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# nVent SCHROFF RackPower PDU

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## User Manual

Release 1.2  
22.08.2022

Doc-No: 63972-426

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R1.0	July 2022	Preliminary Release
R1.1	July 2022	Updated
R1.2	August 2022	Final Version

Table 1: Revision History

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## Table of Contents

<b>1 Safety</b> .....	<b>7</b>
1.1 Intended Use.....	7
1.2 General Safety Instructions .....	7
1.3 Installation and Operation Safety Instructions .....	7
1.4 Safety Instructions - Disclaimer .....	8
1.5 Safety Symbols .....	9
1.6 Safety Information for Operators .....	9
1.7 Product Labels and Standards .....	10
<b>2 General Installation</b> .....	<b>11</b>
2.1 Unpacking.....	11
2.2 Initial Operation .....	11
<b>3 Technical Information</b> .....	<b>12</b>
3.1 Key features.....	12
3.2 General Installation Guidelines.....	14
3.3 Product Overview .....	15
3.4 The Network Management Controller (NMC) .....	16
3.4.1 Interfaces.....	16
3.4.2 NMC HOT SWAPPING.....	17
3.4.3 NMC Orientation.....	17
3.4.4 PDU Reset Button .....	17
3.5 Outlet Units .....	18
3.5.1 Combo Outlets.....	18
3.5.2 Apollo Outlet.....	19
<b>4 Installation and Commissioning</b> .....	<b>20</b>
4.1 Mounting PDU in Server Cabinet.....	20
4.2 Connecting to Power Source.....	21
4.3 Connecting PDU to Network.....	21
4.4 Connecting with Serial Connection.....	22
4.5 Creating Unique Pinout Connection .....	23

4.6	ConnectingSensors (Optional)	23
<b>5</b>	<b>Getting Started with the PDU</b>	<b>24</b>
5.1	LED Display	24
5.2	OLED Display and Network Management Controller (NMC)	25
5.2.1	Network Controller Display modes	26
5.3	Main Menu Selections	27
<b>6</b>	<b>User Interface (UI)</b>	<b>32</b>
6.1	Introduction to Web UI	32
6.1.1	User Accounts	33
6.2	Navigating through the Web UI	34
6.2.1	Main Landing page	34
6.2.2	Dashboard	36
6.2.3	Identification	39
6.2.4	Control and Manage	40
6.2.5	Asset Management	42
6.3	System Administration	43
6.3.1	View Logs	43
6.3.2	Download Logs	44
6.3.3	View Data Logs	45
6.4	Network Settings	46
6.4.1	Ethernet IP Configuration	47
6.4.2	Network Time Protocol (NTP)	48
6.4.3	Date/Time Setting	48
6.4.4	Edit/change the Daylight-Saving Time	49
6.4.5	Set Certificate Key Length	50
6.4.6	Change Link Speed	50
6.4.7	Syslog Configuration	51
6.5	System Management	52
6.6	SNMP Management	54
6.6.1	Enable SNMP	54
6.6.2	Edit/change the SNMP Port	55

- 6.6.3 Configuring users for SNMP V1/V2c.....55
- 6.6.4 Edit/change the SNMP V3 Manager .....56
- 6.7 Email Setup.....57
- 6.8 Event Notification .....59
- 6.9 Trap Receiver.....60
- 6.10 Defining Thresholds .....62
- 6.10.1 Power Thresholds.....62
- 6.10.2 Input phases .....63
- 6.10.3 Circuit Breaker .....65
- 6.10.4 Control Management .....66
- 6.10.5 External Sensors .....67
- 6.11 Rack Access Control.....68
- 6.11.1 Handle and Compatible Card Types .....69
- 6.12 Smart Rack Control.....69
- 6.12.1 Add Card .....70
- 6.12.2 Rack Access Settings .....71
- 6.12.3 Handle Settings .....71
- 6.12.4 Remote Control .....71
- 6.12.5 Beacon Settings .....72
- 6.12.6 Status LED Settings.....72
- 6.12.7 Sensor Harness Configuration.....72
- 6.13 User Settings.....73
- 6.13.1 Roles .....74
- 6.13.2 Add Users/Change Password.....74
- 6.13.3 Modify/Delete User Profiles .....74
- 6.13.4 LDAP Server Settings.....75
- 6.13.5 Radius Configuration .....76
- 6.13.6 Roles .....76
- 6.13.7 Session Management.....77
- 6.13.8 Password Policy .....78
- 7 Working with a MIB Browser.....79**

<b>8 Redfish .....</b>	<b>81</b>
8.1.1 Redfish URLs Supported with GET Method .....	83
<b>9 The Command Line Interface (CLI).....</b>	<b>85</b>
9.1.1 Logging in with HyperTerminal.....	85
9.1.2 CLI Commands and Prompts.....	85
9.1.3 CLI Commands Table .....	86
<b>10 Cascade and RNA–Redundant Network Access .....</b>	<b>93</b>
10.1 Cascade Functionality .....	93
10.2 Cascade Setup.....	93
10.2.1 RNA (Redundant Network Access) Functionality .....	94
10.2.2 Power Share Functionality .....	94
10.2.3 RNA Setup .....	95
10.2.4 Cascade and RNA Commands in CLI.....	95
<b>11 Firmware Update.....</b>	<b>96</b>
11.1 Firmware Update via USB .....	96
11.2 Firmware Update via Web Interface .....	96
11.3 Firmware Update via FTPS .....	96
<b>12 Disposal.....</b>	<b>97</b>
<b>13 nVent RackPower PDU Product Range .....</b>	<b>98</b>
<b>14 Sensors Product Range .....</b>	<b>99</b>

## 1 Safety

### 1.1 Intended Use

The nVent SCHROFF Power Distribution Unit (PDU) is intended to provide power to the ITE equipment only. Do not connect the secondary power units to the outlets of the PDU. The following description of included features and installation guideline shall support a wide range of application cases. Intended use includes compliance with the terms and conditions for assembly, disassembly, commissioning, operation and maintenance, specified by the manufacturer. The PDU is only intended for use in dry and dust-free locations, i.e. indoors, in an industrial environment or for commercial use. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

### 1.2 General Safety Instructions

- It is not recommended to operate the system with Internet from a public network, but only with an internal network protected with firewalls.
- When remote accesses are deployed, select a secure access path, such as VPN (Virtual Private Network) or HTTPS.
- Ensure that the latest firmware is installed on all nVent RackPower PDU.
- Restrict access authorizations to networks and systems to people who need an authorization and disable unused user accounts.
- This product generates, uses, and radiates radio frequency energy, that can cause harmful interference to radio communications if not installed and used in accordance with the instruction manual. Operating this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at his own expense.

### 1.3 Installation and Operation Safety Instructions

- Assembly and installation of the nVent RackPower PDU may only be performed by experienced, trained, and authorized personal.
- Please observe the valid regulations for electrical installation in the country in which the PDU is installed and operated, and the national regulations for accident prevention. Please also observe any internal company regulations, such as work, operating and safety regulations.
- Operating the system in direct contact with water, aggressive materials or inflammable gases and vapours is prohibited.
- The PDU must not be opened. It does not contain any parts that need servicing.
- Internal parts of the PDU can get extremely hot during operation. Be cautious before handling.

- There is a risk of electrical shock from the ground conductor leakage. If the total leakage current exceeds 3.5 mA or if leakage current of the connected load is unknown, connect the ground terminal of the PDU to a dependable ground/earth connection.
- This equipment must be connected to an electrical supply with protected ground outlets and a branch circuit breaker with the same current rating as the equipment. Test all outlets for proper polarity and grounding. Failure to comply with this requirement can result in a serious injury.
- Use only original nVent accessories or products recommended by nVent along with the RackPower PDU.
- Changes and modifications to this equipment can affect the warranty. nVent is not responsible for damage to this product, resulting from accident, disaster, or misuse.

#### **1.4 Safety Instructions - Disclaimer**


nVent SCHROFF accepts no liability for any errors in this documentation. To the maximum extent permissible by law, any liability for damage, direct or indirect, arising from the supply or use of this documentation is excluded.


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### 1.5 Safety Symbols

In these original operating instructions, warning notices point out residual risks that cannot be avoided by constructive means when installing or operating the RackPower PDU. The warning notices are classified according to severity of the damage occurring and its statistic occurrence.

 <b>DANGER</b>	
Symbol	<b>Short description of the danger</b> The signal word DANGER indicates an immediate danger. Non-observance will result in severe injuries or death.

 <b>WARNING</b>	
Symbol	<b>Short description of the danger</b> The signal word WARNING indicates a possible danger. Non-observance can lead to serious injury or death.



 <b>CAUTION</b>	
Symbol	<b>Short description of the danger</b> The signal word CAUTION indicates a possible danger. Non-observance can lead to injuries.

<b>ATTENTION</b>	
<b>Short description</b> The signal word ATTENTION indicates possible damages to equipment. Non-observance can lead to damage to the device.	

	<b>Important information</b>
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### 1.6 Safety Information for Operators

Only trained specialists are authorized to carry out assembly, commissioning, completion, maintenance and service of the RackPower PDU. The nationally applicable health and safety regulations must be adhered as well.

 <b>WARNING</b>	
	<b>Risk of injury due to insufficient personal protective equipment</b> If you use wrong / no protective equipment at all, serious injuries are possible. <ul style="list-style-type: none"> <li>- Wear protective equipment adapted to the work processes.</li> <li>- Check the protective equipment before each use to ensure that it is intact!</li> <li>- Use only approved protective equipment.</li> </ul>

### 1.7 Product Labels and Standards

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This product is CE & CSA compliant. Essential requirements of applicable European Directives are met by this product. Since 2020 the UKCA declaration requirements are fulfilled as well.



The Power Cable of this product must be used exclusively for the respective PDU only.

## 2 General Installation

### 2.1 Unpacking

#### ATTENTION

When opening the shipping carton, use caution to avoid damaging the system.

Consider the following when unpacking and storing the system:

- Leave the system packed until it is needed for immediate installation.
- After unpacking the system, save and store the packaging material in case the system must be returned.

If the packaging is damaged and possible system damage is present, report to the shipper and analyze the damage.

### 2.2 Initial Operation

#### **WARNING**



#### **Risk of injury and accidents due to insufficiently qualified personnel!**

The installation may only be carried out by qualified personnel who are authorized to do so according to the valid safety regulations, e.g. by authorized specialized companies or authorized departments of the company.

- Ensure that the system has not been damaged during transport, storage or assembly

### 3 Technical Information









#### 3.1 Key features

The nVent RackPower PDU is a sleek and space saving unit with low profile circuit breakers, color-coded receptacles and different type of power outlets, which can be customized according to needs and IT requirements.

It is an efficient and reliable power distribution system that ensures flawless functioning of the ITE equipment, by providing smart and intelligent features like:

- Full featured network management and alerting capabilities supporting HTTP, HTTPS, SSH, SNMP, and email.
- Strong encryption, passwords, and advanced authorization options including local permissions, LDAP/S, and Active Directory.
- Cascade up to 64 RackPower PDUs and supports a maximum of 10 environmental sensors each.
- Power Sharing feature that allows the data of the PDU to be recorded even during a Power Failure.

The power distribution systems offered by nVent RackPower PDU are:

Product	RackPower SKU Series	Inlet Power Measurement	Outlet Power Measurement	Switchable Outlet
Metered	RP1XXX			
Metered & Outlet Switched	RP2XXX			
Outlet metered	RP5XXX			
Outlet Metered and Outlet Switched	RP6XXX			

nVent provides PDUs in both current options with unique features:

### **Single-Phase Models**

All Single-Phase models support hydraulic magnetic breakers that are color coded to the corresponding outlets.

### **Three-Phase Models**

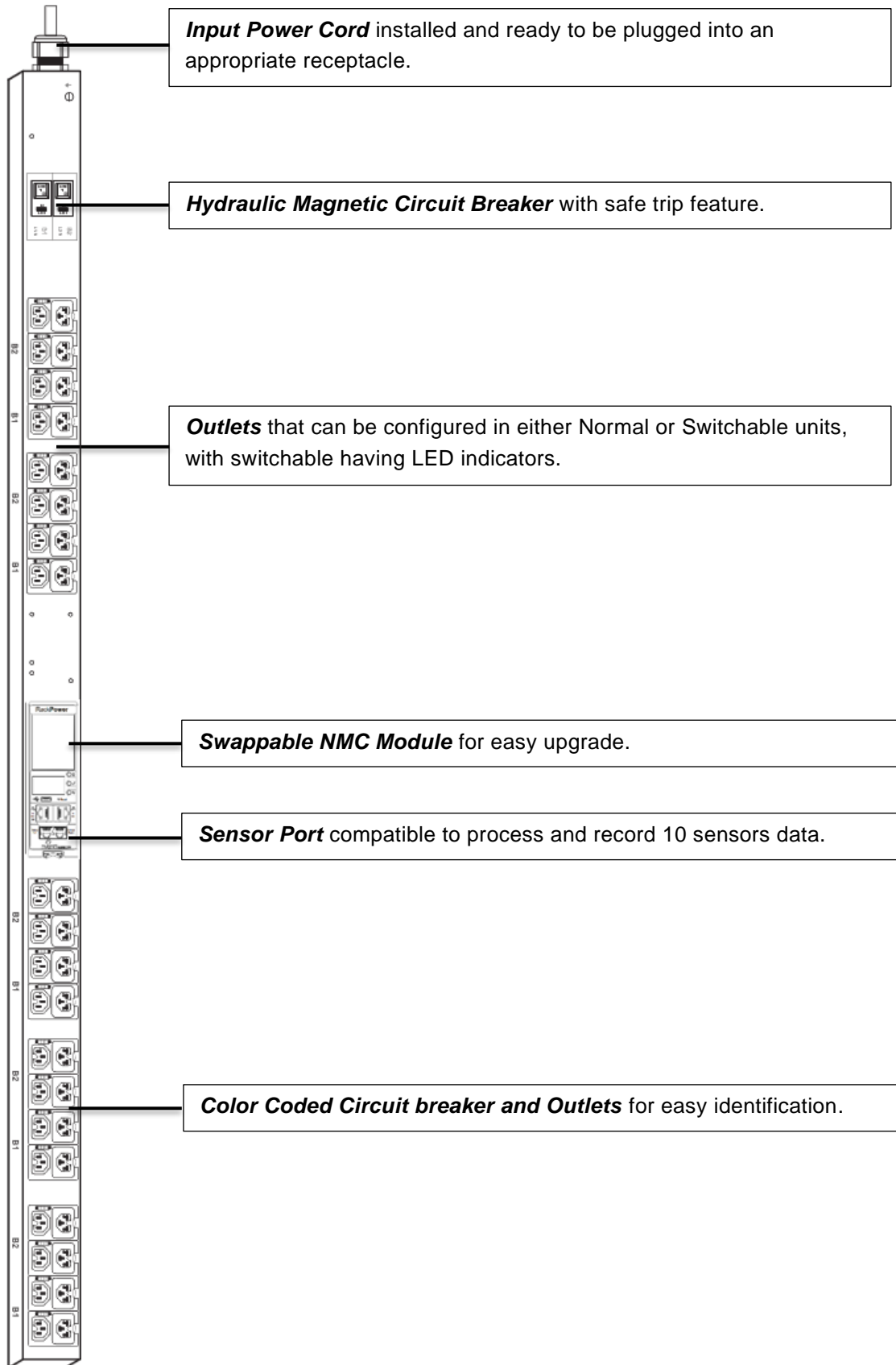
- In standard 415 V Three-Phase (Wye) configurations, the color of each circuit breaker and outlet corresponds to the appropriate input phase. The PDU is labelled to indicate the input-phase associated with each circuit breaker and outlets.
- In North America, 208 V Three-phase (delta) configurations, the color of the circuit breaker corresponds to the line connections and includes a label of the two connected input-phases, (i.e., L1-L2, L2-L3, or L3-L1).
- All Three-Phase model rated above 20 A and 16 A, will also use a color coding scheme, using 3 colors rather than 2 colors, black, blue, and green.

### 3.2 General Installation Guidelines

Follow all local and national codes, when installing the PDU. The PDU should be connected to a dedicated circuit protected by a branch circuit breaker matching the PDU input plug-type for your region:

Regions	PDU Input Plug Type	Input Rating
Europe, International	IEC60320 C20 Inlet (Removable Power Cord)	16 A SINGLE PHASE
	CEE 7/4, CEE 7/5, CEE 7/7 Plugs	16 A SINGLE PHASE
	IEC60309 316P6 or 316P6W	16 A SINGLE PHASE
	IEC60309 332P6 or 332P6W	32 A SINGLE PHASE
	IEC60309 363P6 or 363P6W	32 A SINGLE PHASE
	IEC60309 516P6 or 516P6W	16 A THREE PHASE
	IEC60309 532P6 or 532P6W	32 A THREE PHASE
	IEC60309 563P6 or 563P6W	63 A THREE PHASE
	3-pin (2P+G)	20 A SINGLE PHASE
Australia	3-pin (2P+G)	32 A SINGLE PHASE
	5-pin (3P+N+G)	20 A THREE PHASE
	5-pin (3P+N+G)	32 A THREE PHASE
	IEC60320 C20 Inlet (Removable Power Cord)	20 A SINGLE PHASE
	NEMA 5-20P or NEMA L5-20P	20 A SINGLE PHASE
	NEMA 6-20P or NEMA L6-20P	20 A SINGLE PHASE
	NEMA 6-30P or NEMA L6-30P	30 A SINGLE PHASE
	NEMA 5-30P or NEMA L5-30P	30 A SINGLE PHASE
North America/Japan	IEC60309 330P9 or 330P9W	30 A SINGLE PHASE
	CS8265C	50 A SINGLE PHASE
	NEMA L21-20P or NEMA L15-20P	20 A THREE PHASE
	NEMA L21-30P or NEMA L15-30P	30 A THREE PHASE
	CS8365C	50 A THREE PHASE
	IEC60309 460P9 or 460P9W	60 A THREE PHASE
	IEC60309 520P6 or 520P6W	20 A THREE PHASE
	IEC60309 530P6 or 530P6W or NEMA L22-	30 A THREE PHASE
	IEC60309 560P6 or 560P6W	60 A THREE PHASE

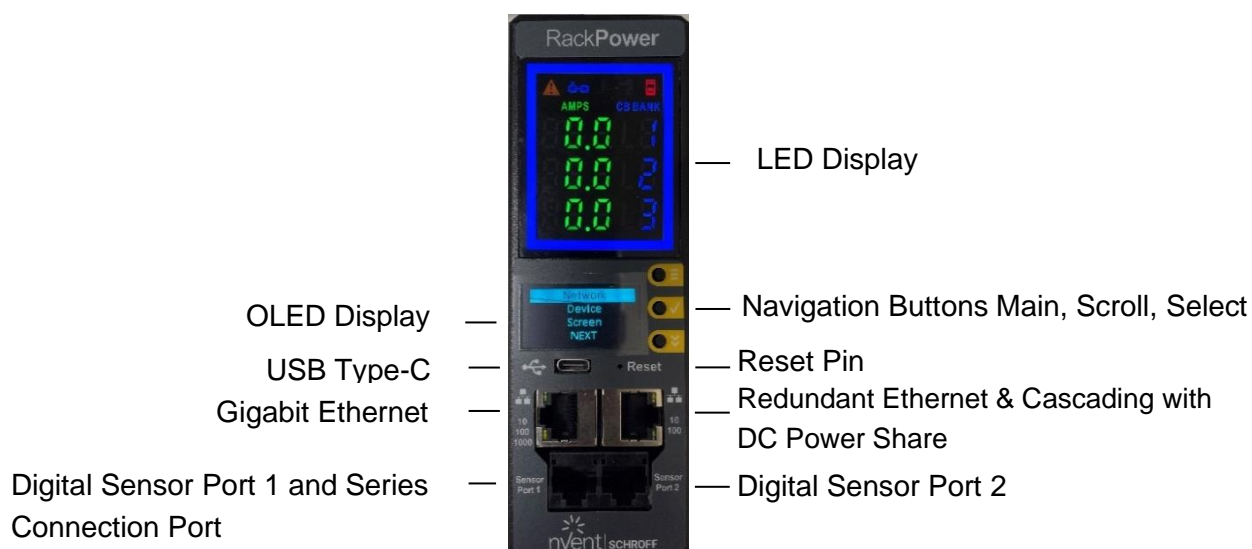
### 3.3 Product Overview



### 3.4 The Network Management Controller (NMC)

There are 2 displays/5 ports on all nVent RackPower PDUs, as shown below

- OLED Graphical Alarm Icons: PDU Alarm, Cascade Error Alarm, Temperature Alarm, Security Handle Alarm, and Circuit Breaker Alarm.
- Display (AMPS, CB BANK): Largest In-class HD Metering Display.
- OLED Settings: Set up, Alarms, Power, Sensors (click menu, select, and scroll to operate).



There are 2 displays and 5 interfaces on all nVent RackPower PDUs

- LED Display with Graphical Alarm Icons for PDU Alarm, Cascade Error Alarm, Temperature Alarm, Security Handle Alarm, Circuit Breaker Alarm and 7-segment display for AMPS and CB BANK)
- OLED Display for Settings: Set up, Alarms, Power, Sensors (click menu, select, and scroll to operate).

