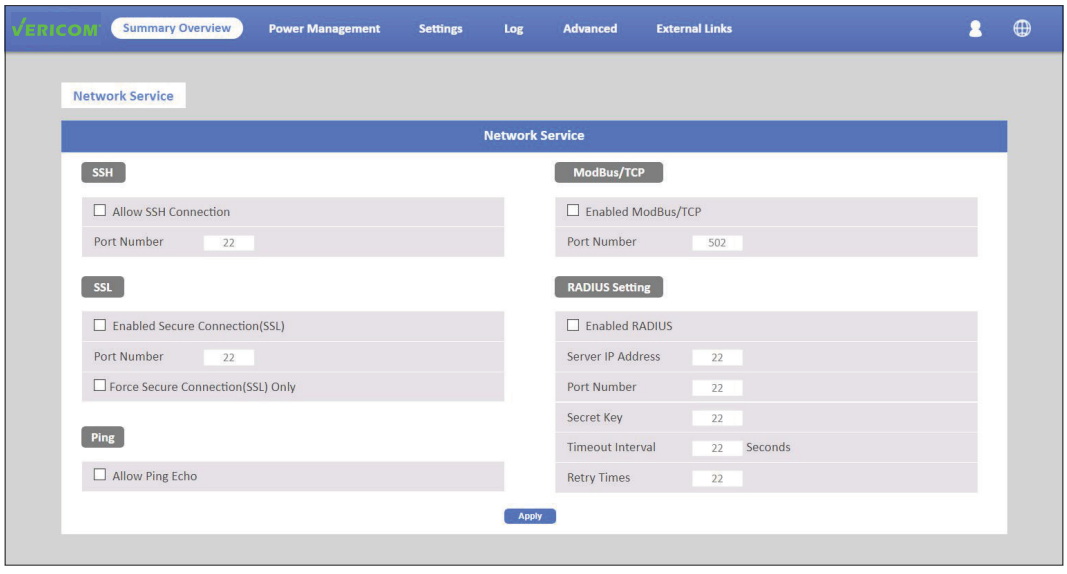
Step 5: The TACACS+ user can control the related outlets on the **Outlet Control** of **Power Management** webpage.



Setting up Radius Users

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

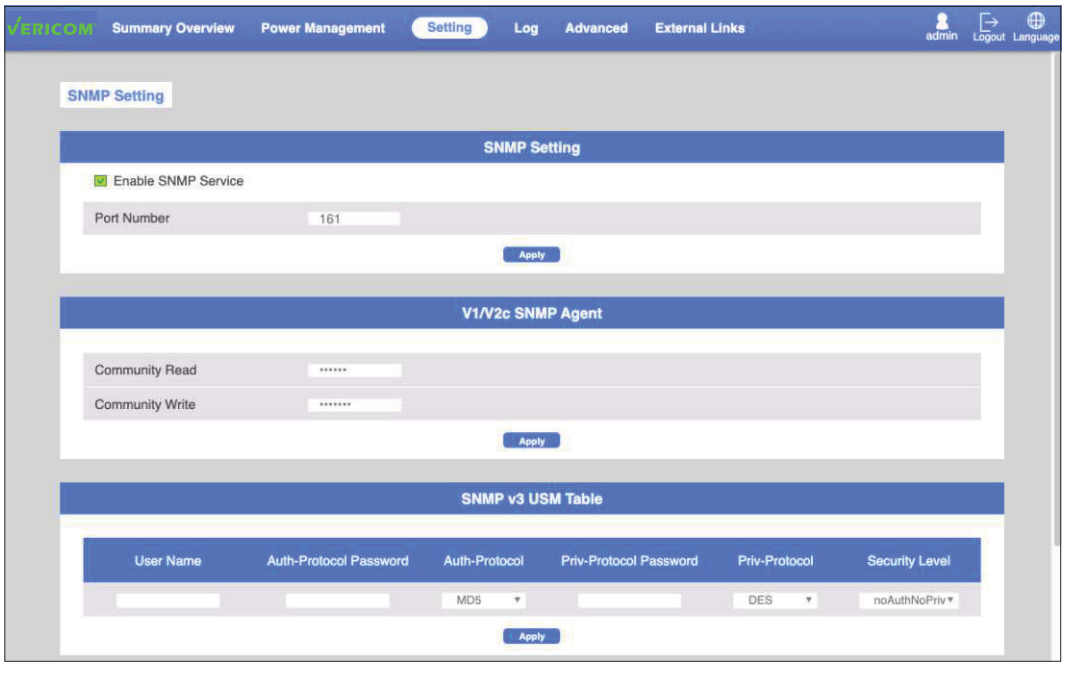
You must Enable RADIUS and set ready in the Network Service. Then you can add a Radius User and set outlet controls for this user. The Grouping & Schedule function also supports radius users.