#### 3.4.1 Interfaces

- USB-C: Fast configuration, fast upload of firmware and download log files.
- Ethernet Port 1 (10/100/1000): Primary network port / Power share.
- Ethernet Port 2 (10/100): Daisy chain / Power share / RNA / Network.
- Sensor Port 1: Primary sensor port and serial port – Supports a total of 4 sensors per, for example using the sensor EA9103, which will support 3 x temperature sensors and one humidity sensor. Sensor Port 1 also acts as a serial port; it allows to configure features and update firmware.
- Sensor Port 2: Secondary sensor port – Supporting a total of 4 sensors per sensor port.



### 3.4.2 NMC HOT SWAPPING

The NMC can be hot-swapped with no downtime or power interruption.

- Push the lock button at the lower end of the NMC
- Lift the NMC
- Pull the connector of the ribbon cable at the NMC
- A connector ribbon is present in the PDU to Power-On the NMC
- Remove the NMC
- Connect the ribbon cable to the new NMC and lock the NMC into the PDU
- Let the NMC boot up completely, ensure the OLED displays the RackPower logo

### 3.4.3 NMC Orientation

The NMC can be turned to 180 degree.

- Push the lock button and lift the NMC to unmount without disconnecting the ribbon cable.
- Turn the NMC to 180 degree, place it on the PDU and lock it to PDU chassis

### 3.4.4 PDU Reset Button

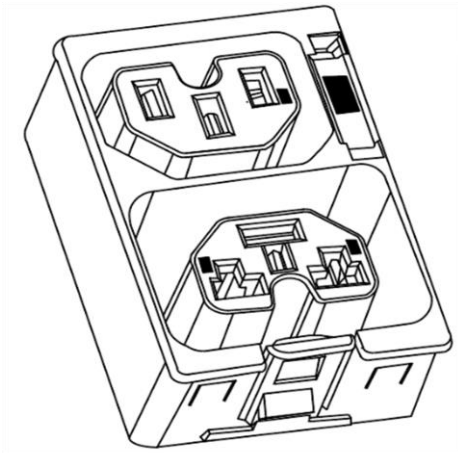
- Press and hold the reset button till 8 seconds, which will trigger RESET option in OLED display and reset functionality will be initiated.
- Press and hold the Reset button for 20 seconds, which will trigger the DEFAULT option in OLED display and Default functionality will be initiated.
- Press and hold the Reset button, immediately press the Scroll button – the hard reboot functionality will be initiated.

### 3.5 Outlet Units

#### 3.5.1 Combo Outlets

The nVent RackPower PDU features a C13/C15 and C13/C15/C19 combination Outlet Port configuration, which increases the adaptability.

This helps the user to get the highest level of rack power versatility allowing the connection of both ICE C14 and C16 plugs into the same C13/C15 (2-in-1) combination Outlet Port and ICE C14, C16 and C20 plugs into the same C13/ C15/C19 (3-in-1) combination Outlet Port.



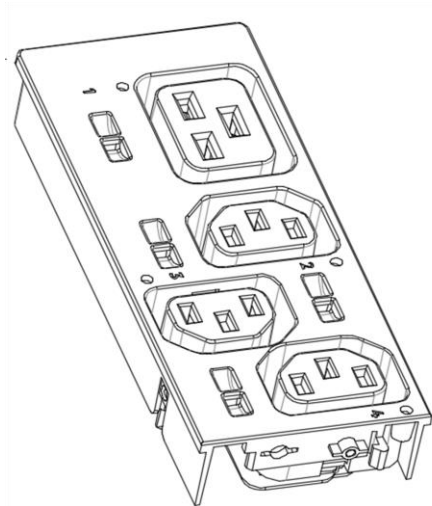
#### **Combo Outlet**

C13/C15 [2 in 1] Outlet  
NAM & EAU 10 A / 250 V

C13/C15/C19 [3-in-1] Outlet  
NAM & EAU 16 A / 250 V

### 3.5.2 Apollo Outlet

The nVent RackPower PDU features a C13 and C19 combination discreet Outlet Port configurations



## Apollo Outlet


C19 Outlet  
NAM & EAU 16 A / 250 V

C13 Outlet  
NAM & EAU 10 A / 250V

The specifications of the Outlet Unit are as follows:

- Degree of protection by enclosure according to IEC60529 is IP20.
- Mating plug inserting force is 70 N max.
- Mechanical operation cycles without load are 1000 cycles and with load is 500 cycles.
- Temperature range: 25 °C – 100 °C.
- Rated impulse voltage: 2.5 kV

## 4 Installation and Commissioning

<b>⚠ WARNING</b>	
	<p><b>Risk of injury and accidents due to insufficiently qualified personnel!</b></p> <ul style="list-style-type: none"><li>- The installation may only be carried out by qualified personnel who are authorized to do so according to the valid safety regulations, e.g. by authorized specialized companies or authorized departments of the company.</li></ul>

<b>ATTENTION</b>	
<p><b>Incorrect mains voltage or overload can lead to component damage!</b></p> <p>The device has a 400 V 3-phase or a 230 V 1-phase power input. The total current consumption of all outputs must not exceed 16 A per phase.</p>	

### 4.1 Mounting PDU in Server Cabinet

nVent RackPower PDUs are built with toolless mounting in most rack enclosure designs. (If the standard mounting pegs or mounting brackets do not comply with your rack configuration, contact nVent for assistance. The installation of the bracket may require the use of a screwdriver.)

1. The nVent RackPower PDU comes with toolless mounting pegs for ease and convenience.
2. Determine where the nVent RackPower PDU will be mounted in the inside of the server cabinet.  
**Note:** If your rack does not require mounting brackets, skip step 4 and 5. If required, attach the mounting brackets to the server cabinet. The standard nVent RackPower PDU mounting brackets are secured to the rack using a screwdriver.
3. Attach the enclosed mounting brackets to the server cabinet using the screws.
4. Insert the pegs into the server rack mounting holes or into the mounting brackets and tighten the mounting pegs into place.
5. Pull the power cord through the cabinet and tighten the mounting pegs. Proceed with connecting to a power source.

## 4.2 Connecting to Power Source

Before beginning the installation, check the Branch Circuit Rating in the Safety Information section of this manual. Always follow local and national codes, when installing the PDU. The PDU should be connected to a dedicated circuit protected by a branch circuit breaker that matches the PDU input-plug type.

**Note:** When connecting the nVent RackPower PDU to a Power Source, make sure that you have enough length in the PDU power cord to reach the PDU power source.

1. Turn **Off** the feed circuit breaker.
2. Make sure that all circuit breakers on the nVent RackPower PDU are set to ON.
3. Connect each nVent RackPower PDU to an appropriately rated branch circuit.  
Note: Refer to the label on the PDU for the input ratings.
4. Turn **ON** the feed circuit breaker.
5. The LED screen will display a status bar, when the PDU operating system is loading. After 3 seconds later, the Main Menu (Settings, Alarms, Power, Sensors) will display on the LED screen. Switched PDUs show a light corresponding to each outlet as it is powered up.

## 4.3 Connecting PDU to Network

The nVent range of PDUs are set to obtain an IP address via DHCP by default. Therefore, when a nVent RackPower PDU is connected to a network for the first time, the PDU will automatically obtain an IP address. In case the PDU is placed within a static network environment, users can configure the PDU to a Static IP via connecting to the PDU by serial cable or upload of a configuration file via USB. The PDU automatically obtains an IP address via DHCP, when connected to a network. Login to the Web UI to configure the PDU and assign a static IP address (if required).

1. Connect a standard Ethernet patch cable to Ethernet Port1/Port2 on the nVent RackPower PDU.
2. Connect the other end of the Ethernet cable to the LAN.
3. Make sure that the Ethernet port on the PDU shows a solid green light on the left and a flashing yellow light on the right to indicate successful connectivity to the network. (Gigabit Router is used in this network connection.)
4. Use the Main buttons to look up the IP address of the device on the LED display by selecting **Settings > Network Information > IPv4** or **IPv6** as applicable.
5. In a standard web browser, type the PDU IP address and proceed to configure the PDU.

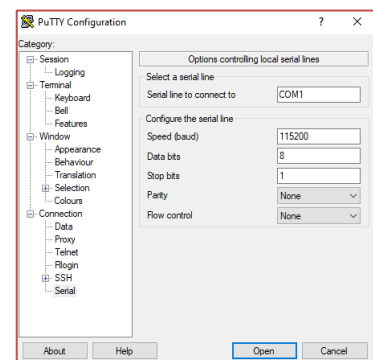
#### 4.4 Connecting with Serial Connection

Alternatively, you can configure the network settings using the command line interface (CLI) with a serial connection. Users can either connect serially using the optional nVent RJ45-DB9 Cable [EA9119] or by creating a unique pinout.

1. Connect the RJ45 end of the serial cable into the port sensor 1 on the PDU.
2. Connect the DB9 end of the cable into the communications (COM) port on your computer.  
**Note:** You need to use a DB9 serial to USB connection cable for this step to connect via USB, if a DB9 serial port is not available on your computer.
3. Open a communications program such as HyperTerminal or PUTTY.

Select the COM port. Set the communications port as follows:

- Bits per second: 115200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow



4. Use the default login indicated below.  
**Note:** Username and Password are both case sensitive.  
Username: admin  
Password: 12345678

5. The RackPower> prompt appears after you have logged in.
6. To configure network settings, type the appropriate net commands in Command prompt and press **Enter** button.

**Note:** All commands are case sensitive. You can type “?” to access the commands.

For the Net eth0 and eth1 IPv4 DHCP configuration, configure the below parameter.

- net tcpip eth0dhcp
- net tcpip eth1dhcp

Enter “Y” to validate and reboot the network management card.

For the static IPv4 configuration, configure the below parameters.

- net tcpip eth0static x.x.x.x (ipaddress) x.x.x.x (netmask) x.x.x.x (gateway)

Example: net tcpip eth0static 192.168.1.100 255.255.255.0 192.168.1.1

Enter “Y” to validate and reboot the network management card OR

- net tcpip eth1static x.x.x.x (ipaddress) x.x.x.x (netmask) x.x.x.x (gateway)

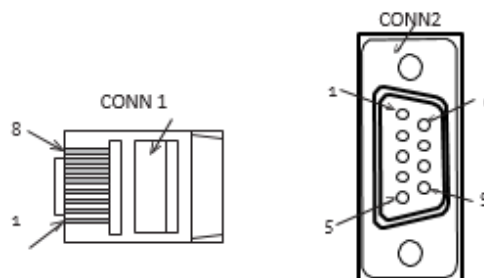
Example - net tcpip eth1static 192.168.1.100 255.255.255.0 192.168.1.1

## 4.5 Creating Unique Pinout Connection

nVent recommends purchasing the serial cable to use on the RackPower PDU. This ensures an accurate connection. However, to create your own pinout connection for the RJ45 to Serial cable, set the wired connections as shown in the figure:

Refer to the **Web UI** section and **Command Line Interface** section for more information about managing the PDU.

Pin	Description	Pin
1		1
2	RS232 RX	2
3	RS232 TX	3
4		4
5	Ground	5
6		6
7		7
8		8



## 4.6 Connecting Sensors (Optional)

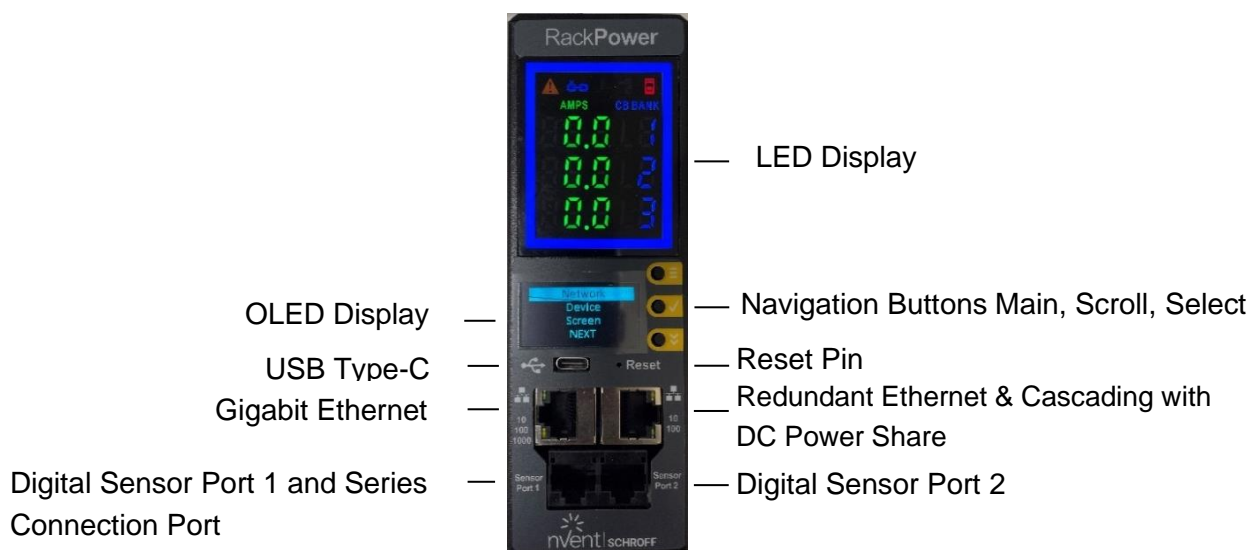
To enable the RackPower PDU device to detect nVent conditions, connect one or more sensors to the PDU sensor port 1 or 2. The maximum distance for sensor cabling, which is plugged into the device sensor port should not exceed 100 feet (30 m). The maximum number of sensor detection points should not exceed 10.

Refer to the table below to determine how many sensors detection points for each sensor use. For example: If you are using the 3 Temperature sensor + 1 Humidity sensor (EA9105), 4 sensor points are in use, so only 4 additional sensor points are available.

Refer to Sensor Product range information provided here <https://schroff.nvent.com/en-de/solutions/schroff/applications/iPDU>

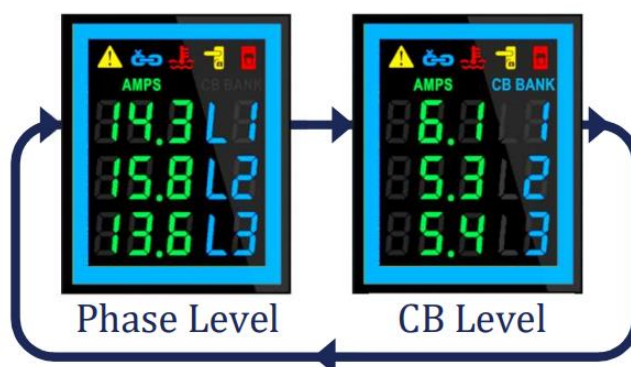
For more information about nVent sensors, refer to the Installation sheet included with each sensor.

## 5 Getting Started with the PDU



### 5.1 LED Display

The 7 Segment LED display shows data in high visibility at Phase Level and CB Level.



#### Phase Level






In this level information about the Current Input at each respective line, L1, L2 and L3.

#### CB Level

In this level information about the Current Input at each respective Circuit breaker, 1, 2 and 3.

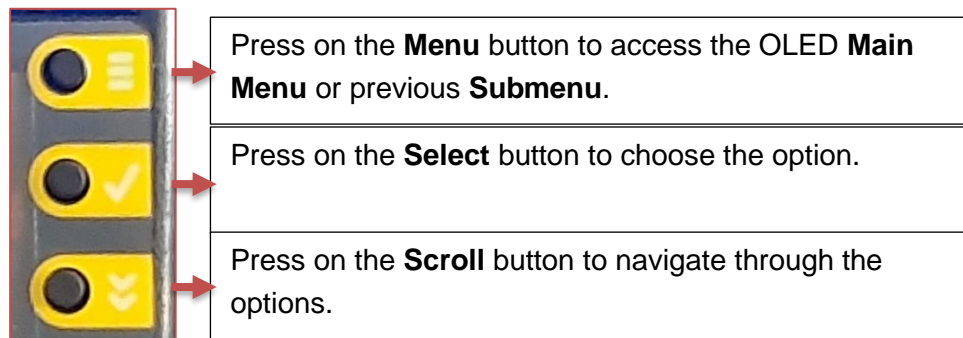
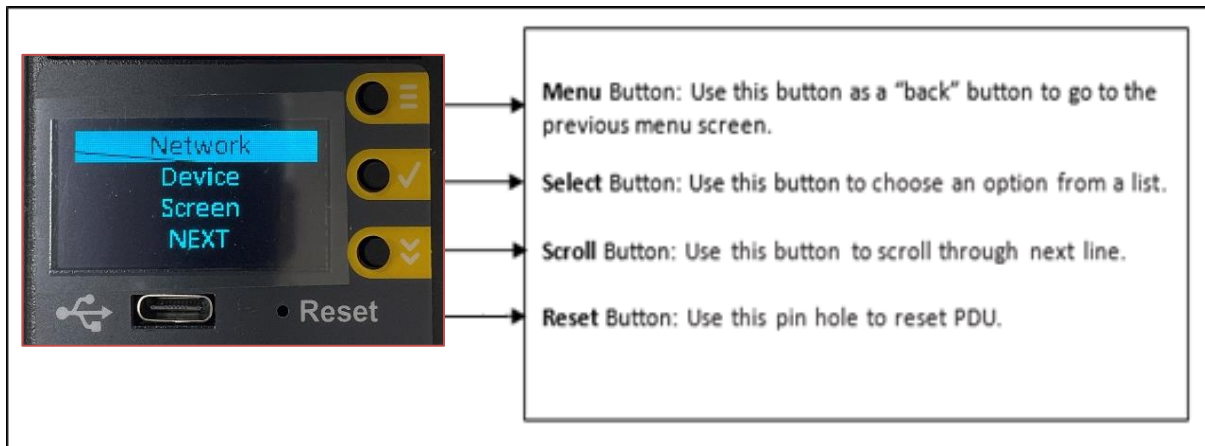


Indicators and Alarms shown on the Seven Segment LED display

Options	Description
	<b>PDU Alarm-</b> It shows the user when a Critical Alarms or Warning Alarms happens in a PDU.
	<b>Daisy Chain Indicator-</b> It shows the user if the Daisy Chain is connected or not.
	<b>Environmental Sensor Alarm-</b> It shows the user if there is an alarm related to the environmental sensors.
	<b>Security Sensor Alarm-</b> It shows the user if there is an alarm related to the door sensors
	<b>Circuit Breaker Alarm-</b> It shows the user if there is an alarm related to the circuit breaker.

## 5.2 OLED Display and Network Management Controller (NMC)

The Onboard Display provides information about the PDU and connected devices. The Network Management Controller (NMC) of the PDU has a three-button. Use the buttons to change the screen display and retrieve specific data.



## 5.2.1 Network Controller Display modes

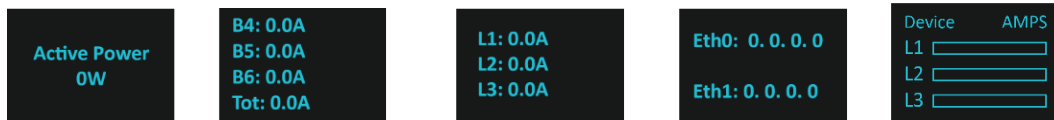
### Menu mode

(Network Controller Display main menu): When the PDU is powered up or when a button is pushed while in Standby Mode or Power Save mode.



### Standby mode

This happens when a PDU is idle (no buttons pushed) for 30 seconds while in Menu mode. The following screen savers with the respective data comes into view.

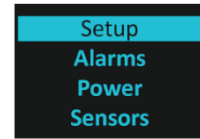


### Power Save mode

The PDU enters Power Save mode when it has been in Standby mode for minute. The screen is switched off to save power. To exit Power Save mode, press any button on the display.

### 5.3 Main Menu Selections

The PDU menu selection hierarchy consists of Setup, Alarms, Power, and Sensors. On the main menu, scroll down to highlight Setup. Press Select.



Scroll down to select a submenu and press Select to display the submenu options. Press Menu to return to the previous menu.

#### Setup Menu

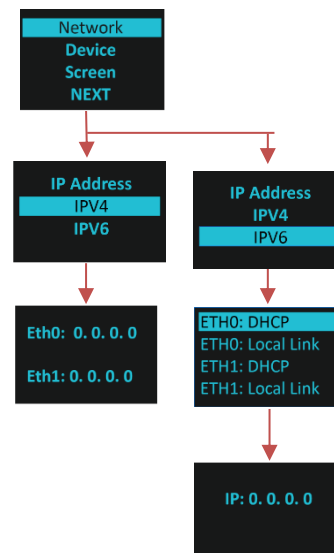
The Setup menu provides user configuration options including Network, Device, Screen, Language, USB and Units.



#### Network Submenu

The Network submenu allows you to view IP address IPv4 or IPv6.

On the Setup menu, scroll down to Network. Press Select to enter the Network Submenu. Scroll down to highlight the selected option from the menu. Press Select to display the screens that display the IP address. Press Menu to return to the previous menu.



### Device Submenu

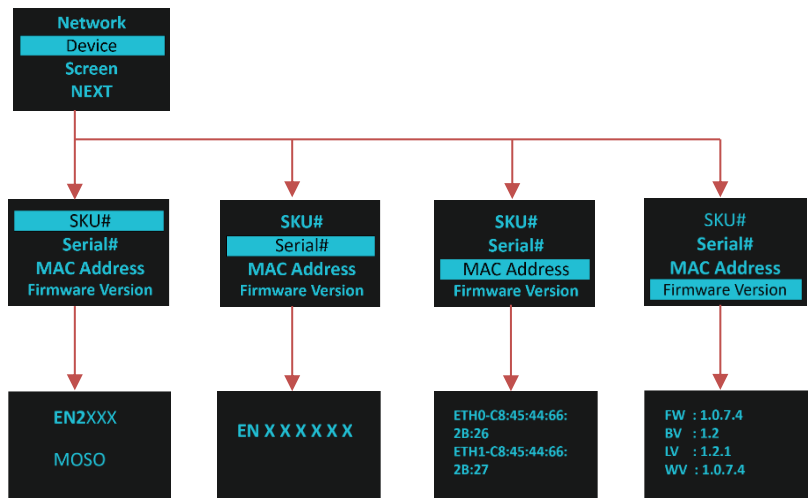
The Device submenu provides the SKU number, Serial number, MAC address and Firmware version.