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

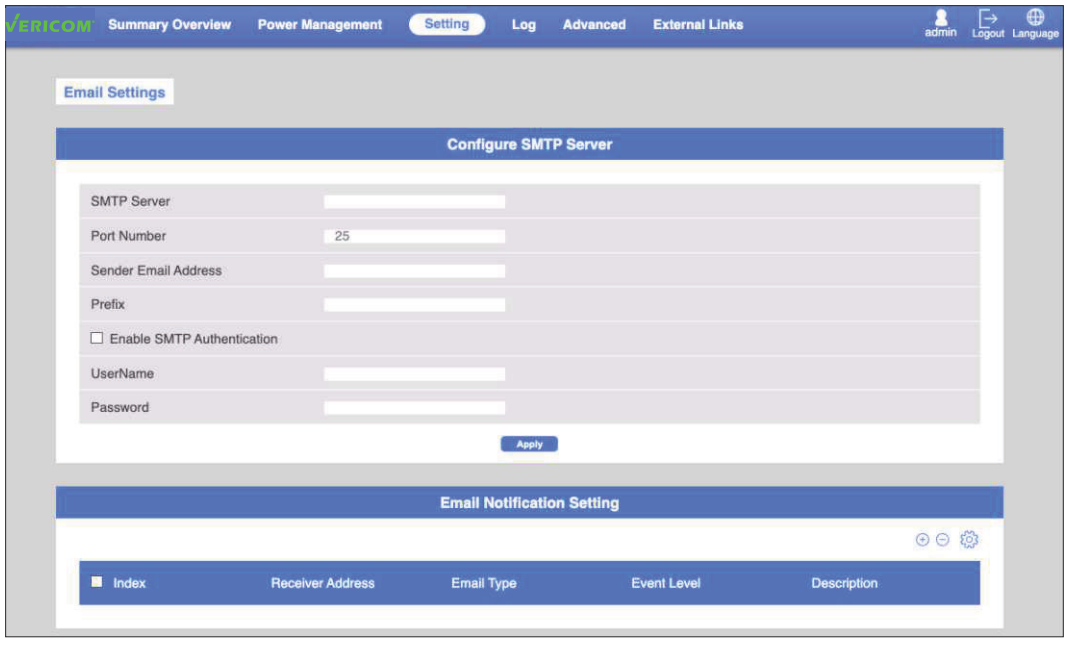
Setting - SNMP Setting

This page shows you all possible SNMP settings.



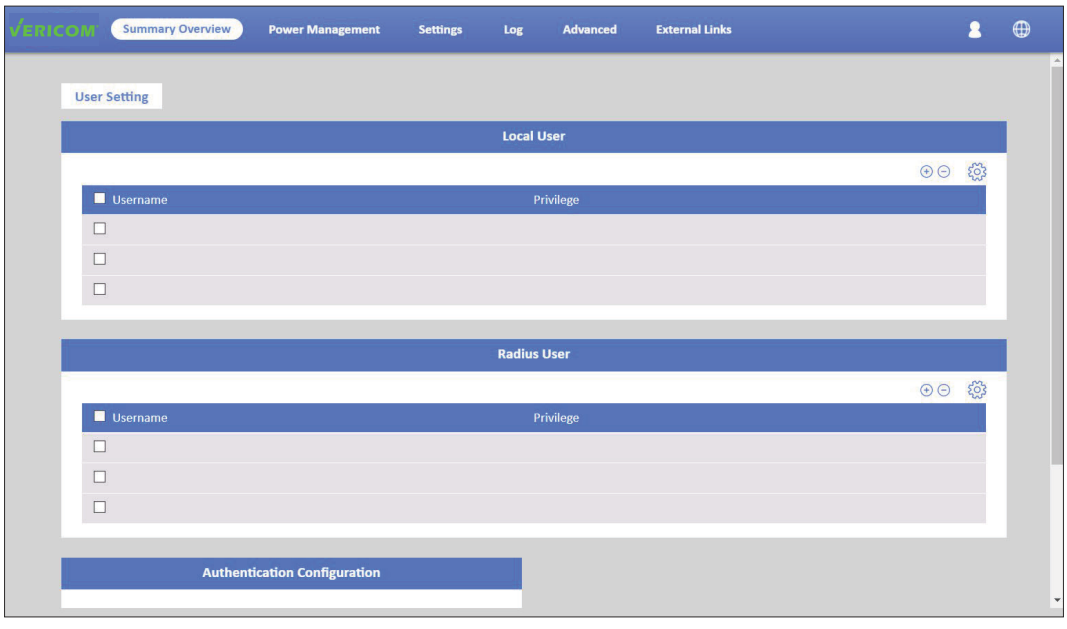
Setting – Email Settings

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 by clicking “Send Test”. Once the new setting is applied, you will get a notification email when the event has been triggered.



User Management

This page lets the user enable new users and passwords.