On the Setup menu, scroll down to highlight Device submenu.

Press Select to enter the Device Submenu.

Scroll down to the item you wish to display, and press Select.

Press Menu to return to the previous menu.



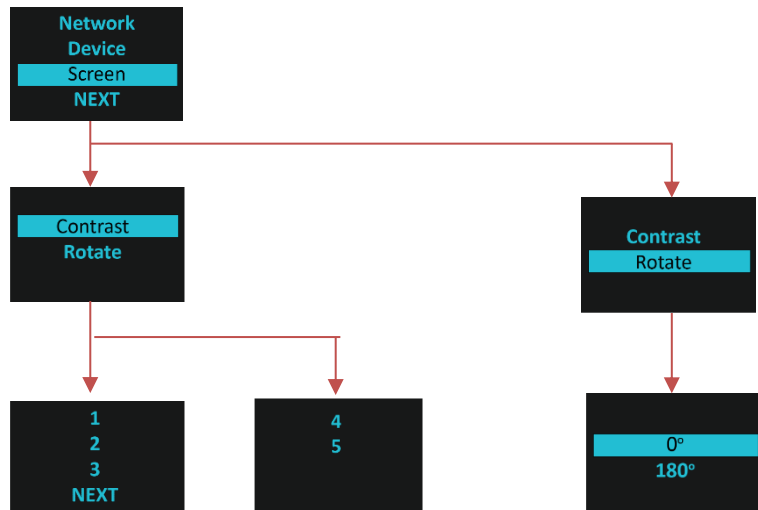
### Screen Submenu

The Screen submenu allows you to customize settings for Contrast, Rotate, and Always on.

In the Setup menu, scroll down to highlight Screen.

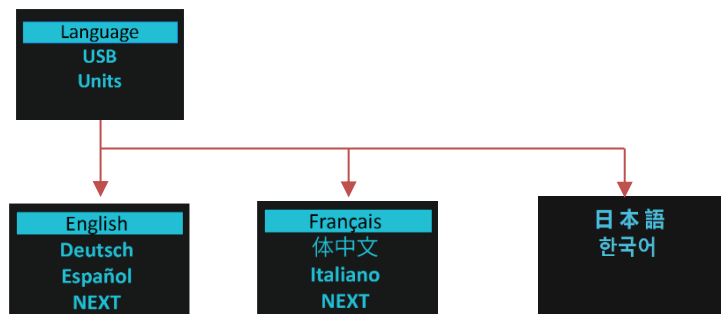
Press Select to select the submenu.

Press Menu to return to the previous menu.



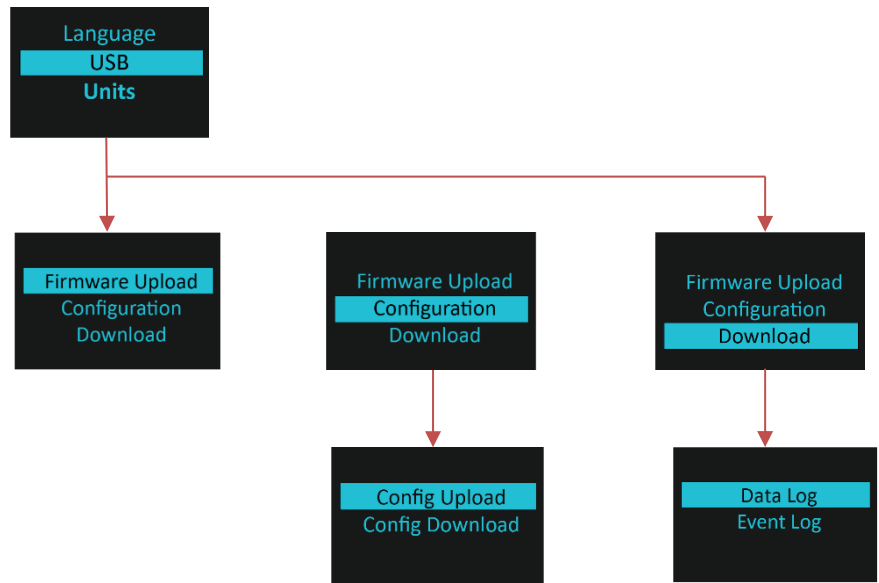
### Language Submenu

The Language submenu allows you to select the language you need to use. On the Setup menu, scroll down to highlight Lang. Press Select to display the screens to select the submenu. After you select the values, press Select to set the values as displayed on the screen. Press Menu to return to the previous menu.



### USB Submenu

The USB submenu allows you to upload firmware file and download event log or data log. On the Setup menu, scroll down to highlight USB. Press Select to enter the USB Submenu. The user will be asked to verify the want to the enter the USB operation and Configuration Mode. After you select Yes, the system will reboot into the USB operation and Configuration Mode.

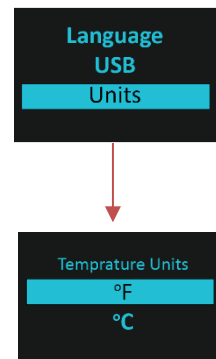


**Note:** If a USB drive is not present in the USB slot the PDU will enter normal operation.

**Note:** If you are in USB mode and you want to exit USB mode, you must remove the USB drive before existing USB mode. Otherwise, the PDU will reboot and re-enter USB mode.

### Units Submenu

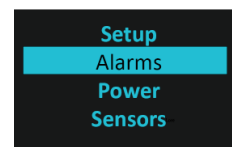
The Units submenu displays the temperature units. On the Setup menu, scroll down to highlight Units. Press Select to enter the Units Submenu. After you select the values, press Select to set the values as displayed on the screen. Press Menu to return to the previous menu.



**Note:** This can only be done locally at the PDU.

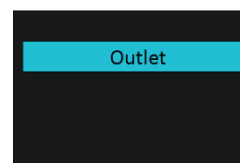
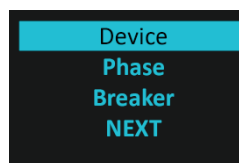
### Alarms Menu

The Alarms menu displays active alarms for the PDU. On the Main Menu, scroll down to highlight Alarms. Press Select to display the Alarm Screen. When you finish your review, press Menu to return to the main menu.



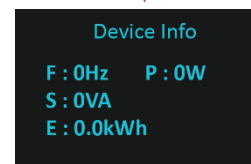
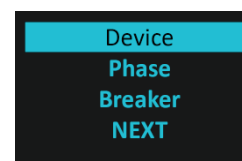
### Power Menu

The Power menu manages device, phase, breaker and outlet. On the Main Menu, scroll down to highlight Power. Press Select. Scroll down to select a submenu and press Select to display the submenu options. Press Menu to return to the previous menu.



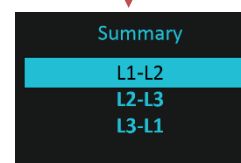
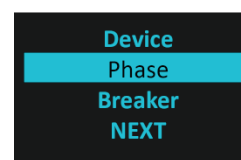
### Device Submenu

The Device submenu is to display current, voltage and power. On the Power menu, scroll down to highlight Device. Press Select to display the power values for the entire PDU. Press Menu to return to the previous menu.



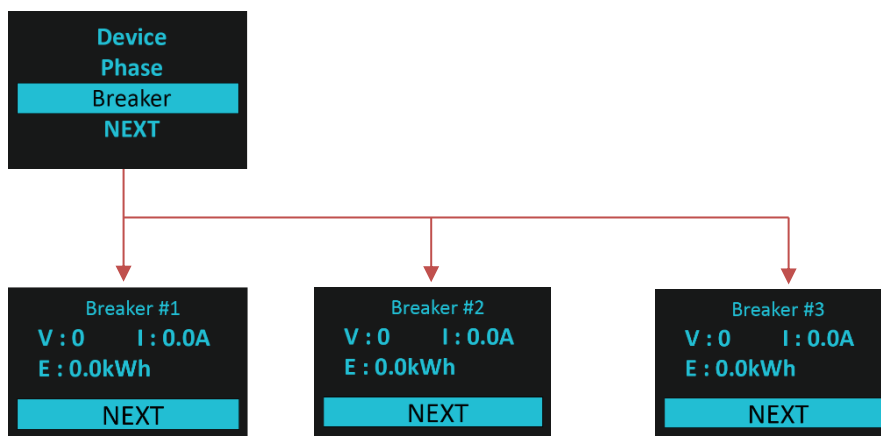
### Phase Submenu

The Phase submenu is to display the status of 3-Phase. On the Power menu, scroll down to highlight Phase. Press Select to display the screens to set the values for the submenu. After you select the phase, press Select to display the values for that phase on the screen. Press Menu to return to the previous menu.



### Breaker Submenu

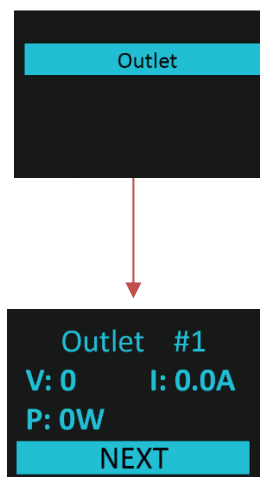
The Breaker submenu is to display power values for the breakers. Press Select to display the values of the first breaker. To go to the next breaker, Select next. Press Menu to return to the previous menu.



### Outlet Submenu

The Outlet submenu is to display voltage, current and power from outlet number 1 to number n. On the Power menu, scroll down to highlight Outlet. Press Select to display values for the first outlet. To go to the next outlet, Select next. Press Menu to return to the previous menu.

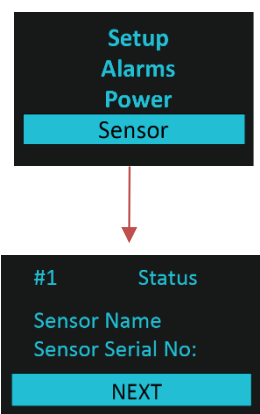
**Note:** Custom outlet names noted in the WebGUI do not make changes to the local display. This is done to make it easier to map to outlet numbers which can locally be seen on the outlets themselves.



### Sensor Menu

The Sensor menu is to display temperature, humidity, door switch, fluid leak etc. On the Main Menu, scroll down to highlight Sensor. Press Select. This will display the sensor data for the first sensor. To go to the next sensor, Select next. Press Menu to return to the previous menu.

**Note:** Maximum of 10 sensors can be configured per PDU.



## 6 User Interface (UI)

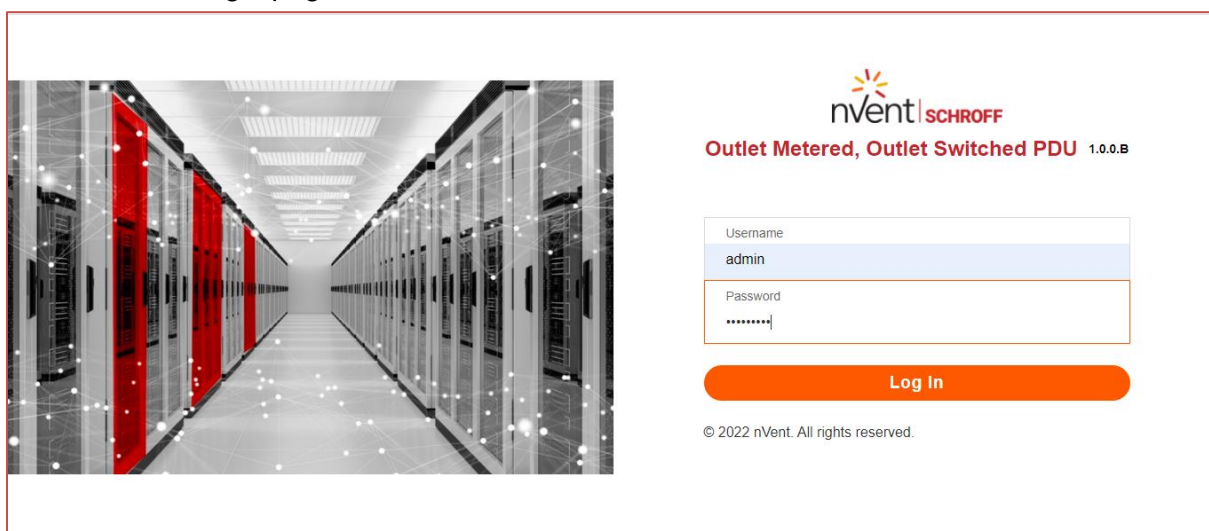
Ensure that the ethernet cable is connected and active, which is indicated by a solid green light on the right and a flashing yellow light on the left. This indicates successful connectivity to the network.

Use the Main button to look up the IP address of the device on the LED display by selecting **Settings > Network Information> IPv4 or IPv6** as applicable.

- In a standard web browser, enter the PDU IP address (“https://IP ADDRESS”) and proceed to configure the PDU as shown in the Web Configuration section.
- The supported Web browsers are Google Chrome (mobile and desktop), Mozilla Firefox, and Microsoft Edge on mobile and desktop.
- If browser displays “can’t reach this page” please double check that you are using the “https://” protocol not “http://”

### 6.1 Introduction to Web UI

When we login for the first time and in the case of a password expiry, the password must be entered on the login page.



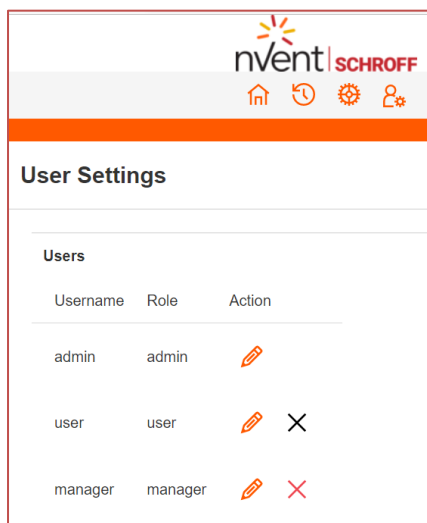
On the login page:

1. A Change Default Password screen comes to view.
2. Type the Current Password, New Password and Confirmed New Password.
3. Click **Change Password button** to complete the process

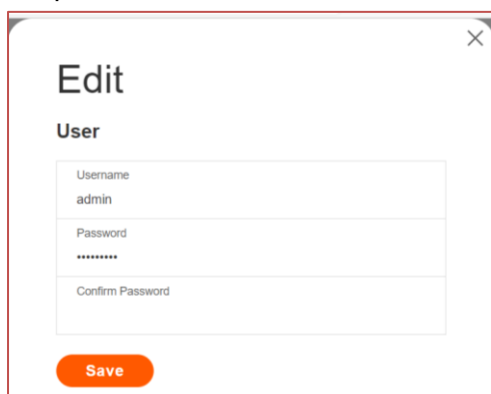


After the initial (First time) login, to change the password inside the web UI:

- a) Click on the User Settings icon, the User Settings page comes to view.



- b) In the User section, click the edit icon next your **Username** and **Role** to edit/change the password



- c) Type the new password in the **Password** and **Confirm Password**.
- d) Click Save button to complete the setting.

### 6.1.1 User Accounts

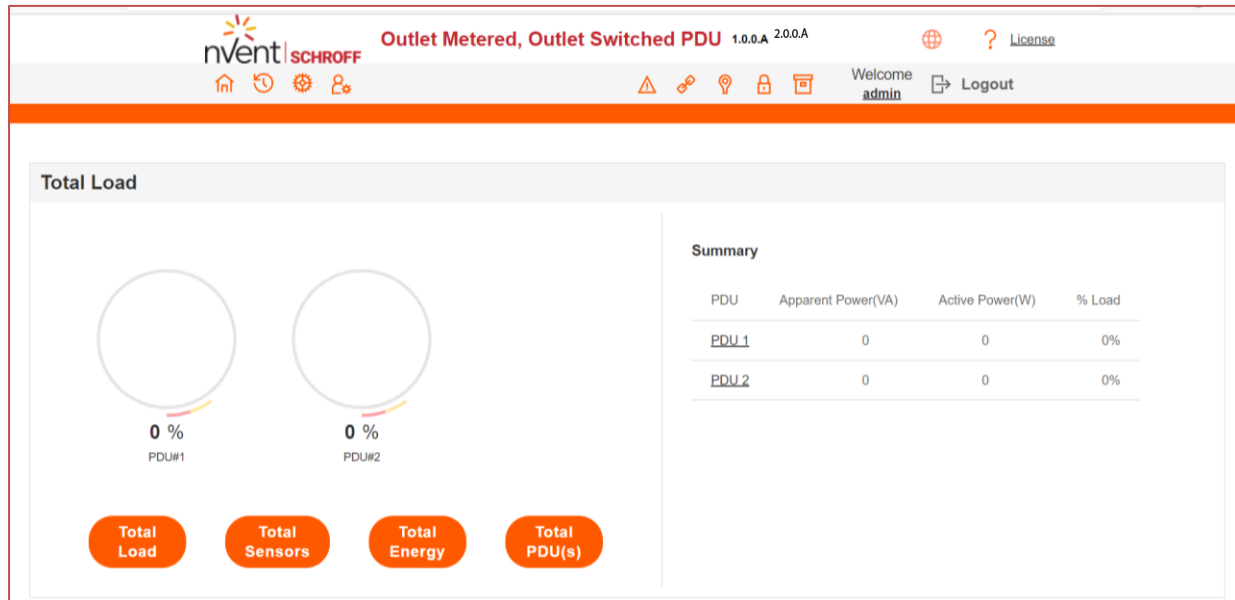
A total of sixteen (16) user accounts can be created. These users can log in at the same time.





The default setting has three (3) accounts: ADMIN, MANAGER, USER








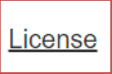

- ADMIN: has all privileges including Redfish
- MANAGER: has all privileges including Redfish (This user level is intended for management of Redfish API)
- USER: has read-only access

## 6.2 Navigating through the Web UI

### 6.2.1 Main Landing page



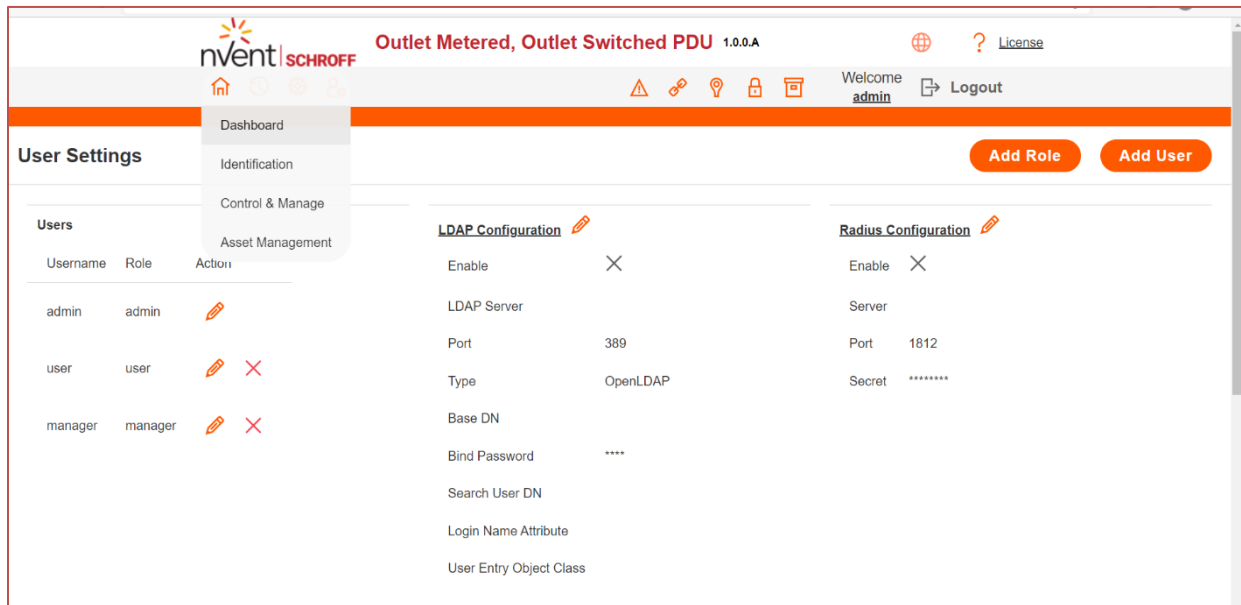
Icons	Description
	<b>Home Icon</b> Click Home icon to redirect/move to the home page. Home page provides an overview of the PDU with access to the Dashboard, Identification, and Control & Manage.
	<b>Logs icon</b> Click this icon to view and download the logs and data logs of the PDU.
	<b>Settings Icon</b> This settings icon allows the user to setup the Network Settings, System Management, SNMP Manager, Email Setup, Event Notifications, Trap Receiver, Thresholds, Rack Access Control and Smart Rack Control
	<b>User Settings Icon</b> Click this icon to view the logged-in user or admin or manager. The user can also change the account passwords and manage user accounts through this page. Users and Roles can be added.