Using the Web Interface

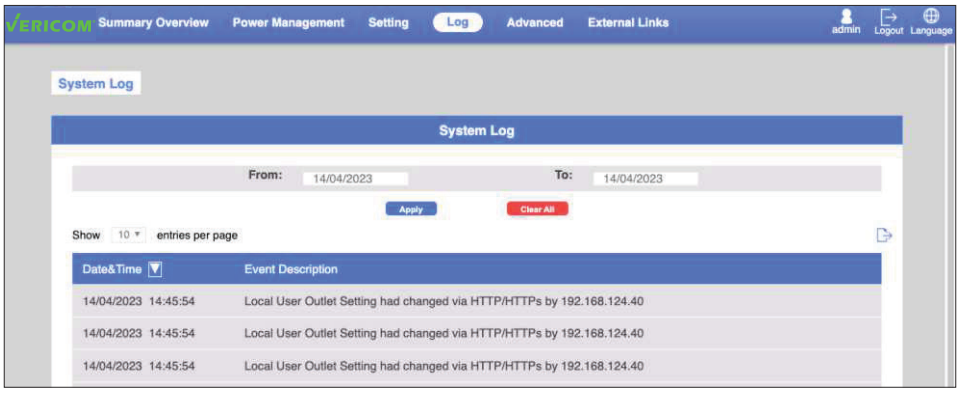
This page shows the user list and admin that can add/delete/modify it. The list can be up to 8 users.

There are 4 kinds of privileges for the user account:

Privilege	Definition
Power Admin	Users can manage all functions.
Admin	Admin users can manage everything but the following: [User Management], [Outlet Grouping], [FW Upgrade & Inlet/Outlet Upgrade], [Reset Default] function.
Supervision	Supervision users only manage [Power Monitoring], [Outlet Grouping], [Inlet/outlet upgrade] function.
User	Read only - cannot manage any function.

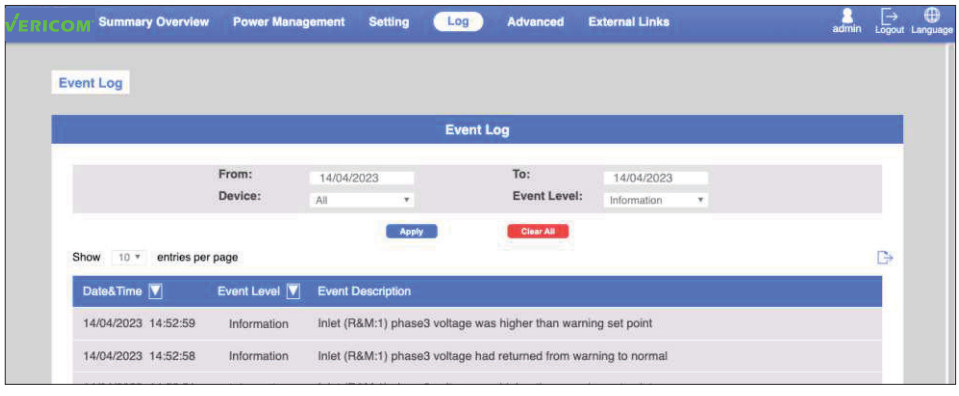
Log and Notification – System Log

This page shows the system log.



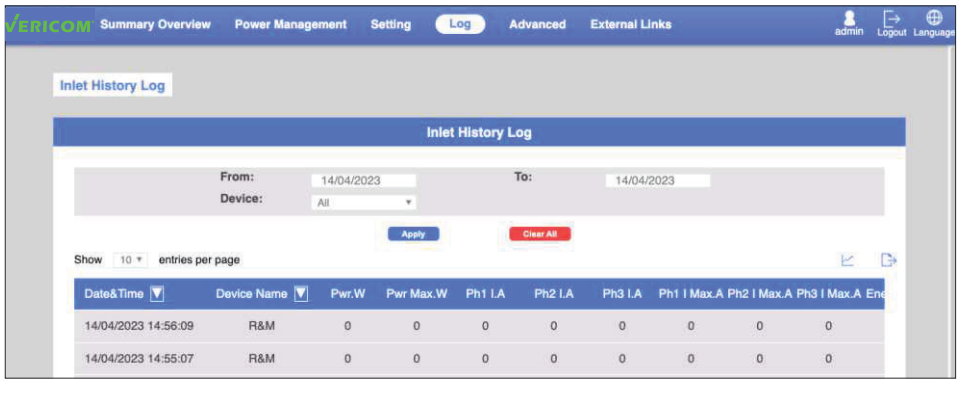
Log and Notification – Event Log

This page shows the warnings and alarms history log.



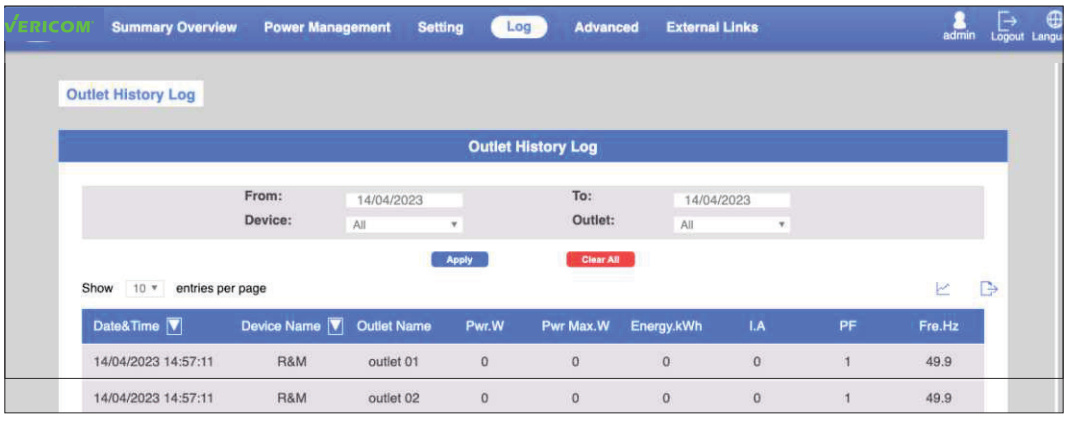
Log and Notification – Inlet History Log

This page shows the inlet history log. You can set the log interval in General Setting under the System Management. You can download the logs in .csv file or graphics.



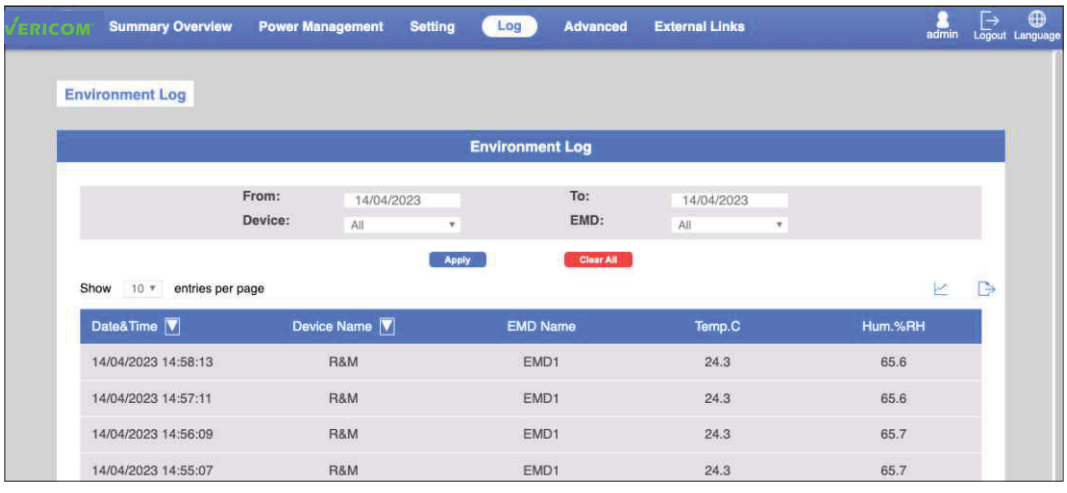
Log and Notification – Outlet History Log

This page shows the outlet history log. You can set the log interval in General Setting under the System Management. You can download the logs in .csv file or graphics.



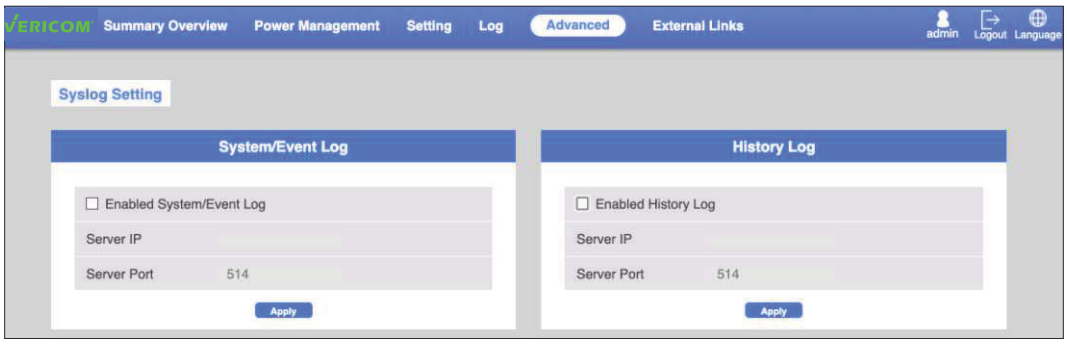
Log and Notification – Environment History Log

This page shows the environment history log. You can set the log interval in General Setting under System Management. You can download the logs in .csv file or graphics.