	<p><b>Alarms</b>  Click this Alarm icon to view the details of the active critical alarms and active warning alarms.  The Alarms are configured, based on different Thresholds which are set by the user on different parameters like Power, Voltage, Input Phase, Circuit Breaker and External Sensors.  Icon colors can be changed based on PDU alarm status. Critical Alarm always has high precedence over warnings.  <b>Red</b> - Critical Alarms  <b>Yellow</b> - Warnings</p>
	<p><b>Link</b>  This Icon indicates the cascade connection status alarms.</p>
	<p><b>Sensor Warning</b>  This icon represents the sensor related alarms like:</p> <ul style="list-style-type: none"> <li>• Temp</li> <li>• Humidity</li> <li>• Dry</li> </ul>
	<p>This icon indicates the Door and HID sensor status alarms.</p>
	<p>This icon indicates the CB and Outlet status alarms.</p>
	<p>This icon allows the user to select a Language.  Currently seven languages are available to choose: English, French, Italian, Korean, German, Spanish, Japanese and Chinese.</p>
	<p>Click this icon to find Information about the PDU.  <a href="https://schroff.nvent.com/en-us/products/power-distribution-units">https://schroff.nvent.com/en-us/products/power-distribution-units</a></p>
	
	<p>This help logout from the site.</p>

## 6.2.2 Dashboard

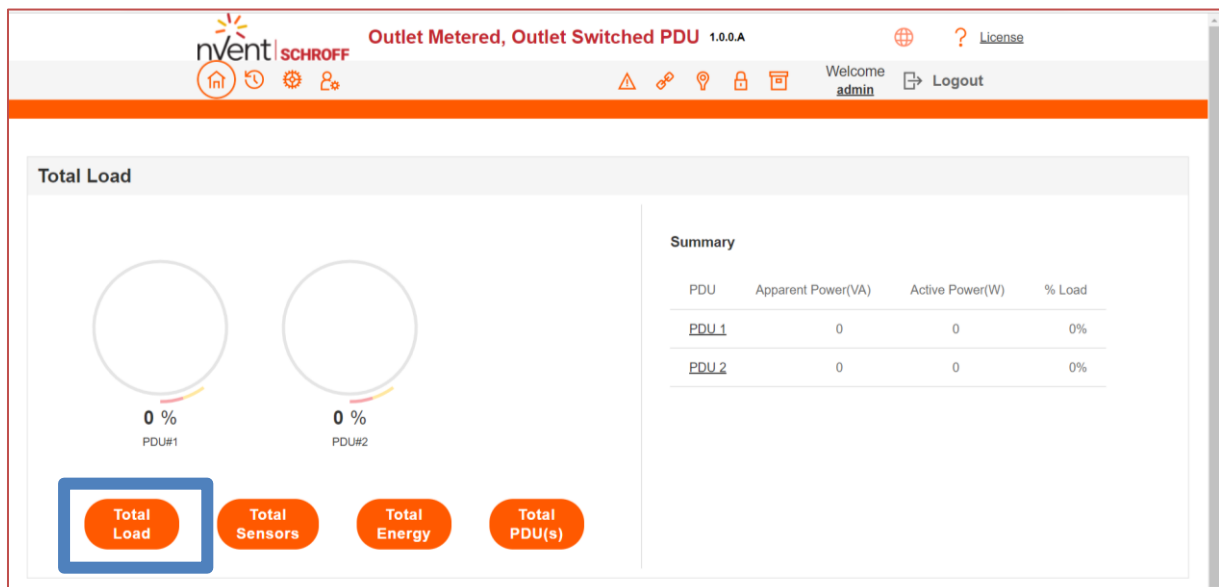
Click on the Home icon to dropdown the menu.

Select Dashboard to view information. The dashboard displays overall information captured for the PDUs.



The screenshot shows the nvent SCHROFF web interface. The top navigation bar includes the nvent SCHROFF logo, the title "Outlet Metered, Outlet Switched PDU 1.0.0.A", and a "License" link. Below the navigation bar, there are several icons for system status and user management. The "User Settings" menu is open, showing options for Dashboard, Identification, Control & Manage, and Asset Management. The "Dashboard" option is selected. The main content area displays the "LDAP Configuration" and "Radius Configuration" sections. The "LDAP Configuration" section includes fields for Enable, LDAP Server, Port (389), Type (OpenLDAP), Base DN, Bind Password (\*\*\*\*), Search User DN, Login Name Attribute, and User Entry Object Class. The "Radius Configuration" section includes fields for Enable, Server, Port (1812), and Secret (\*\*\*\*\*).

Select "Total Load" information about the "Total Load"



The screenshot shows the nvent SCHROFF web interface displaying the "Total Load" dashboard. The dashboard features two circular gauges for PDU#1 and PDU#2, both showing 0% load. Below the gauges, there are four buttons: "Total Load", "Total Sensors", "Total Energy", and "Total PDU(s)". The "Total Load" button is highlighted with a blue box. To the right of the gauges, there is a "Summary" table with the following data:

PDU	Apparent Power(VA)	Active Power(W)	% Load
PDU 1	0	0	0%
PDU 2	0	0	0%

Select to "TOTAL SENSORS" to view information about the Sensors available.

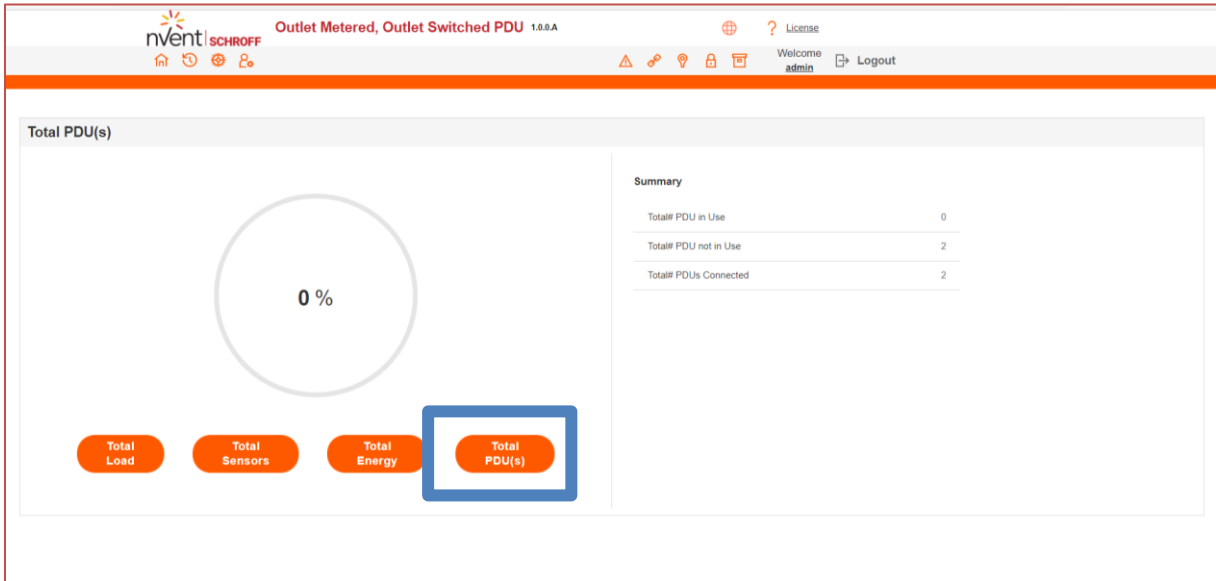
PDU Name	Sensor Name	Reading
PDU 1	T2	27.0°C
PDU 1	T3	28.0°C
PDU 1	RH	44%
PDU 1	DOOR SWITCH	Open
PDU 1	T5	28.0°C
PDU 2	TEMP3	27.0°C
PDU 2	RH	45%
PDU 2	DRYCONTACT	Off
PDU 2	T1	27.0°C
PDU 2	T2	28.0°C

Select to "TOTAL ENERGY" to view information about the PDU ENERGY utilized.

PDU Name	Total Energy(kWh)	Energy(kWh) [Since]
PDU 1	0	0 [2022/06/22 09:52:27]
PDU 2	0	0 [2022/06/22 09:55:59]

**NOTE**  
The page shows energy accumulation at each PDU level as well as sum of all PDU energy. Legend information summarize energy information by PDU. Mousehover on Legend or Bar will display energy value in kWh. Color code may repeat over again if system is connected with morethan 6 PDU. Color is just used here for graphics not meant for anything else.

Select to "TOTAL PDU(s)" to view information about the PDUs connected.



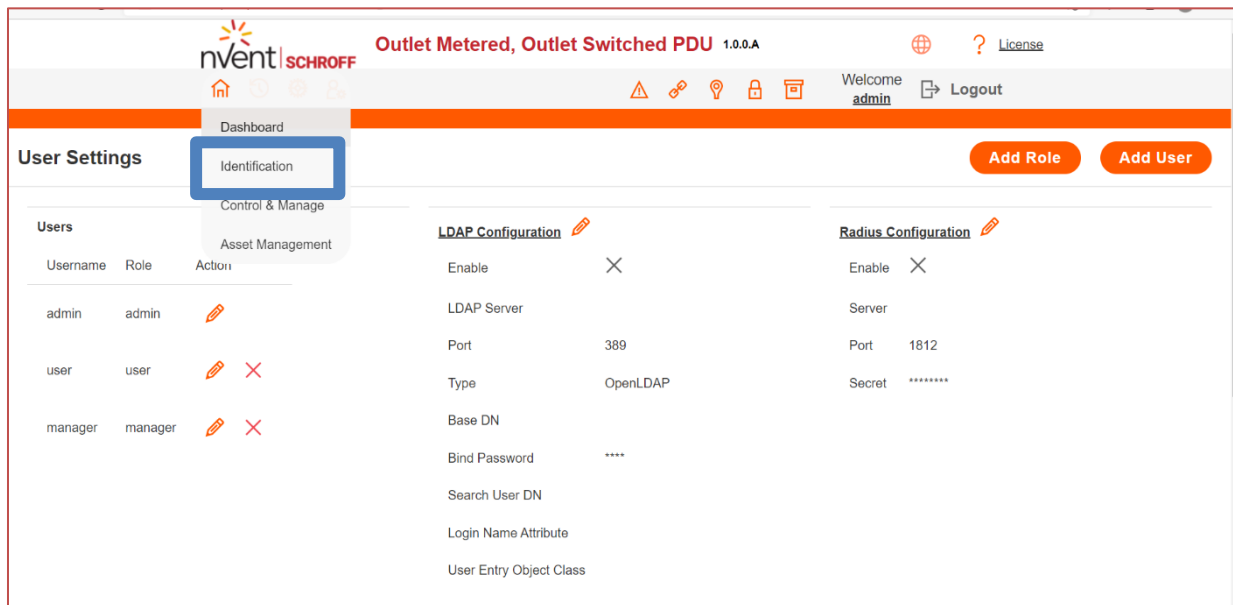
The screenshot shows the nVent SCHROFF web interface for an "Outlet Metered, Outlet Switched PDU 1.0.0.A". The page title is "Total PDU(s)". A large circular gauge displays "0 %". Below the gauge are four orange buttons: "Total Load", "Total Sensors", "Total Energy", and "Total PDU(s)". The "Total PDU(s)" button is highlighted with a blue border. To the right, a "Summary" table is visible.

Summary	
Total# PDU in Use	0
Total# PDU not in Use	2
Total# PDUs Connected	2

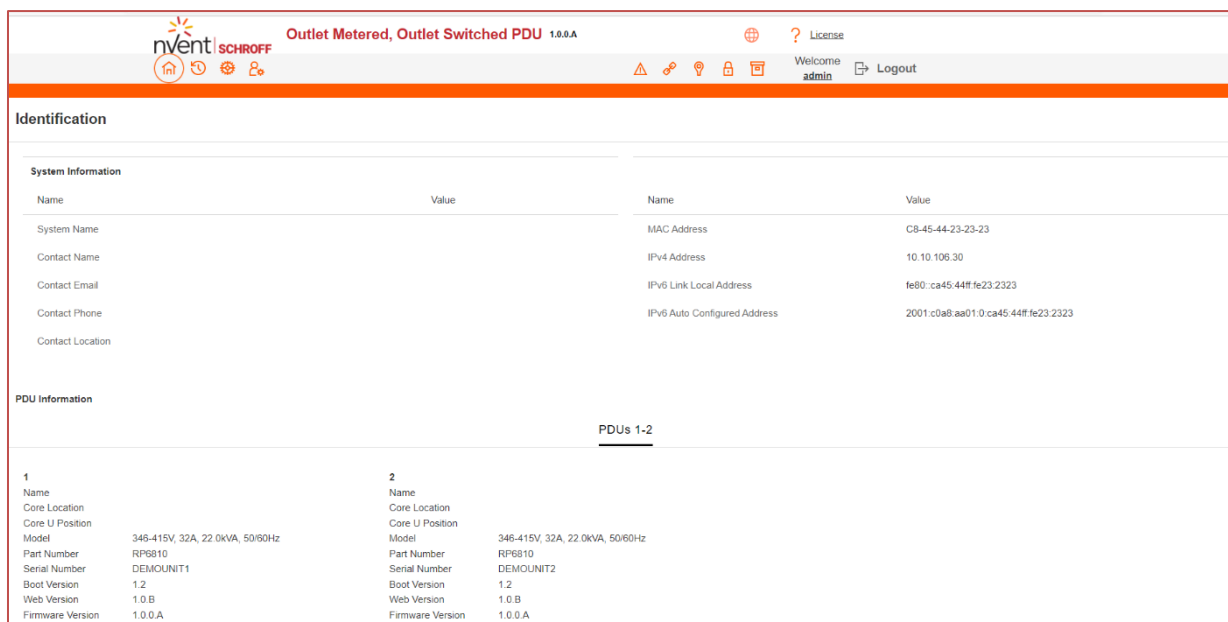
### 6.2.3 Identification

In this page, the user can view the System Information, and individual PDU Information.

- Click on the Home icon to dropdown the menu.
- Select Identification to view the information.



The screenshot shows the nvent SCHROFF web interface. The top navigation bar includes the logo, version '1.0.0.A', and user information 'Welcome admin'. The 'User Settings' section is active, with a dropdown menu for 'Identification' highlighted. The main content area is divided into three panels: 'Users', 'LDAP Configuration', and 'Radius Configuration'. The 'Users' panel shows a table with columns for Username, Role, and Action. The 'LDAP Configuration' panel shows fields for Enable, LDAP Server, Port, Type, Base DN, Bind Password, Search User DN, Login Name Attribute, and User Entry Object Class. The 'Radius Configuration' panel shows fields for Enable, Server, Port, and Secret.



The screenshot shows the nvent SCHROFF web interface with the 'Identification' page selected. The page is divided into two main sections: 'System Information' and 'PDU Information'. The 'System Information' section contains a table with columns for Name and Value, listing various system details. The 'PDU Information' section is titled 'PDUs 1-2' and contains two columns of information for PDU 1 and PDU 2, listing details like Name, Core Location, Core U Position, Model, Part Number, Serial Number, Boot Version, Web Version, and Firmware Version.

Name	Value	Name	Value
System Name		MAC Address	C8-45-44-23-23-23
Contact Name		IPv4 Address	10.10.106.30
Contact Email		IPv6 Link Local Address	fe80:ca45:44ff:fe23:2323
Contact Phone		IPv6 Auto Configured Address	2001:c0a8:aa01:0:ca45:44ff:fe23:2323
Contact Location			

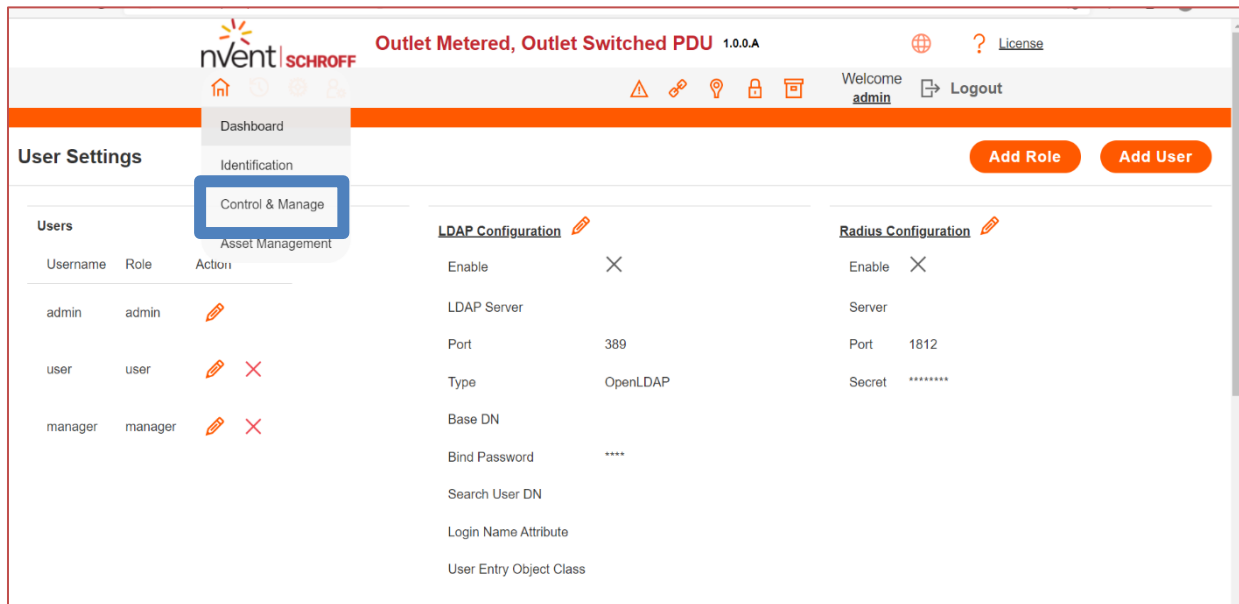
  

1		2	
Name		Name	
Core Location		Core Location	
Core U Position		Core U Position	
Model	346-415V, 32A, 22.0kVA, 50/60Hz	Model	346-415V, 32A, 22.0kVA, 50/60Hz
Part Number	RP6810	Part Number	RP6810
Serial Number	DEMOUNIT1	Serial Number	DEMOUNIT2
Boot Version	1.2	Boot Version	1.2
Web Version	1.0.B	Web Version	1.0.B
Firmware Version	1.0.0.A	Firmware Version	1.0.0.A

## 6.2.4 Control and Manage

In this page, the user can view and control the Power Outlet of the PDU.

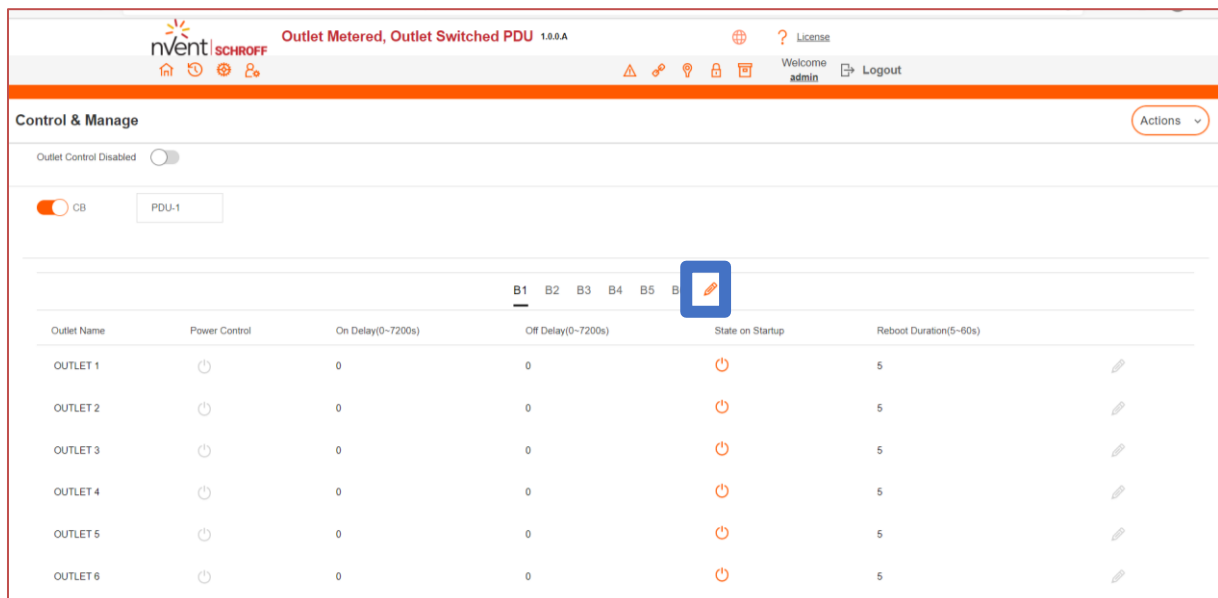
- Click on the Home icon to dropdown the menu.
- Select Control & Manage.
- Enable the Outlet Control Enabled.



The screenshot shows the nvent SCHROFF web interface for 'Outlet Metered, Outlet Switched PDU 1.0.0.A'. The user is logged in as 'admin'. A dropdown menu is open, and the 'Control & Manage' option is highlighted with a blue box. Other options in the menu include 'Dashboard', 'Identification', and 'Asset Management'. The main content area shows 'User Settings' with a table of users and configuration sections for LDAP and Radius.

Username	Role	Action
admin	admin	
user	user	
manager	manager	

This page can be viewed in two separate modes by enabling the CB to Bank mode.