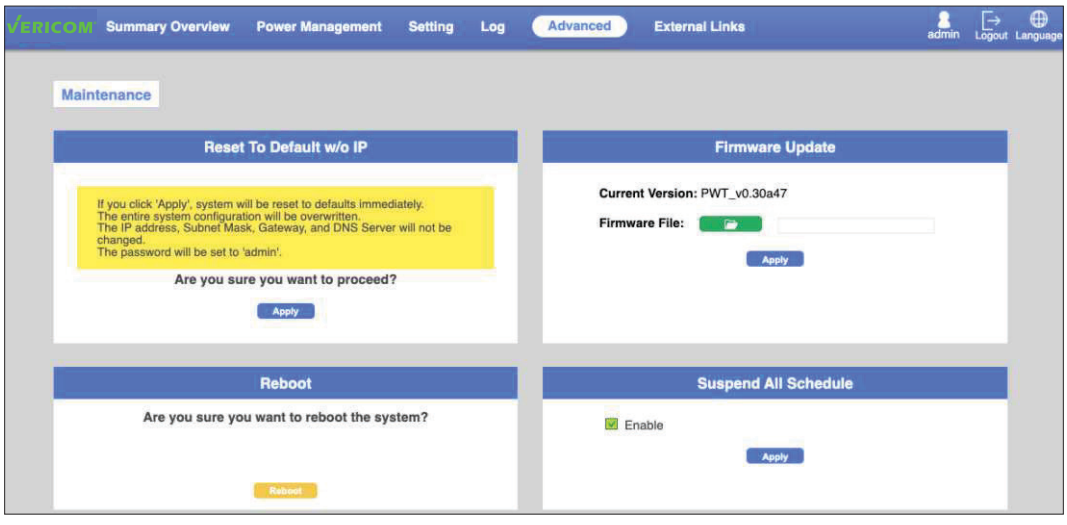
ADVANCED – SYSLOG Setting

You can receive system and History logs to your server enabling them and indication the server port.



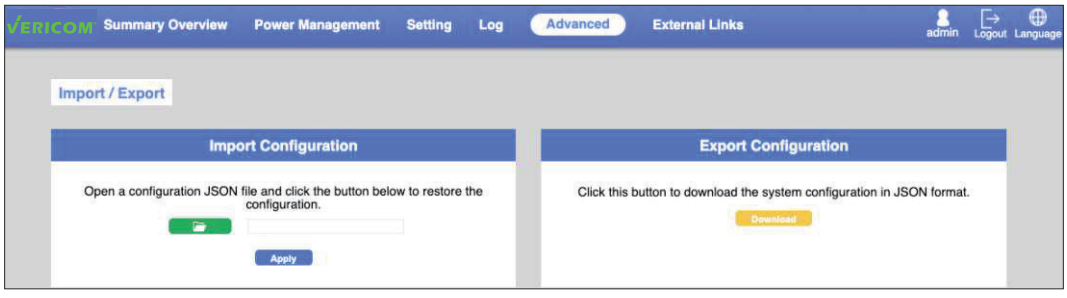
ADVANCED – Maintenance

Keep the PDU up to date by always installing the latest firmware versions available on the Vericom website. You can also reset the PDU to default settings and/or reboot the system if the PDU malfunctions, or suspend all schedules.



ADVANCED – Import / Export

Easily copy PDU with the export and import files in JSON format.



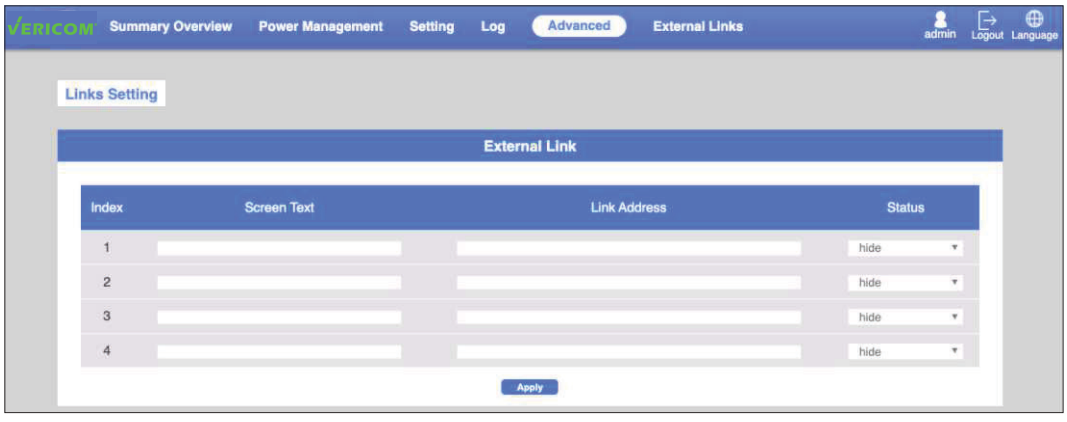
ADVANCED – Links Setting

Use External Links Setup to view and change up to 4 URL links displayed in External Links.

Screen Text: This field defines the URL name displayed in External Links. The maximum size is 31 characters. Available values are alphabetic characters and numerals. The default value is NULL (empty).

Link Address: This field defines the URL address for external link. The maximum size is 63 characters. Available values are alphabetic characters, symbols and numbers. The default value is NULL (empty).

Status: This field decides whether the external link is available. Available values are “Hide” and “Show”. The default value is “Hide” and Screen Text does not display in External Links.



Dual Ethernet Mode

Vericom Smart PDUs allow system administrators to set up bonding interfaces with different modes. A bonding mode specifies the policy indicating how bonding slaves are used during network transmission. To achieve the maximum throughput and fault toleration, it is important to choose the proper bonding mode and the corresponding options for the setup.

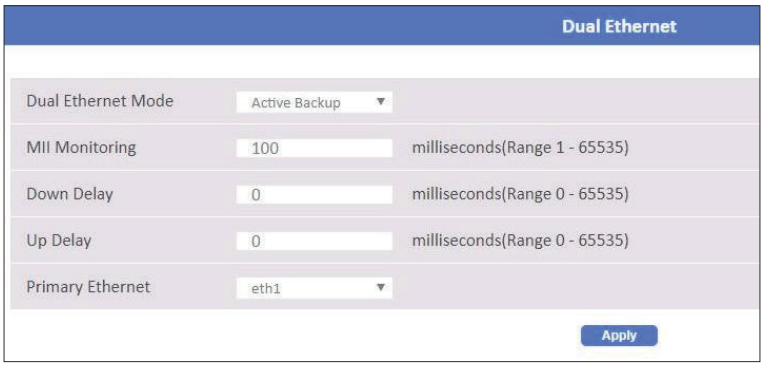
The current version of the bonding module supports the following bonding modes:

Mode 1 (Active Backup):

Active Backup policy establishes that only one slave in the bond is active. A different slave becomes active if, and only if, the active slave fails.

The bond's MAC address is externally visible on only one port (network adapter) to avoid confusing the switch. This mode provides fault tolerance. The primary option affects the behavior of this mode.

- Use the browser to go to the PDU address and check the page for the "**Dual Ethernet**" in the "**Advance**" menu list.
- Please select "**Active Backup**" model and verify the related action as flow screen.



Mode 2 (IEEE 802.3ad):

Bonding mode 2 (IEEE 802.3ad), also known as LACP (Link Aggregation Control Protocol) mode, is used for load balancing and fault tolerance. The IEEEE 802.3ad specification allows the grouping of Ethernet interfaces at the physical layer to form a single link layer interface. If a boding interface is set to this mode, it requires that all the slave devices operate at the same speed and are duplex. In this way, the network can benefit from the aggregated bandwidth of all the slaves, and if one of the slaves is down, the whole network will not be affected.

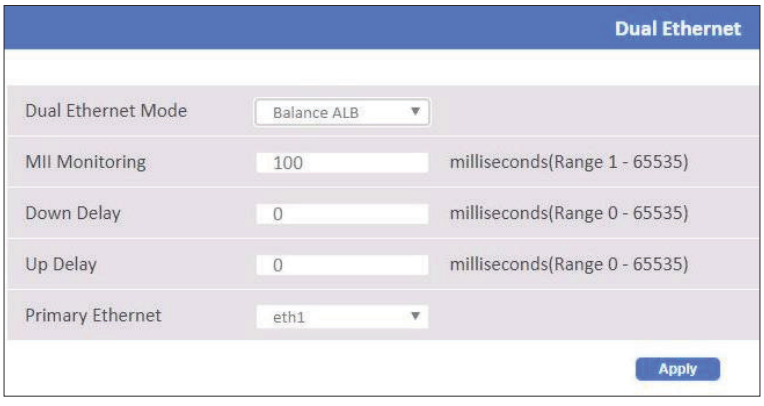
Notes: The switch should be configured to support the mode 802.3ad standard and use the LACP protocol. The 802.3ad mode only works with MII link monitor.

- Use the browser to go to the PDU address and check the page for the "**Dual Ethernet**" in the "**Advance**" menu list.
- Please select "**IEEE 802.3ad**" model and verify the related action as flow screen.

Mode 3 (Balance-ALB):

Adaptive load balancing includes balance-transmit load balancing plus receive-load balancing for IPv4 traffic and does not require any special switch support. The receive-load balancing is achieved by ARP negotiation. The bonding driver intercepts the ARP replies sent by the local system on their way out and overwrites the source hardware address with the unique hardware address of one of the slaves in the bond. Thus, different peers use different hardware addresses for the server.

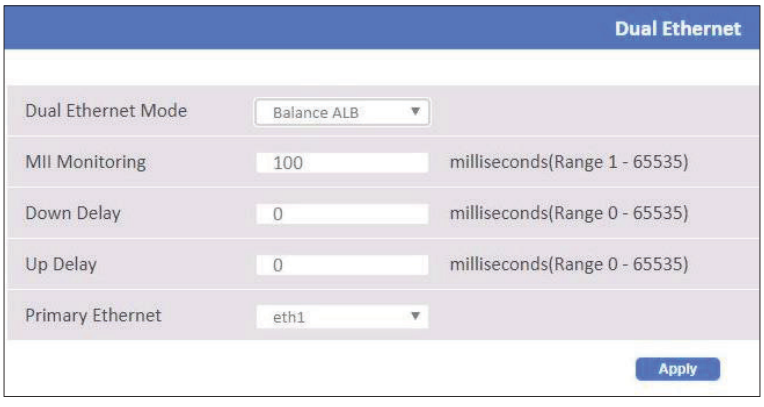
- Use the browser to go to the PDU address and check the page for the "**Dual Ethernet**" in the "**Advance**" menu list.
- Please select "**Balance ALB**" model and verify the related action as flow screen.