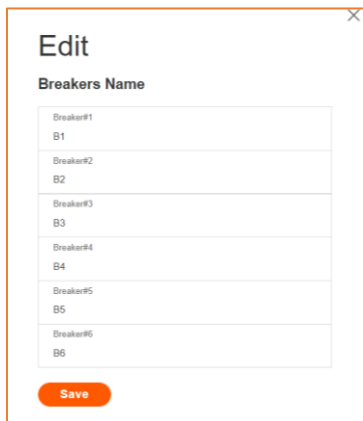
The screenshot shows the 'Control & Manage' page. The 'Outlet Control Disabled' toggle is turned off. The 'CB' toggle is turned on. A dropdown menu is open, and the 'B1' option is highlighted with a blue box. Below the menu is a table of outlets.

Outlet Name	Power Control	On Delay(0~7200s)	Off Delay(0~7200s)	State on Startup	Reboot Duration(5~60s)	
OUTLET 1		0	0		5	
OUTLET 2		0	0		5	
OUTLET 3		0	0		5	
OUTLET 4		0	0		5	
OUTLET 5		0	0		5	
OUTLET 6		0	0		5	



Click the edit icon to edit/change the Outlet information below,

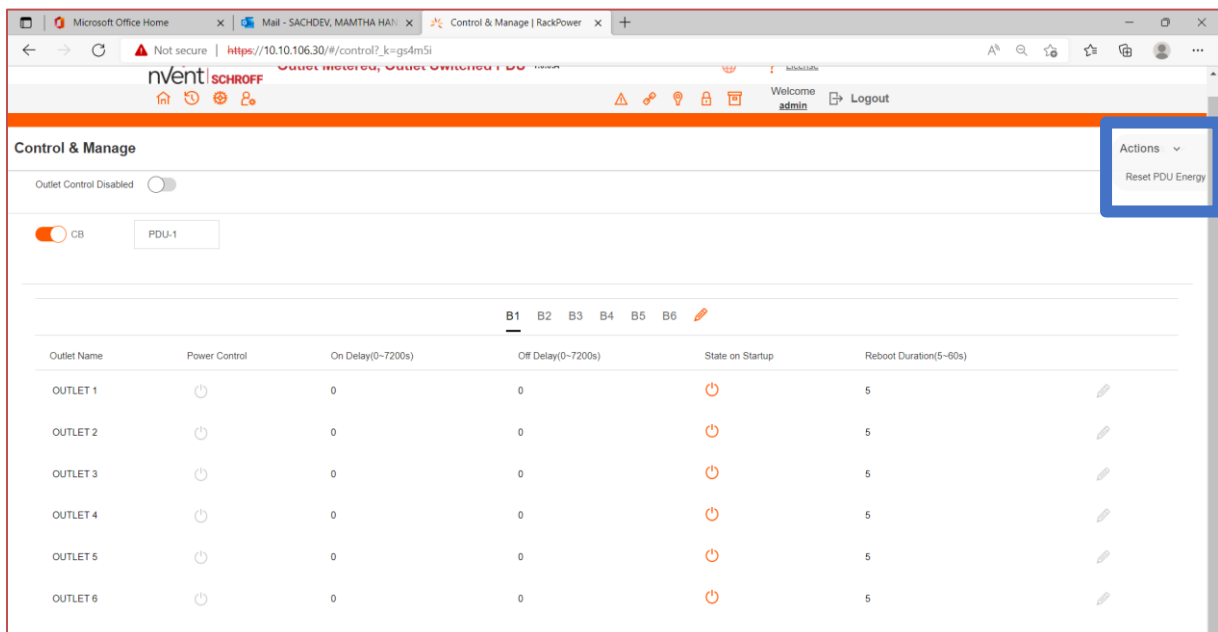
- Outlet name to identify the outlet
- On delay time (0-7200 seconds)
- Off delay time (0-7200 seconds)
- State on startup (On, Off, and last known can be selected)
- Reboot duration (configure time between 5 to 60 seconds)



Breaker#1	Breaker#2	Breaker#3	Breaker#4	Breaker#5	Breaker#6
B1	B2	B3	B4	B5	B6

Save

On the top right side of the Control & Manage page there is an Action icon, to Reset PDU Energy.



Control & Manage

Outlet Control Disabled

CB PDU-1

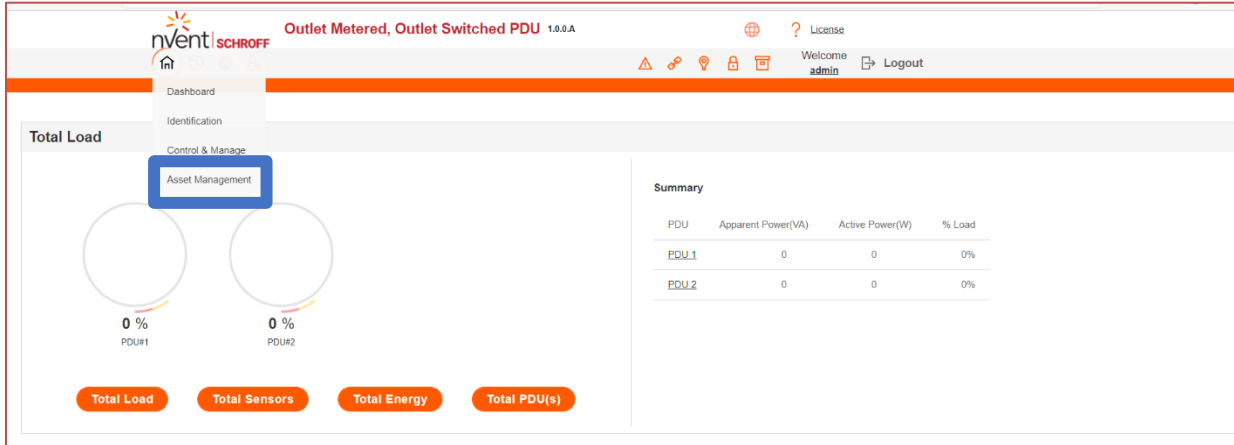
		B1	B2	B3	B4	B5	B6	
Outlet Name	Power Control	On Delay(0-7200s)	Off Delay(0-7200s)	State on Startup	Reboot Duration(5-60s)			
OUTLET 1		0	0		5			
OUTLET 2		0	0		5			
OUTLET 3		0	0		5			
OUTLET 4		0	0		5			
OUTLET 5		0	0		5			
OUTLET 6		0	0		5			

Actions

Reset PDU Energy

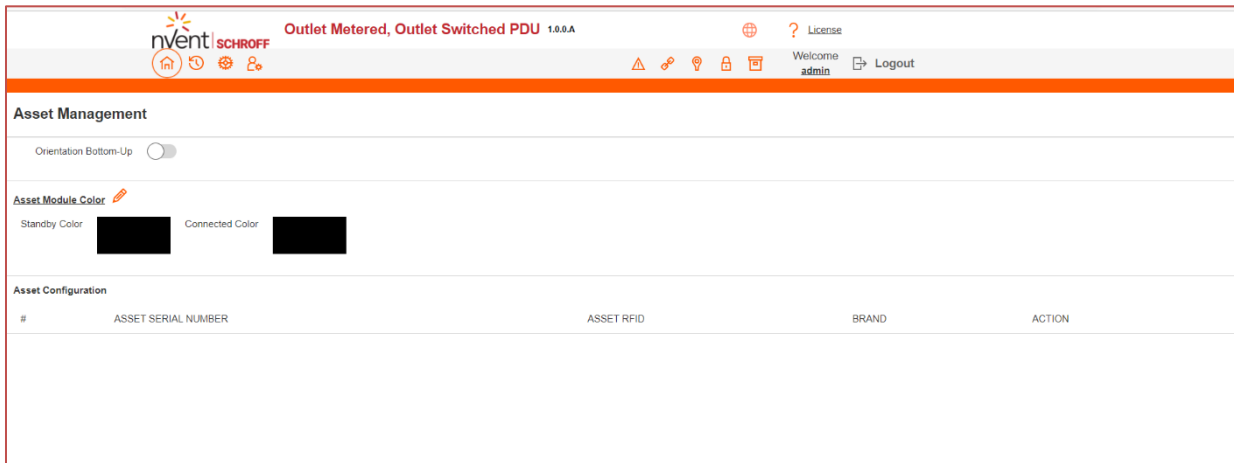
## 6.2.5 Asset Management

In this page, the user can view and control the Asset Configurations of the PDU.



The screenshot shows the 'Total Load' section of the PDU dashboard. A blue box highlights the 'Asset Management' option in the left-hand menu. Below the menu, there are two circular gauges for PDU#1 and PDU#2, both showing 0% load. At the bottom, there are four orange buttons: 'Total Load', 'Total Sensors', 'Total Energy', and 'Total PDU(s)'. On the right side, there is a 'Summary' table with the following data:

PDU	Apparent Power(VA)	Active Power(W)	% Load
PDU_1	0	0	0%
PDU_2	0	0	0%



The screenshot shows the 'Asset Management' configuration page. It includes a toggle for 'Orientation Bottom-Up', a section for 'Asset Module Color' with 'Standby Color' and 'Connected Color' swatches, and an 'Asset Configuration' table. The table has the following columns: '#', 'ASSET SERIAL NUMBER', 'ASSET RFID', 'BRAND', and 'ACTION'. The table is currently empty.

#	ASSET SERIAL NUMBER	ASSET RFID	BRAND	ACTION
---	---------------------	------------	-------	--------

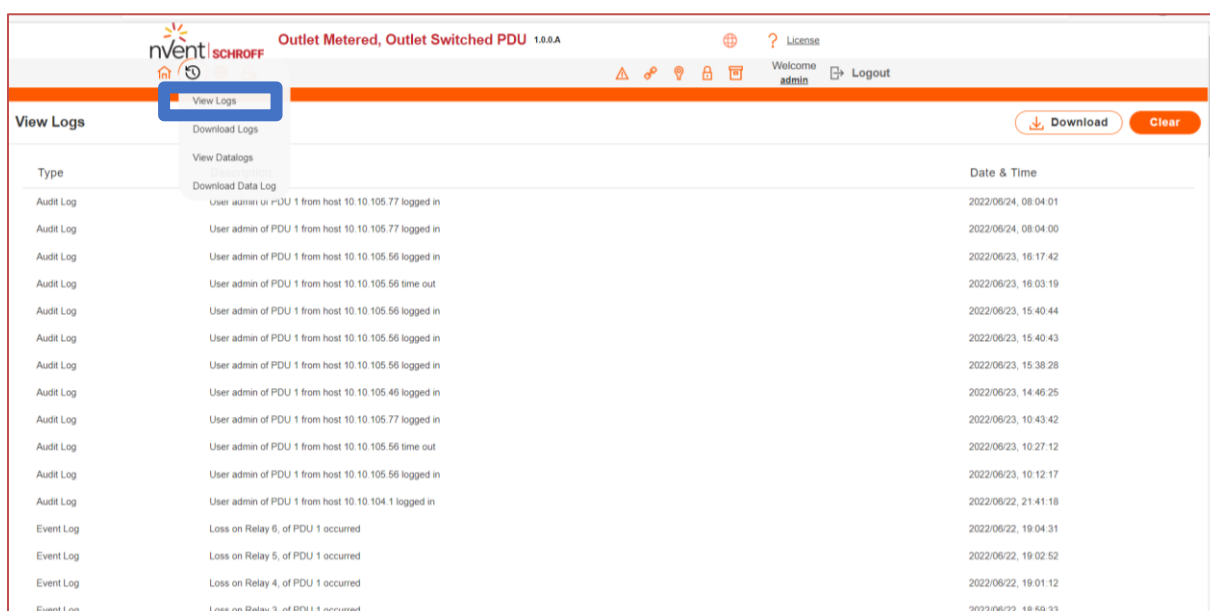
## 6.3 System Administration

### 6.3.1 View Logs

In this page, the user can view, download, and clear the Actions performed by the PDU.

Some of the actions performed by the PDU are: Generating Event, Audit and Application logs and recording Power Share details.

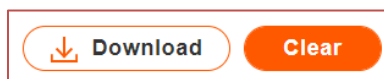
- Click on the System Administration icon to dropdown the System Administration menu.
- Select the View Logs to view the information.



Type		Date & Time
Audit Log	User admin on PDU 1 from host 10.10.105.77 logged in	2022/06/24, 08:04:01
Audit Log	User admin of PDU 1 from host 10.10.105.77 logged in	2022/06/24, 08:04:00
Audit Log	User admin of PDU 1 from host 10.10.105.56 logged in	2022/06/23, 16:17:42
Audit Log	User admin of PDU 1 from host 10.10.105.56 time out	2022/06/23, 16:03:19
Audit Log	User admin of PDU 1 from host 10.10.105.56 logged in	2022/06/23, 15:40:44
Audit Log	User admin of PDU 1 from host 10.10.105.56 logged in	2022/06/23, 15:40:43
Audit Log	User admin of PDU 1 from host 10.10.105.56 logged in	2022/06/23, 15:38:28
Audit Log	User admin of PDU 1 from host 10.10.105.46 logged in	2022/06/23, 14:46:25
Audit Log	User admin of PDU 1 from host 10.10.105.77 logged in	2022/06/23, 10:43:42
Audit Log	User admin of PDU 1 from host 10.10.105.56 time out	2022/06/23, 10:27:12
Audit Log	User admin of PDU 1 from host 10.10.105.56 logged in	2022/06/23, 10:12:17
Audit Log	User admin of PDU 1 from host 10.10.104.1 logged in	2022/06/22, 21:41:18
Event Log	Loss on Relay 6, of PDU 1 occurred	2022/06/22, 19:04:31
Event Log	Loss on Relay 5, of PDU 1 occurred	2022/06/22, 19:02:52
Event Log	Loss on Relay 4, of PDU 1 occurred	2022/06/22, 19:01:12
Event Log	Loss on Relay 3, of PDU 1 occurred	2022/06/22, 18:59:33

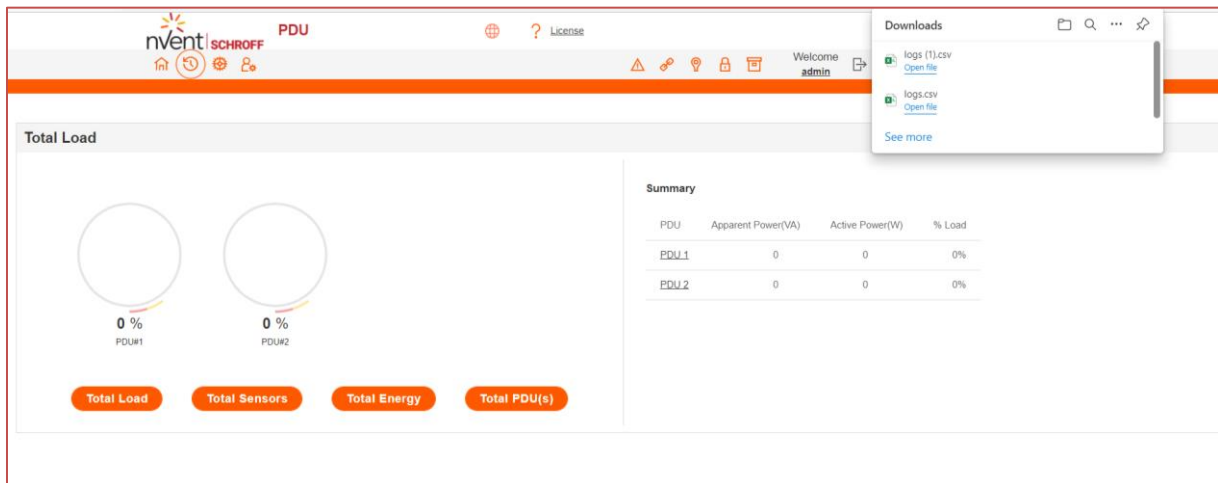
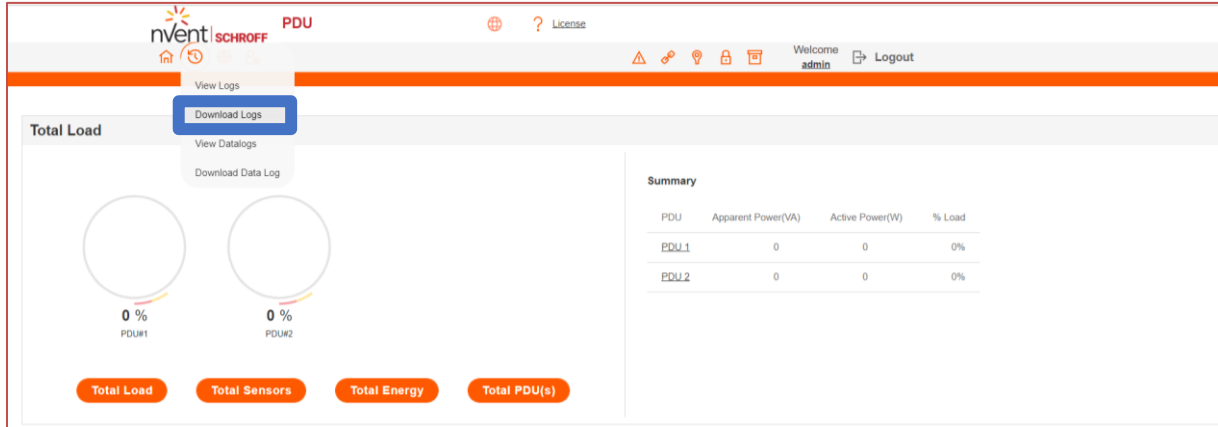
On the top-right side of the view log page, Click the below options as required:

- Download Log: to download the logs
- Clear Log: to delete/clear the logs.



### 6.3.2 Download Logs

When you click on Download Logs option, the user downloads a Logs.csv file for offline preview.



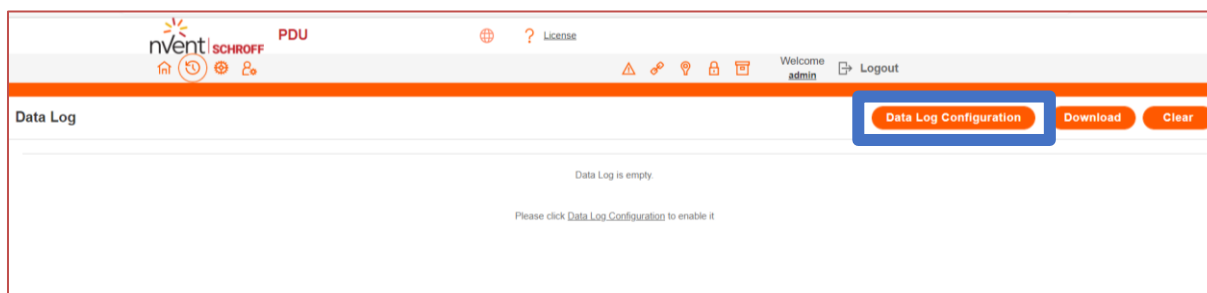
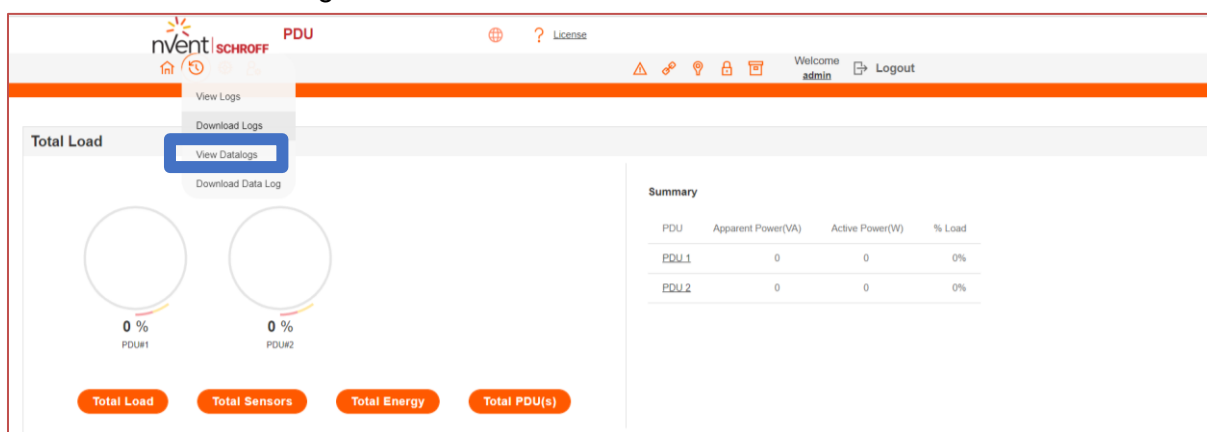
### 6.3.3 View Data Logs

In this page, the user can view, configure, download, and clear the data recorded by the PDU.

The Data recorded by the PDU are:

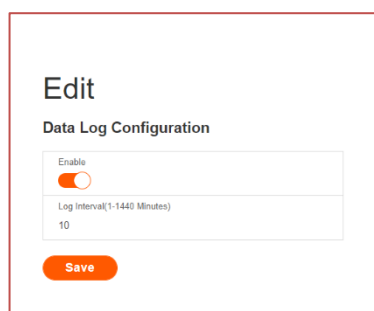
- Energy information
- Power information
- Date and Time information

Click on the System Administration icon to dropdown the System Administration menu. Select the View Data Logs to view the information.