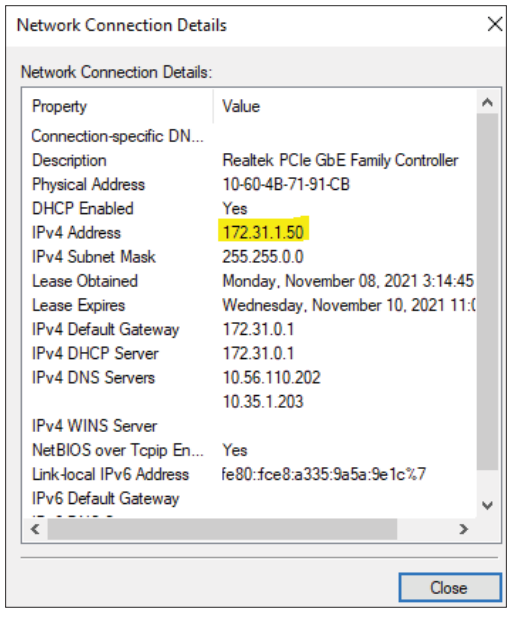
Mode 4 (Bridge):

Bridging the two networks together can be quite helpful, though, if files located on one of the networks need to be accessed from the other network. If you don't have a router but have a PC with two Ethernet cards, you can connect both networks to the PC and bridge your Ethernet cards so both networks can communicate with each other.

- Use the browser to go to the PDU address and check the page for the "**Dual Ethernet**" in the "**Advance**" menu list.
- Please select "**Bridge**" model and verify the related action as flow screen.



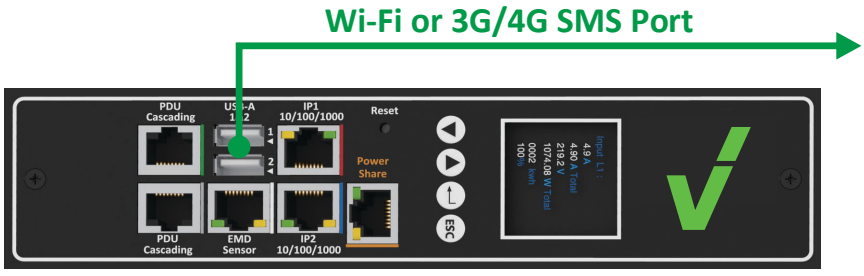
- Connect one Ethernet port to DHCP server and another to PC Ethernet port as shown below.
- After connecting, check PC system to get DHCP IP



Using the Web Interface

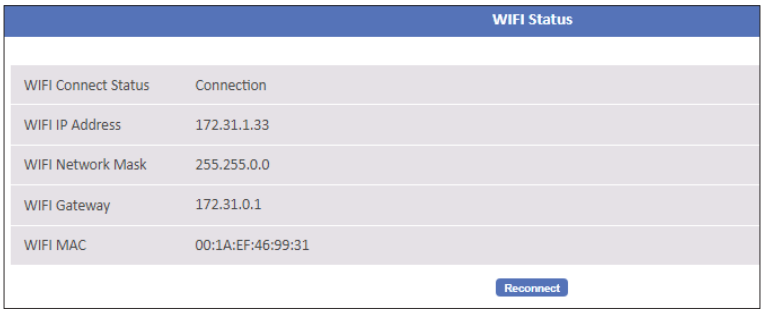
ADVANCED - Wifi or 3G/4G dongle setting

Step 1: To set up the PDU, plug a Wi-Fi or 3G/4G dongle into USB-A (1 or 2) port.



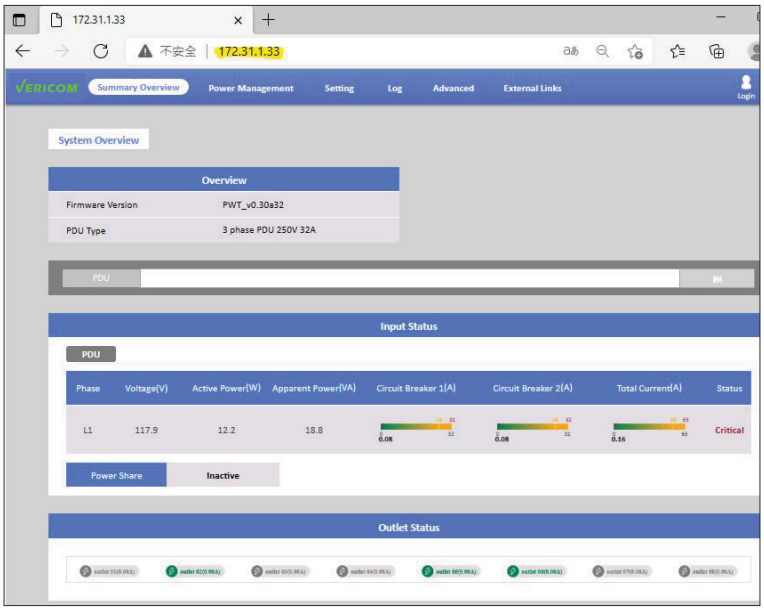
Step 2: Configure the related Wi-Fi or 3G/4G parameters on the **Wi-Fi Setting** of **Advanced** webpage. For example, to enable Wi-Fi Control, enter Wi-Fi SSI: TOTOLINK_A1004…etc.