On the top- right side of the View Data Log page, Click the below options as required:

- Data Log Configuration  
This button allows us to:
  - Enable Data Log Configuration if data log is required.
  - Log Interval time that needs to be recorded
  - Download Data Log: to download the logs
  - Clear Data Log: to delete/clear the logs

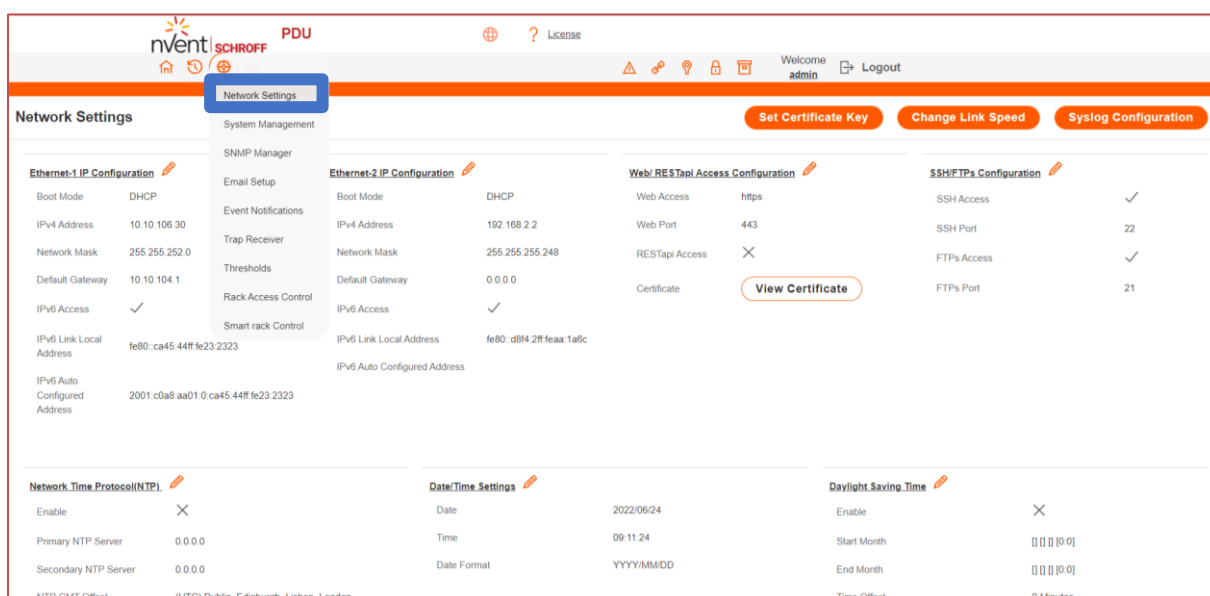


## 6.4 Network Settings

This page allows the management of IP Configuration, Web RESTapi Access Configuration, SSH/FTPs Configuration, Network Time Protocol (NTP), Date/Time Settings and Daylight-Savings Time.

This PDU supports IPv4 and IPv6 with full featured network management and alerting capabilities. After you select your Internet protocol option, you will be able to communicate via HTTP, HTTPS, SNMP, FTPS and Email for network communications.

- Click on the Settings icon to dropdown the Settings menu.
- Select the Network Settings to view the information.



The screenshot displays the 'Network Settings' page of the nvent SCHROFF PDU. The page is organized into several configuration panels:

- Ethernet-1 IP Configuration:**
  - Boot Mode: DHCP
  - IPv4 Address: 10.10.106.30
  - Network Mask: 255.255.252.0
  - Default Gateway: 10.10.104.1
  - IPv6 Access:
  - IPv6 Link Local Address: fe80::ca45:44ff:fe23:2323
  - IPv6 Auto Configured Address: 2001::c0a8:aa01:0:ca45:44ff:fe23:2323
- Ethernet-2 IP Configuration:**
  - Boot Mode: DHCP
  - IPv4 Address: 192.168.2.2
  - Network Mask: 255.255.255.248
  - Default Gateway: 0.0.0.0
  - IPv6 Access:
  - IPv6 Link Local Address: fe80::d8f4:2ff:feaa:1af6
  - IPv6 Auto Configured Address: (empty)
- Web/ RESTapi Access Configuration:**
  - Web Access: https
  - Web Port: 443
  - RESTapi Access:
  - Certificate: [View Certificate](#)
- SSH/FTPs Configuration:**
  - SSH Access:
  - SSH Port: 22
  - FTPs Access:
  - FTPs Port: 21
- Network Time Protocol (NTP):**
  - Enable:
  - Primary NTP Server: 0.0.0.0
  - Secondary NTP Server: 0.0.0.0
  - NTP GMT Offset: (UTC) Dublin, Edinburgh, Lisbon, London
- Date/Time Settings:**
  - Date: 2022/06/24
  - Time: 09:11:24
  - Date Format: YYYY/MM/DD
- Daylight Saving Time:**
  - Enable:
  - Start Month:
  - End Month:
  - Time Offset: 0 Minutes

### 6.4.1 Ethernet IP Configuration

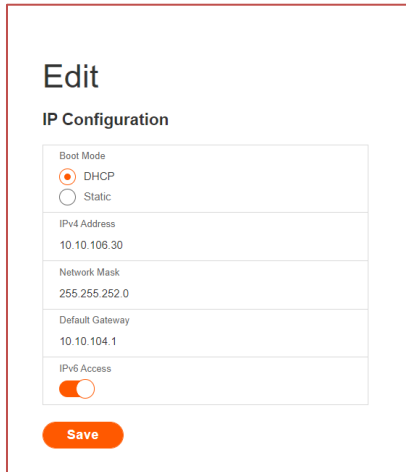
Click the edit icon to edit/change the IP Configuration information below:

Select Static to manually and type the following information:

- IPv4 address
- Network Mask
- Default Gateway

Select DHCP, if you wish to auto-configure the PDU IP address.

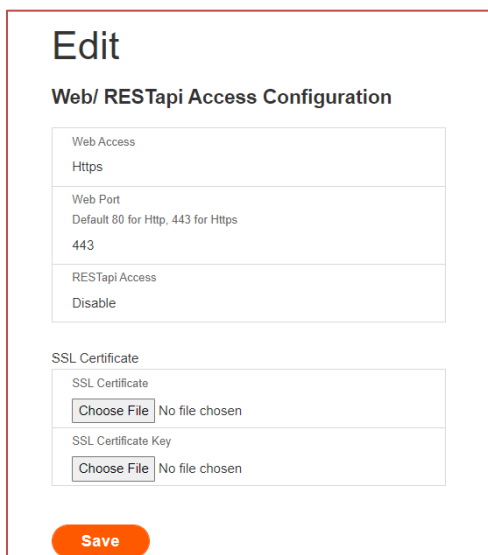
Click Save button to complete setting.



By default, accessing the PDU uses HTTPS port setting.

Click the edit icon to edit/change the Web/RESTapi Access Configuration information below,

- Web Access (HTTP or HTTPS)
- Web Port (Default 80 for HTTP, and 443 for HTTPS).
- Enable RESTapi Access.
- To access the HTTPS settings, upload the SSL Certificate and SSL Certificate Key provided by nVent.
- Click Save button to complete setting.



### 6.4.2 Network Time Protocol (NTP)

The PDU can be linked to a Network Time Protocol (NTP) server and let it set the date and time.

Click the edit icon to edit/change the NTP Setting information below,

- Enable the NTP settings.
- To synchronize the PDU time with a selected server,  
Type the valid Primary NTP server address  
Type the valid Secondary NTP server address
- Select the desired NTP GMT offset time from the dropdown list.
- Click Test button to check if the network is valid or not.
- Click Save button to complete setting.

### Edit

**Network Time Protocol(NTP)**

Enable <input type="checkbox"/>
Primary NTP Server 0.0.0.0
Secondary NTP Server 0.0.0.0
NTP GMT Offset (UTC) Dublin, Edinburgh, Lisbon, London

Test
Save

### 6.4.3 Date/Time Setting

To set the internal clock on the PDU manually, click the edit icon to edit/change the Date/Time Setting information below.

- Type the Date in YYYY-MM-DD format or use the calendar icon.
- Type the Time in HH: MM: SS format and time is measured in 24-hour format.
- Click Save button to complete setting.

### Edit

**Date/Time Settings**

Date 2022/06/24 <span style="float: right;">📅</span>
Time HH:MM:SS 09:15:52 <span style="float: right;">🕒</span>
Date Format Supported format is [YYYY/MM/DD]

Save



### 6.4.4 Edit/change the Daylight-Saving Time

Click the edit icon to edit/change the Daylight-Saving Time information below,

- Enable the Daylight-Saving Time.
- Select the specifics of the Start Month:  
Month  
Week  
Day  
Time
- Select the specifics of the End Month:  
Month  
Week  
Day  
Time
- Assign the Time Offset.
- Click Save button to complete setting.

## Edit

### Daylight Saving Time

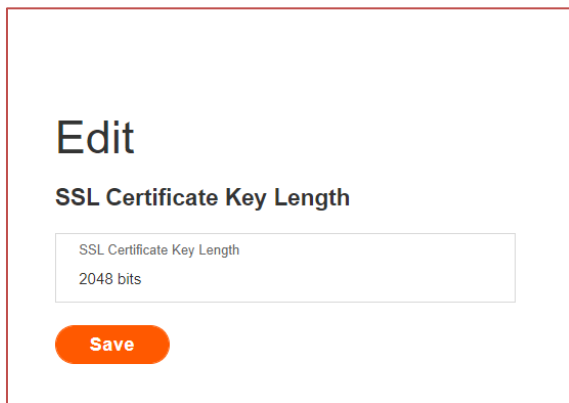
Enable
<input type="checkbox"/>
Start Month
Select
Select
Select
0:0:0
End Month
End Month::Week::Day::Time
Select
Select
Select
0:0:0
Time Offset
Select

**Save**

### 6.4.5 Set Certificate Key Length

On the top- right side of the Network Settings page, click on the button “Set Certificate Key” to edit SSL Certificate Key Length.

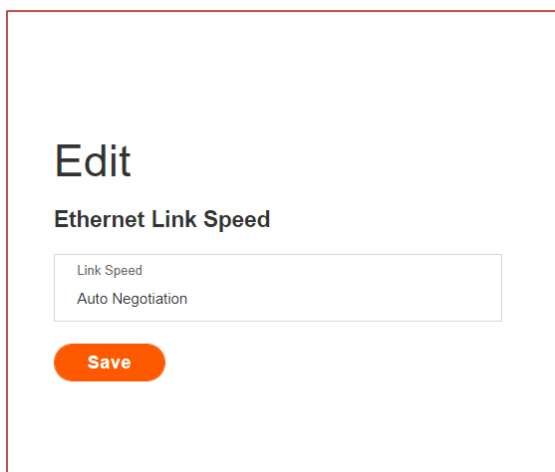
- Select bits (1024/2048) from dropdown menu.
- Click Save button to complete setting.



### 6.4.6 Change Link Speed

On the top- right side of the Network Settings page, click on the button “Change Link Speed” to change the Ethernet link speed.

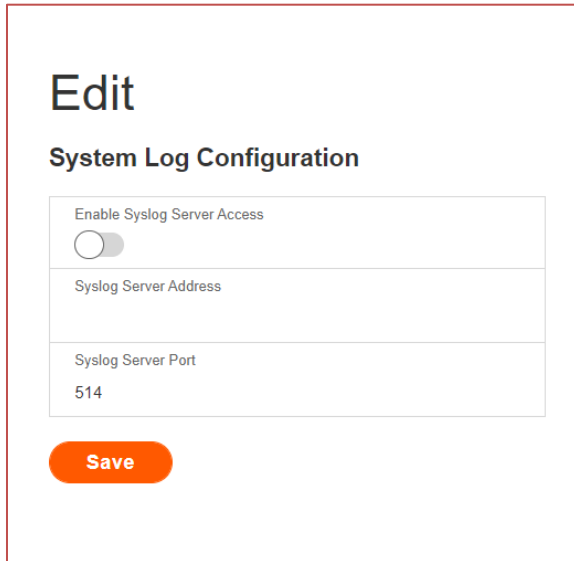
- Click Change Link Speed button.
- Select speed (as required below) from dropdown menu.
  - Auto Negotiation
  - 10/100 Mbps
  - 1 Gbps
- Click Save button to complete setting.



### 6.4.7 Syslog Configuration

On the top- right side of the Network Settings page, click on the button “Syslog Configuration” to configure the Syslog.

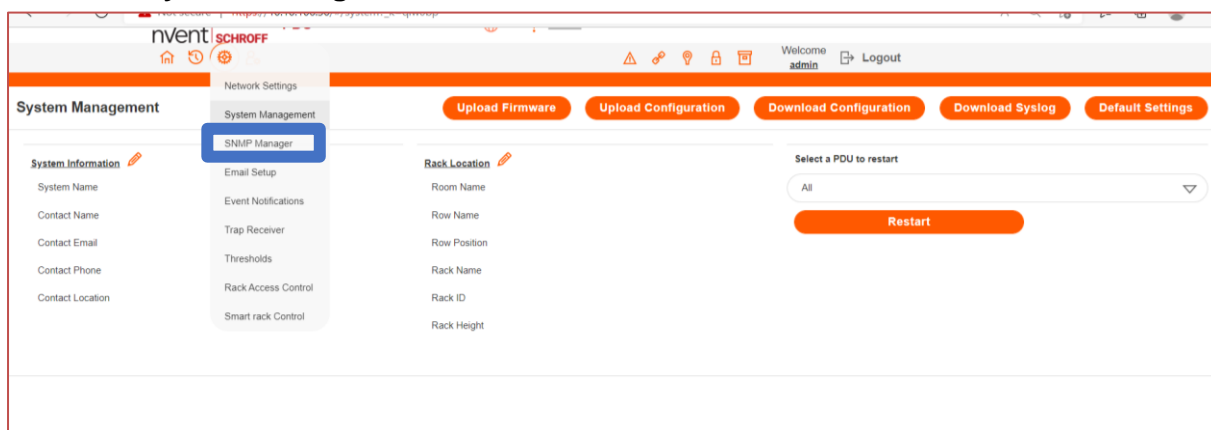
- Enable the Enable Syslog Server Access.
- Type the Syslog Server Address.
- Select Syslog Server Port number.
- Click Save button to complete setting.

A screenshot of the "Edit System Log Configuration" page. The page has a white background with a red border. At the top left, the word "Edit" is displayed in a large, bold, black font. Below it, the title "System Log Configuration" is shown in a smaller, bold, black font. The configuration area consists of three stacked input fields. The first field is labeled "Enable Syslog Server Access" and contains a toggle switch that is currently turned off. The second field is labeled "Syslog Server Address" and is empty. The third field is labeled "Syslog Server Port" and contains the number "514". At the bottom left of the form, there is a red, rounded rectangular button with the word "Save" in white text.

## 6.5 System Management

This page allows the user to perform functions like, **Uploading Firmware, Uploading Configuration, Downloading Configuration** and setting the PDU to its **Default Settings**. It also allows the user to **Restart** the PDU.

1. Click on the **Settings icon** to dropdown the Settings menu.
2. Select the **System Management** to view the information.



3. Click the icon to edit/change the System Information

### Edit

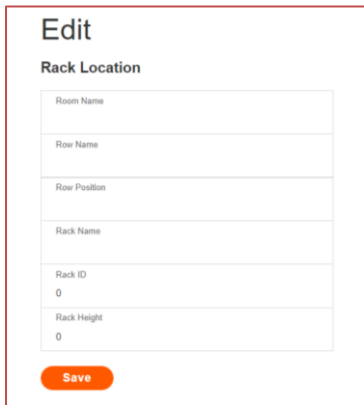
#### System Management

System Name
Contact Name
Contact Email
Contact Phone
Contact Location

Save

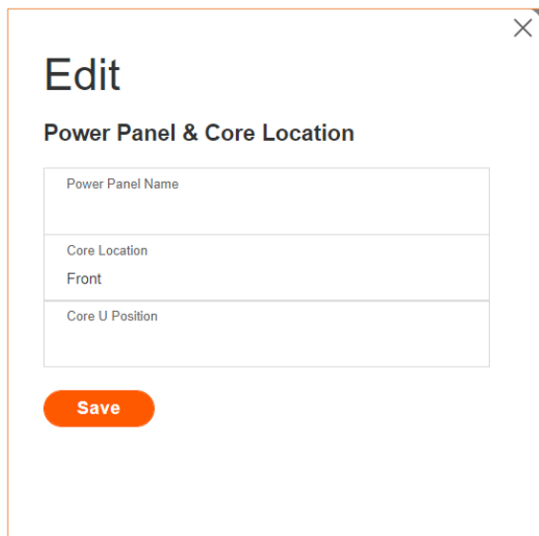
- Enter the System Name of the PDU for identification.
- Enter the Contact Name of the contact person.
- Enter the Contact Email of the contact person.
- Enter the Contact Phone of the contact person.
- Enter the Contact Location of the contact person.
- Click Save button to complete setting.

4. Click the edit icon to edit/change the Rack Location



- Enter the Room Name to identify the cabinet or room where the PDU is located.
- Enter the Row Name where the PDU is located on the rack.
- Enter the Row Position where the PDU is located on the rack.
- Enter the Rack Name where the PDU is located.
- Enter the Rack ID for identification of rack.
- Enter the Rack Height where the PDU is located on the rack.
- Click Save button to complete setting.

5. Click the edit icon to edit/change the Power Panel & Core Location information



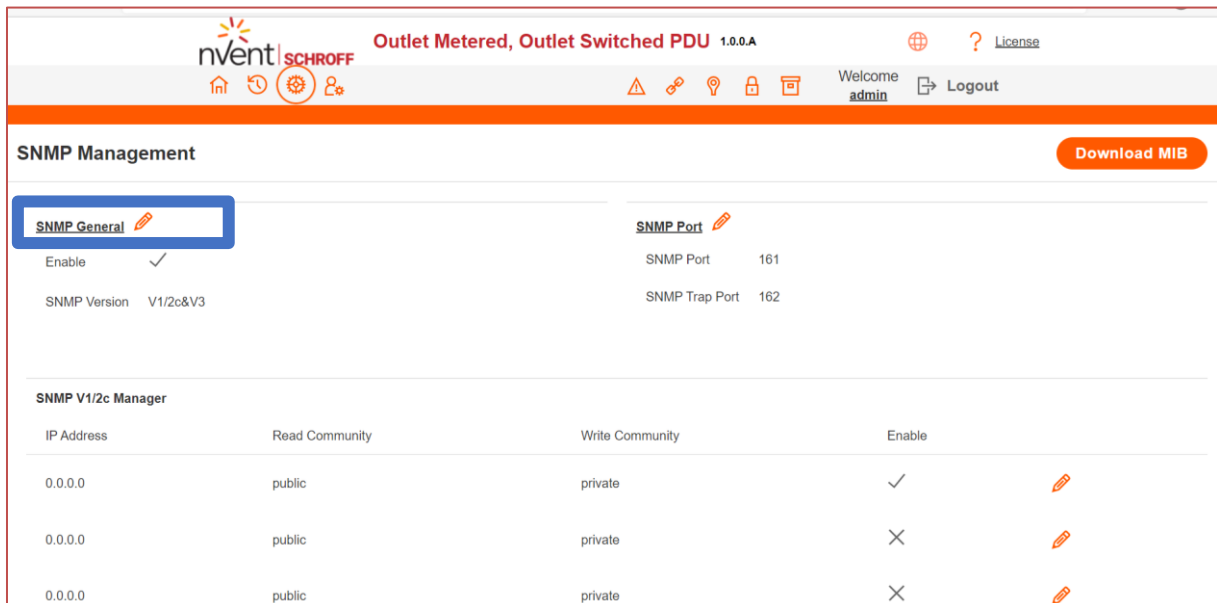
- Enter the Power Panel Name to identify the PDU.
- Select Core Location to identify which side the PDU is located Front or Back
- Enter Core U Position to identify the rack location.
- Click Save button to complete setting.

## 6.6 SNMP Management

This page allows the user to manage the transfer of data from the PDU to the MIB Browser. Simple Network Management Protocol (SNMP) is used to manage the RackPower PDU(s) remotely. SNMP allows the user to monitor and detect network faults and to even configure variable data in the PDU.

### 6.6.1 Enable SNMP

- Click on the **Settings icon** to dropdown the Settings menu.
- Select the **SNMP Management** to view the information.
- To access the PDU data inside a MIB Browser, click the edit icon to edit/change the **SNMP General**.
- Enable the SNMP General.
- Click Save button to complete setting.



**SNMP Management** Download MIB

**SNMP General**

Enable

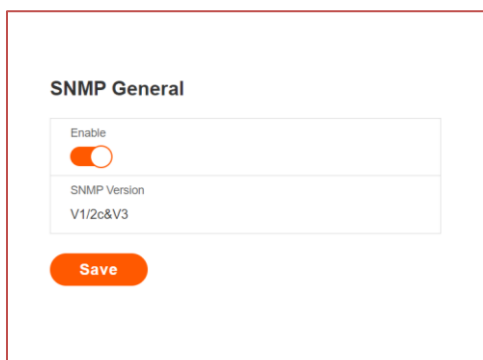
SNMP Version V1/2c&V3

**SNMP Port**

SNMP Port 161

SNMP Trap Port 162

SNMP V1/2c Manager				
IP Address	Read Community	Write Community	Enable	
0.0.0.0	public	private	✓	
0.0.0.0	public	private	✗	
0.0.0.0	public	private	✗	



**SNMP General**

Enable

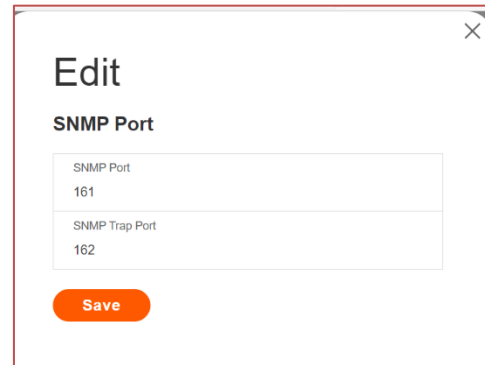
SNMP Version V1/2c&V3

**Save**

### 6.6.2 Edit/change the SNMP Port

To secure the link between the PDU and the MIB Browser, click the edit icon to edit/change the SNMP Port.