Step 3: After configuring Wi-Fi parameters, the related Wi-Fi status is automatically display on the **Wi-Fi or 3G/4G Status**. For example, to enable Wi-Fi Control, enter Wi-Fi SSI: TOTOLINK_ A1004…etc as shown.



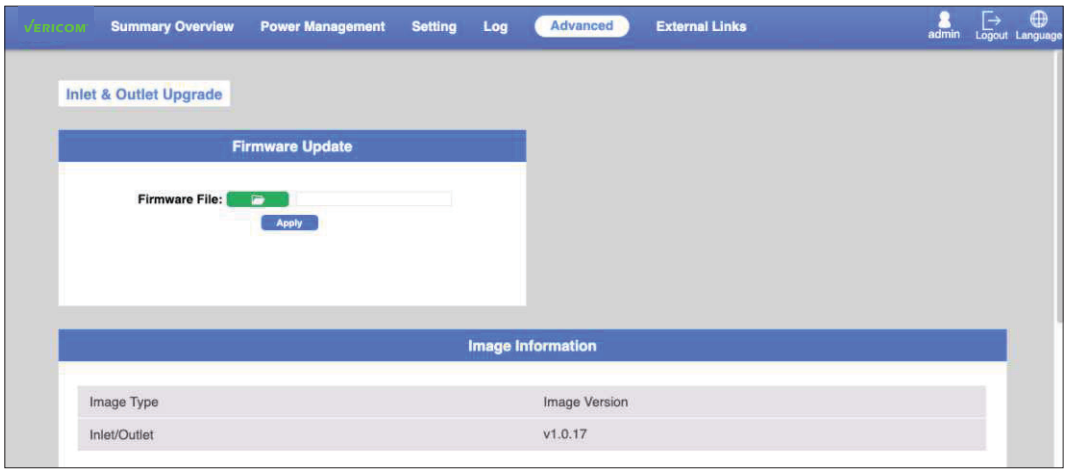
Using the Web Interface

Step 4: Access the dongle IP address (example IP: 172.31.1.33) from web browser and make sure the Wi-Fi or 3G/4G dongle is working.



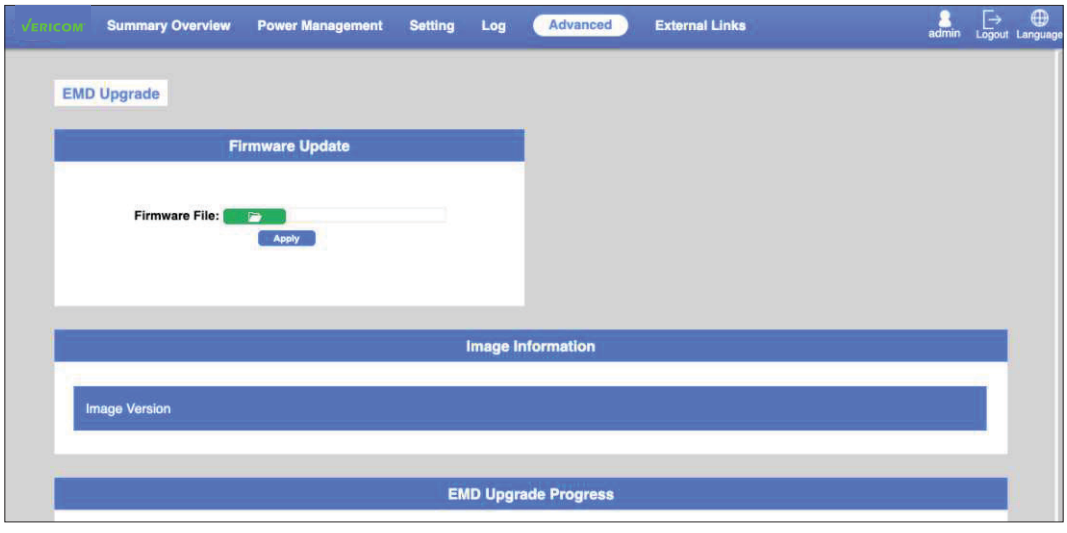
ADVANCED – Inlet & Outlet upgrade

Time to time we release improvements on the internal hardware related to metering chip upgrades or calibration, just upload the file as shown on the screen.



ADVANCED – EMD upgrade

Time to time we release improvements on the environmental chip calibration, just upload the file as shown on the screen.



Warranty

LIMITED WARRANTY

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship for a period of 2 years (from date of initial purchase). If the product should prove defective in material or workmanship within that period, Seller will repair or replace the product, in its sole discretion. Service under this Warranty can only be obtained by your delivering or shipping the product (with all shipping or delivery charges prepaid) to Vericom Global Solutions. Visit www.vericomsolutions.com/t-warranty.aspx for return address. Seller will pay return shipping charges.

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