- Enter the SNMP Port number.
- Enter the SNMP Trap Port number.
- Click Save button to complete setting.



**Edit**

**SNMP Port**

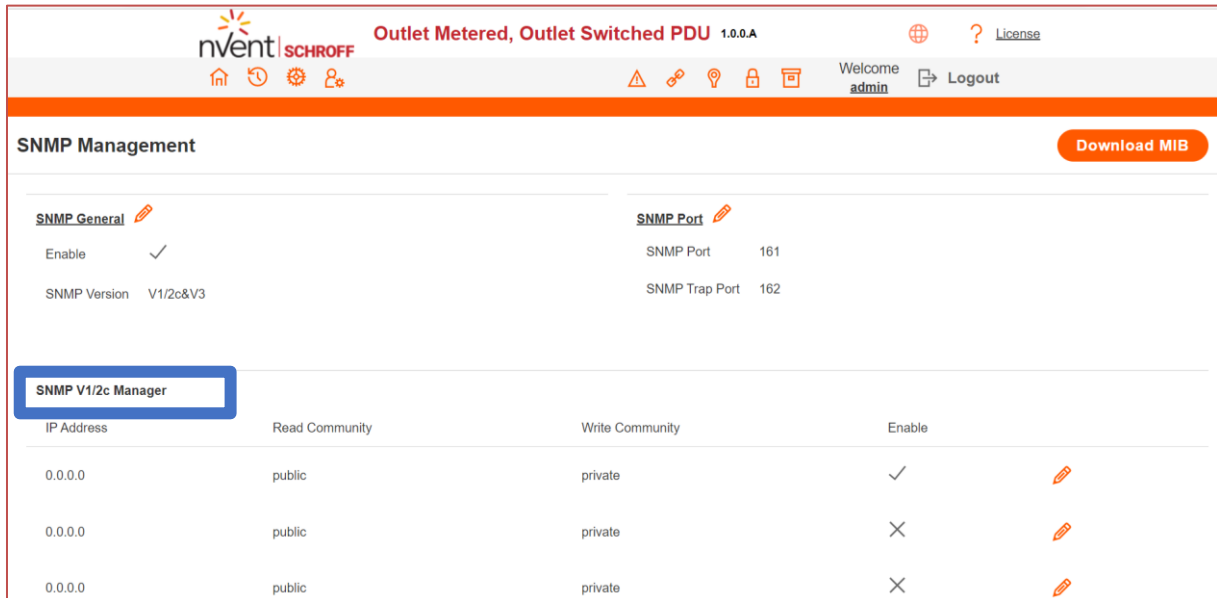
SNMP Port  
161

SNMP Trap Port  
162

**Save**

### 6.6.3 Configuring users for SNMP V1/V2c

Click the edit icon to edit/change the SNMP V1/2c Manager



**SNMP Management** **Download MIB**

**SNMP General**

Enable

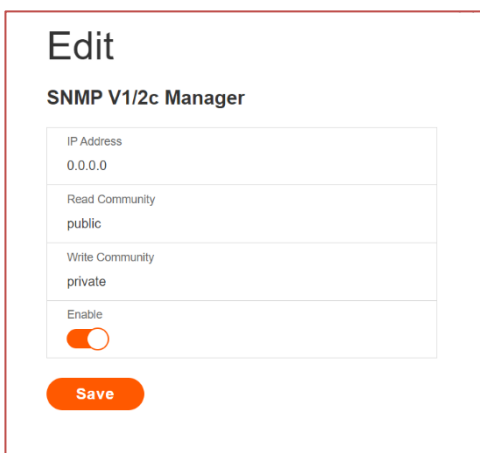
SNMP Version V1/2c&V3

**SNMP Port**

SNMP Port 161

SNMP Trap Port 162

IP Address	Read Community	Write Community	Enable	
0.0.0.0	public	private	✓	✎
0.0.0.0	public	private	✗	✎
0.0.0.0	public	private	✗	✎



**Edit**

**SNMP V1/2c Manager**

IP Address  
0.0.0.0

Read Community  
public

Write Community  
private

Enable

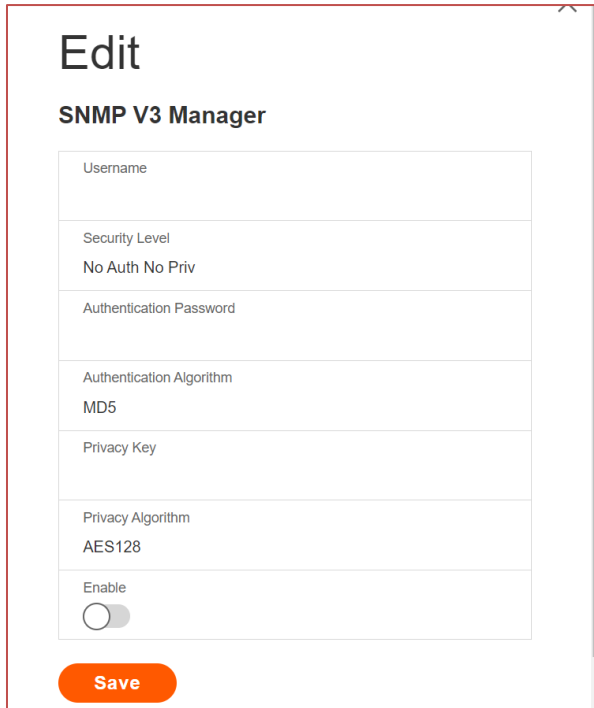
**Save**

- Enter the IP Address.
- Define the security to public or private in the Read Community Write Community
- Enable the SNMP V1/V2c.
- Click Save button to complete setting.

## 6.6.4 Edit/change the SNMP V3 Manager

Configuring users for SNMP V3 to ensure higher security of data transfer, to the MIB browser.

Click the edit icon to edit/change the SNMP V3 Manager



The screenshot shows a web interface for editing an SNMP V3 Manager. The title is 'Edit' and the subtitle is 'SNMP V3 Manager'. The form contains several fields: 'Username' (text input), 'Security Level' (dropdown menu with 'No Auth No Priv' selected), 'Authentication Password' (text input), 'Authentication Algorithm' (dropdown menu with 'MD5' selected), 'Privacy Key' (text input), 'Privacy Algorithm' (dropdown menu with 'AES128' selected), and an 'Enable' toggle switch which is currently turned off. At the bottom of the form is an orange 'Save' button.

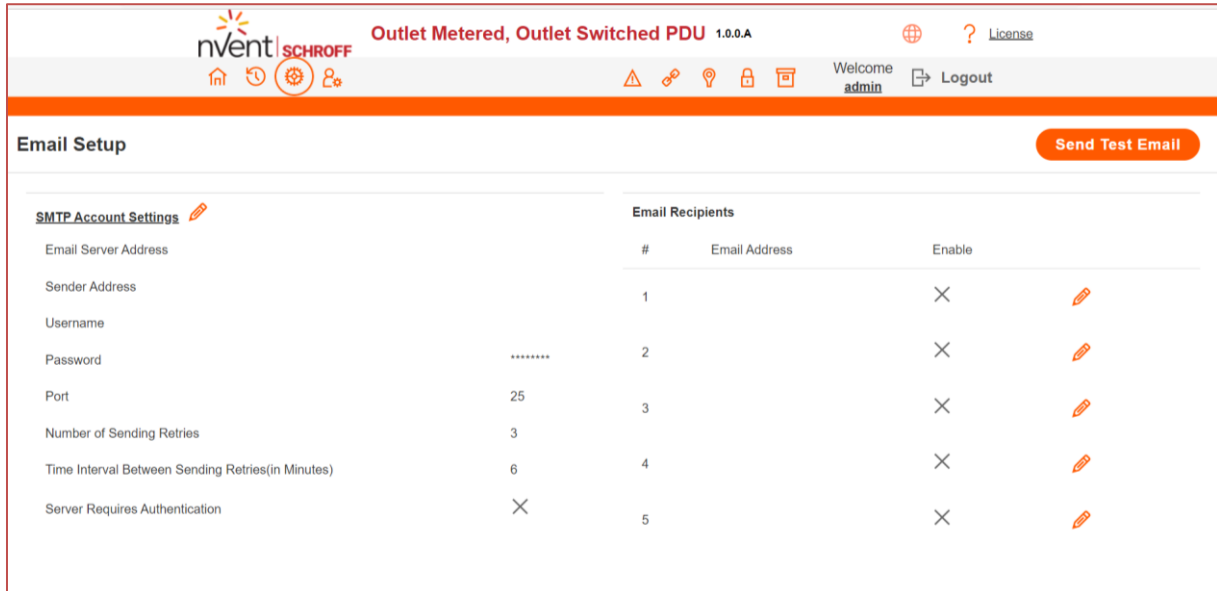
- Enter the Username.
- Assign the Security Level from the dropdown menu.  
NoAuthNoPriv: No authentication and no privacy. This is the default.  
AuthNoPriv: Authentication and no privacy.  
AuthPriv: Authentication and privacy.
- Type a new unique password as the Authentication Password.
- Select the Authentication Algorithm.  
MD5  
SHA
- Type a new unique password as the Privacy Key.
- Select the Privacy Algorithm.  
DES  
AES-128  
AES-192  
AES-256
- Enable the SNMP V3.
- Click Save button to complete setting.



## 6.7 Email Setup

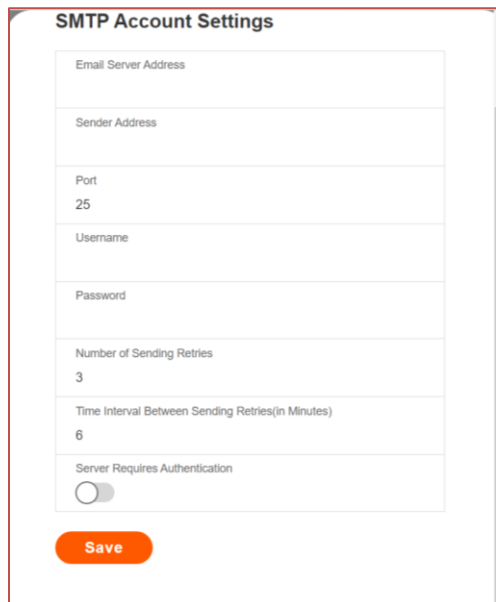
The user can configure the PDU to send alerts or event messages via email. To do this, the information about the Simple Mail Transfer Protocol (SMTP) server needs to be configured.

1. Click on the Settings icon to dropdown the Settings menu.
2. Select the Email Setup to view the information.



SMTP Account Settings		Email Recipients		
Email Server Address		#	Email Address	Enable
Sender Address		1		✗
Username		2		✗
Password	.....	3		✗
Port	25	4		✗
Number of Sending Retries	3	5		✗
Time Interval Between Sending Retries(in Minutes)	6			✗
Server Requires Authentication	✗			✗

3. To set the SMTP server settings to receive Emails and notifications, click the edit icon.

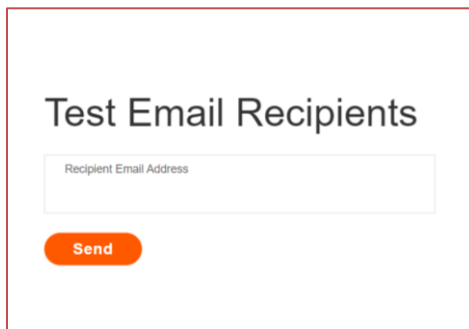


- Enter the Email Server Address, which is the IP address of the SMTP for accepting messages.
- Enter the Sender Address, which is the email address that the email is sent to.
- Configure the Port number, which is the communication endpoint on the server. The default is 25.
- Enter the Username for SMTP security.

- Enter the Password for SMTP security.
- Assign the Number of Sending Retries, which is the number of times the PDU will attempt to resend a message if the message fails. The default is 3.
- Type the Time Interval Between Sending Retries (in minutes). The default is 6 minutes.
- Enable the Server Requires Authentication to password protect the SMTP.
- Click Save button to complete setting.

On the top- right side of the Email Setup page, click on the “Send Test Email” button. This button allows to send a test mail to check if the feature is active or not.

- Enter the Recipient Email Address.
- Click the Send button to send the Email.

A screenshot of a web form titled "Test Email Recipients". The form contains a text input field with the placeholder text "Recipient Email Address" and an orange "Send" button below it.

Test Email Recipients

Recipient Email Address

Send

## 6.8 Event Notification

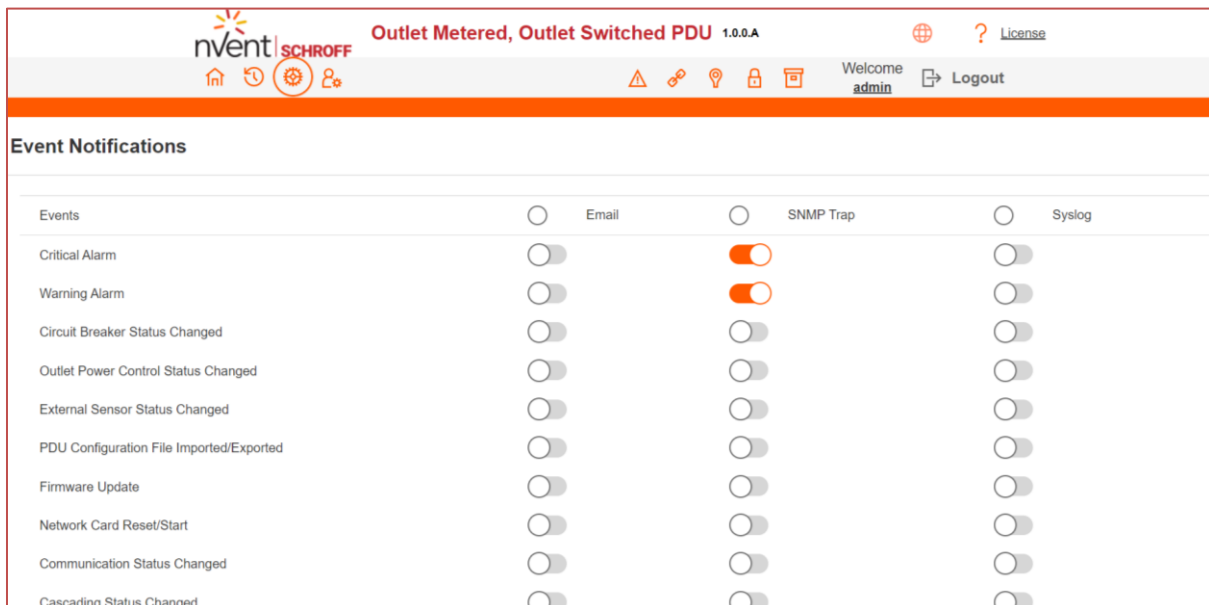
In this page the user can assign the Event notifications from the PDU to the Syslog, SNMP Trap, and Email.

An event notification has two parts:

**Event:** The situation where the PDU meets certain condition (i.e., temperature sensor exceeds the warning limit. Or circuit breaker status is changed).

**Action:** The response to the event (i.e., send an SMTP message and SNMP trap.)

- Click on the Settings icon to dropdown the Settings menu.
- Select Event Notification to view information.
- Enable the Email, SNMP Trap and Syslog to the respective Events to receive notification



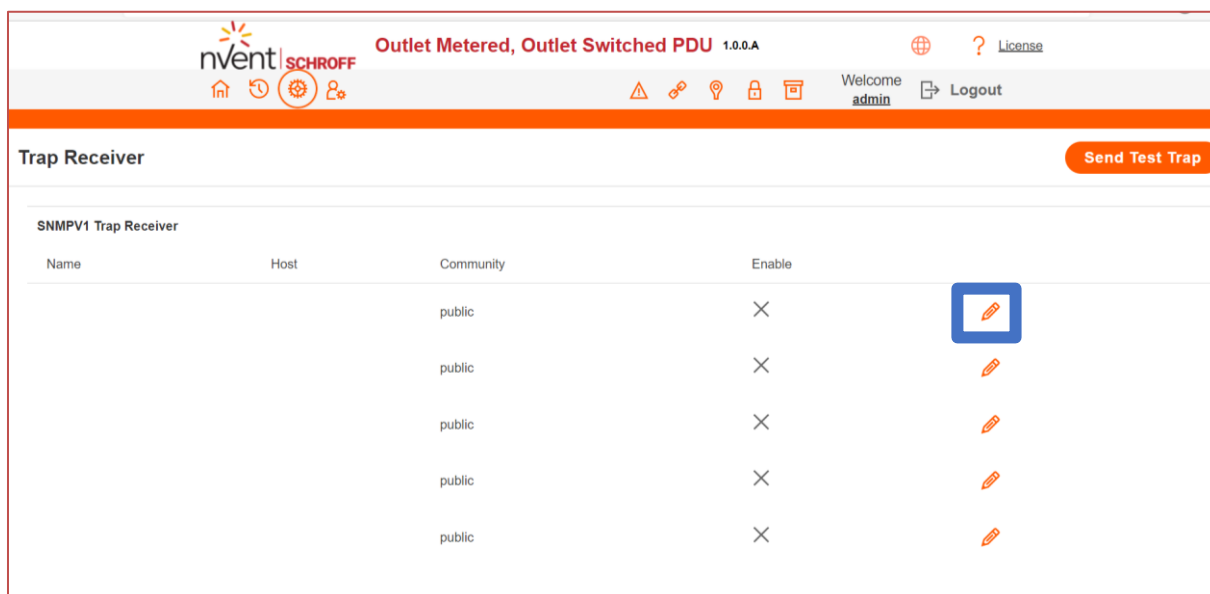
Events	<input type="radio"/> Email	<input type="radio"/> SNMP Trap	<input type="radio"/> Syslog
Critical Alarm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Warning Alarm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Circuit Breaker Status Changed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outlet Power Control Status Changed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External Sensor Status Changed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PDU Configuration File Imported/Exported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Firmware Update	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Network Card Reset/Start	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication Status Changed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cascading Status Changed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Critical and Warning Alarms are enabled at the SNMP Trap as default. The notifications for these default events enabled, can only be received after the configuration of the Trap Receiver.






## 6.9 Trap Receiver

This page allows to configure the Trap receiver by typing in name, host, and community. Typically, the Read Community and Write Community are public.

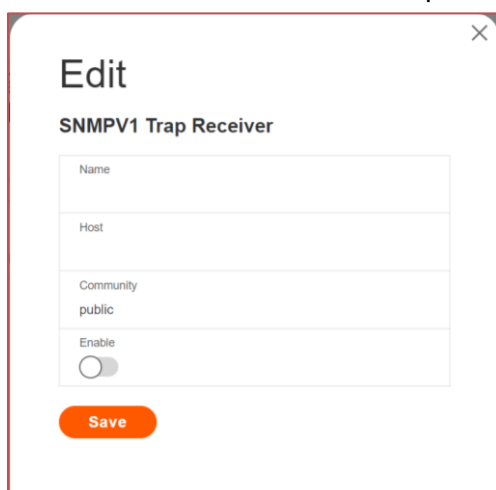
1. Click on the Settings icon to dropdown the Settings menu.
2. Select Trap Receiver to view information.
3. Configuring users for SNMP V1 Trap Settings that allows the communication to the MIB browser.



The screenshot shows the 'Trap Receiver' configuration page in the nVent SCHROFF web interface. The page title is 'Trap Receiver' and it includes a 'Send Test Trap' button. A table lists five 'SNMPV1 Trap Receiver' entries, each with columns for Name, Host, Community, and Enable. The first entry has a blue box around its edit icon.

Name	Host	Community	Enable	
		public	X	
		public	X	
		public	X	
		public	X	
		public	X	

4. Click the edit icon to edit/change the SNMP V1 Trap Receiver settings below,
  - Enter the Name, which allows us to identify the different receivers.
  - Enter the Host IP address to which the traps are sent.
  - Assign the Community to public or private security.
  - Enable the SNMP V3.
  - Click Save button to complete setting.



The screenshot shows the 'Edit' dialog box for an SNMPV1 Trap Receiver. The dialog has fields for Name, Host, and Community (set to 'public'), and an 'Enable' toggle switch. A 'Save' button is at the bottom.

5. Configuring users for SNMP V3 Trap Settings that allows for encrypted communication to the MIB browser.

Click the edit icon to edit/change the SNMP V3 Trap Receiver settings.

- Enter the Name, which allows us to identify the different receivers.
- Enter the Host IP address to which the traps are sent.
- Assign the Security Level from the dropdown menu.  
NoAuthNoPriv: No authentication and no privacy. This is the default.  
AuthNoPriv: Authentication and no privacy.  
AuthPriv: Authentication and privacy.
- Type a new unique password as the Authentication Password.
- Select the Authentication Algorithm.  
MD5  
SHA
- Type a new unique password as the Privacy Key.
- Select the Privacy Algorithm.  
DES  
AES-128  
AES-192  
AES-256
- Enable the SNMP V3.
- Click Save button to complete setting.

**SNMPv3 Trap Server**

Name
Host
Security Level No Auth No Priv
Authentication Password
Authentication Algorithm MD5
Privacy Key
Privacy Algorithm AES128
Enable <input type="checkbox"/>

**Save**

On the top- right side of the Email Setup page, click the button “Send Test Trap”. This allows us to send a test Trap to check if the feature is active or not.

## 6.10 Defining Thresholds

The Thresholds are limits, defined by the user over parameters like power, phase, circuit breaker and sensor to send alert notifications when the value crosses above or below the limit.

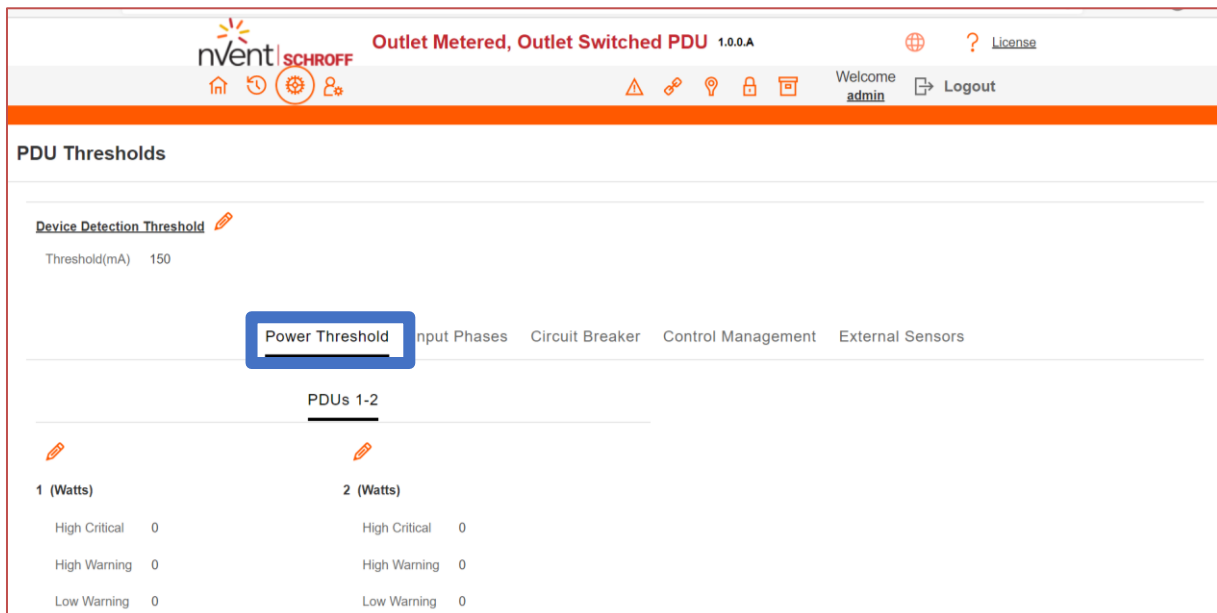
To access the nVent RackPower PDU Thresholds page:

- Click on the Settings icon to dropdown the Settings menu.
- Select Thresholds to view information.

### 6.10.1 Power Thresholds

The PDU will send alert notifications when a power threshold wattage crosses above or below the settings you specify in the Power Threshold.

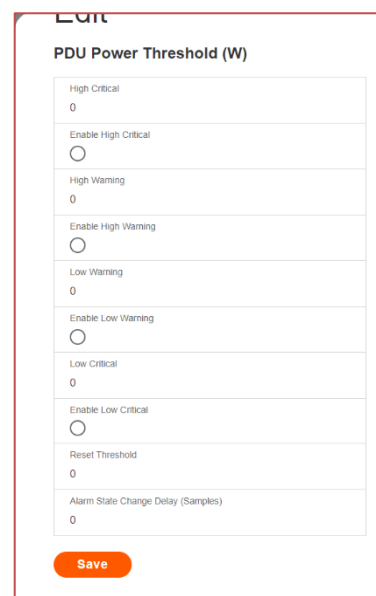
1. Choose Power Threshold tab in the PDU Threshold page.



2. Click edit icon to edit/change the Power Threshold Settings.

In the PDU Power Threshold Setting dialog boxes, change the fields as needed:

- Low Critical (W)
  - Low Warning (W)
  - High Warning (W)
  - High Critical (W)
  - Reset Threshold (W)
  - Alarm State Change Delay (samples)
3. Click Save button to complete the setting.
  4. Repeat the steps for all PDUs.




## 6.10.2 Input phases

The PDU will send alert notifications when a phase current and voltage alarm crosses above or below the settings you specify in the Input Phase Threshold.







1. Choose the Input Phases tab in the PDU Threshold page.

**PDU Thresholds**

Device Detection Threshold   
Threshold(mA) 150

Power Thresholds **Input Phases** Circuit Breaker Control Management External Sensors

1 2

Phase Current	Reading(A)	Low Critical	Low Warning	High Warning	High Critical	
Phase1	0.0	0.0	0.0	22.0	28.0	
Phase2	0.0	0.0	0.0	22.0	28.0	
Phase3	0.0	0.0	0.0	22.0	28.0	
Phase Voltage	Reading(V)	Low Critical	Low Warning	High Warning	High Critical	
Phase1	0.0	180.0	190.0	250.0	260.0	
Phase2	0.0	180.0	190.0	250.0	260.0	
Phase3	0.0	180.0	190.0	250.0	260.0	

2. Click edit icon to edit/change the Phase Current Settings.
3. In the Input Phase Current Alarm Setting dialog boxes, change the fields as needed:
  - Low Critical (A)
  - Low Warning (A)
  - High Warning (A)
  - High Critical (A)
  - Reset Threshold (A)
  - Alarm State Change Delay (samples)
4. Click the Save button to complete the setting.
5. Repeat steps for all PDUs

**Edit**

**Input phases current alarm setting**

Low Critical (A)	0
Enable Low Critical	<input type="checkbox"/>
Low Warning (A)	0
Enable Low Warning	<input type="checkbox"/>
High Warning (A)	22
Enable High Warning	<input checked="" type="checkbox"/>
High Critical (A)	28
Enable High Critical	<input checked="" type="checkbox"/>
Reset Threshold (A)	1
Alarm State Change Delay (Samples)	0

**Save**

1. Click edit icon to edit/change the Phase Voltage Settings.  
In the Input Phase Voltage Alarm Setting dialog boxes, change the fields as needed:
  - Low Critical (V)
  - Low Warning (V)
  - High Warning (V)
  - High Critical (V)
  - Reset Threshold (V)
  - Alarm State Change Delay (samples)
2. Click Save button to complete the setting.
3. Repeat the steps for all PDUs.

### Edit

**Input phases current alarm setting**

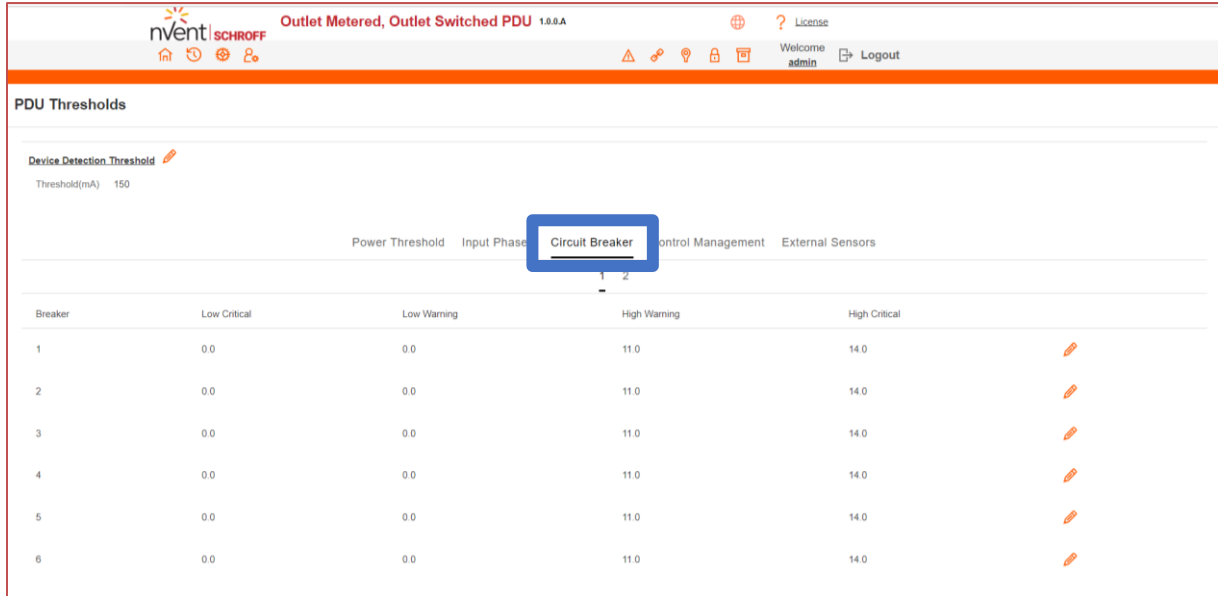
Low Critical (A)	0
Enable Low Critical	<input type="checkbox"/>
Low Warning (A)	0
Enable Low Warning	<input type="checkbox"/>
High Warning (A)	22
Enable High Warning	<input checked="" type="checkbox"/>
High Critical (A)	28
Enable High Critical	<input checked="" type="checkbox"/>
Reset Threshold (A)	1
Alarm State Change Delay (Samples)	0









### 6.10.3 Circuit Breaker

The PDU will send alert notifications when a circuit breaker amperage crosses above or below the settings you specify in the Circuit Breaker Threshold.

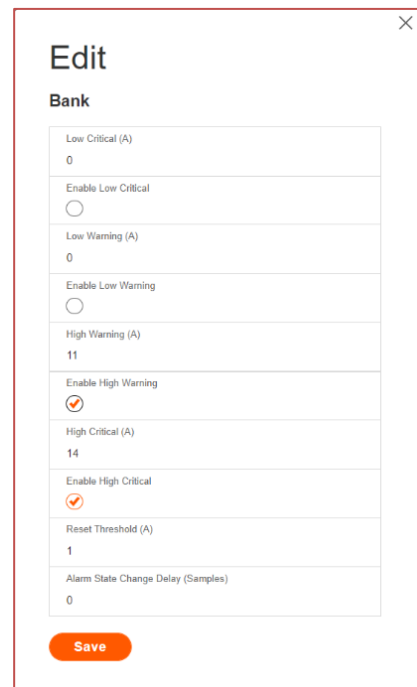
1. Choose the Circuit Breaker tab on the PDU Threshold page.



The screenshot shows the 'PDU Thresholds' page for an 'Outlet Metered, Outlet Switched PDU 1.0.0.A'. The 'Circuit Breaker' tab is highlighted with a blue box. Below the tabs is a table of circuit breaker settings for six breakers (1-6).

Breaker	Low Critical	Low Warning	High Warning	High Critical	
1	0.0	0.0	11.0	14.0	
2	0.0	0.0	11.0	14.0	
3	0.0	0.0	11.0	14.0	
4	0.0	0.0	11.0	14.0	
5	0.0	0.0	11.0	14.0	
6	0.0	0.0	11.0	14.0	

2. Click edit icon to edit/change the Circuit Breaker Settings,
  - Low Critical (A)
  - Low Warning (A)
  - High Warning (A)
  - High Critical (A)
  - Reset Threshold (A)
  - Alarm State Change Delay (samples)
3. Click the Save button to complete the setting.
4. Repeat the steps for all PDUs.



The 'Edit' dialog box shows the following settings for a 'Bank':

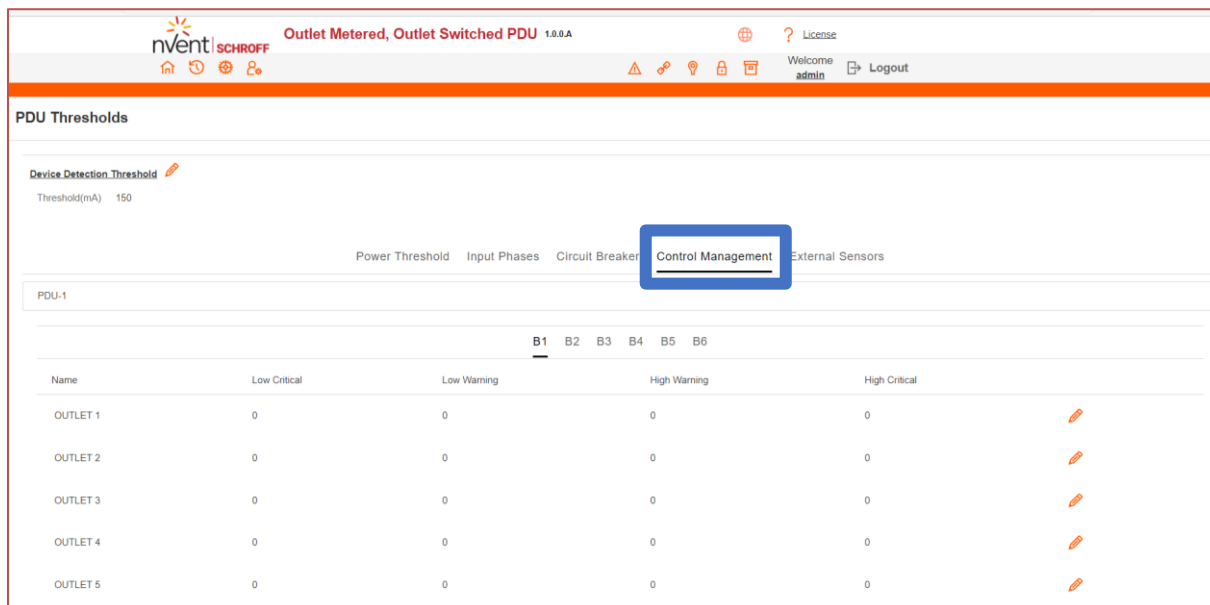
- Low Critical (A): 0
- Enable Low Critical:
- Low Warning (A): 0
- Enable Low Warning:
- High Warning (A): 11
- Enable High Warning:
- High Critical (A): 14
- Enable High Critical:
- Reset Threshold (A): 1
- Alarm State Change Delay (Samples): 0

A 'Save' button is located at the bottom of the dialog.

## 6.10.4 Control Management

The PDU will send alert notifications when an outlet wattage crosses above or below the settings you specify in the Control Management Threshold.

1. Choose the Control Management tab on the PDU Threshold page.



**PDU Thresholds**

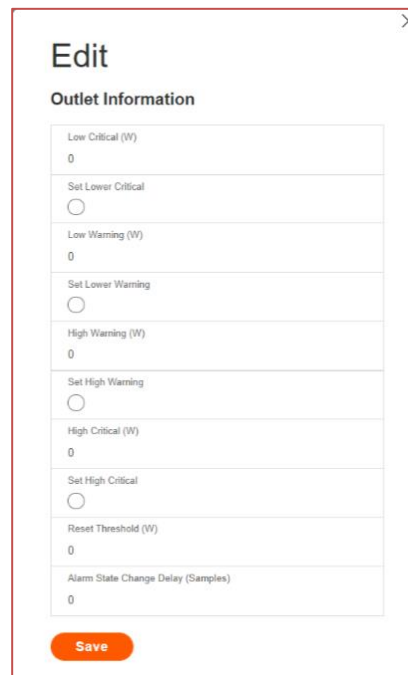
Device Detection Threshold  
Threshold(mA) 150

Power Threshold Input Phases Circuit Breaker **Control Management** External Sensors

PDU-1

Name	B1		B2		B3		B4		B5		B6	
	Low Critical	Low Warning	Low Critical	Low Warning	Low Critical	Low Warning	Low Critical	Low Warning	Low Critical	Low Warning	Low Critical	Low Warning
OUTLET 1	0	0	0	0	0	0	0	0	0	0	0	0
OUTLET 2	0	0	0	0	0	0	0	0	0	0	0	0
OUTLET 3	0	0	0	0	0	0	0	0	0	0	0	0
OUTLET 4	0	0	0	0	0	0	0	0	0	0	0	0
OUTLET 5	0	0	0	0	0	0	0	0	0	0	0	0

2. Click on the PDU name to select the respective PDU.
3. Click edit icon to edit/change the Control Management Settings,
  - Low Critical (W)
  - Low Warning (W)
  - High Warning (W)
  - High Critical (W)
  - Reset Threshold (W)
  - Alarm State Change Delay (samples)
1. Click the Save button to complete the setting.
2. Repeat the steps for all PDUs.



**Edit**

**Outlet Information**

Low Critical (W)  
0

Set Lower Critical

Low Warning (W)  
0

Set Lower Warning

High Warning (W)  
0

Set High Warning

High Critical (W)  
0

Set High Critical

Reset Threshold (W)  
0

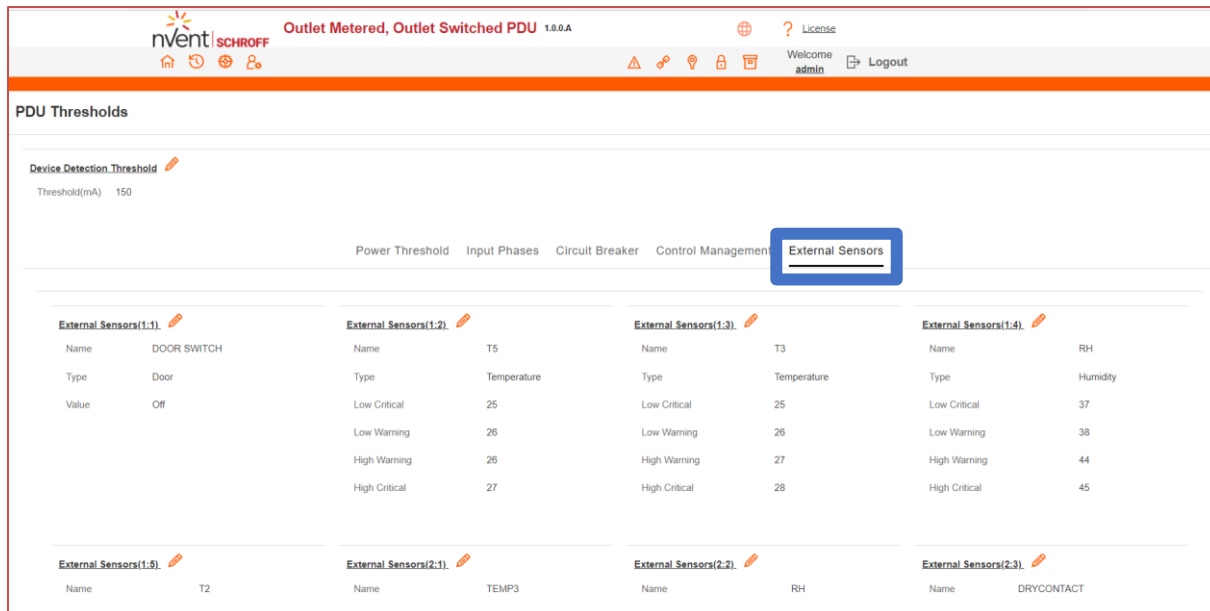
Alarm State Change Delay (Samples)  
0

**Save**

## 6.10.5 External Sensors

The PDU will communicate about the sensor location, alarms, notifications, and details. The External Sensors section displays the connected sensors on the PDU.

1. Select the External Sensors tab in the PDU Threshold page.



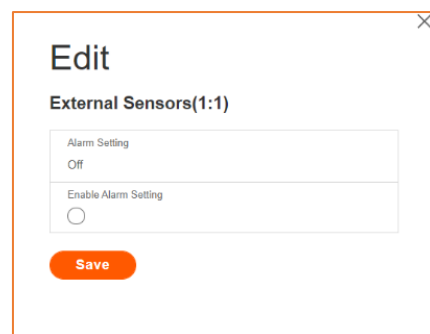
The screenshot shows the 'PDU Thresholds' page for an 'Outlet Metered, Outlet Switched PDU 1.0.0.A'. The 'External Sensors' tab is highlighted with a blue box. Below the tabs, there are eight sensor configuration cards arranged in two rows of four. Each card has an edit icon (pencil) in the top right corner.

External Sensors(1:1)	External Sensors(1:2)	External Sensors(1:3)	External Sensors(1:4)
Name: DOOR SWITCH	Name: T5	Name: T3	Name: RH
Type: Door	Type: Temperature	Type: Temperature	Type: Humidity
Value: Off	Low Critical: 25	Low Critical: 25	Low Critical: 37
	Low Warning: 26	Low Warning: 26	Low Warning: 38
	High Warning: 26	High Warning: 27	High Warning: 44
	High Critical: 27	High Critical: 28	High Critical: 45

External Sensors(1:5)	External Sensors(2:1)	External Sensors(2:2)	External Sensors(2:3)
Name: T2	Name: TEMP3	Name: RH	Name: DRYCONTACT
Type: Temperature	Type: Temperature	Type: Humidity	Type: Dry Contact

2. Click edit icon to edit/change the External Sensors Settings,
  - Low Critical
  - Low Warning
  - High Warning
  - High Critical
3. Click the Save button to complete the setting.
4. Repeat the steps for all PDUs.



The 'Edit' dialog box for 'External Sensors(1:1)' contains the following settings:

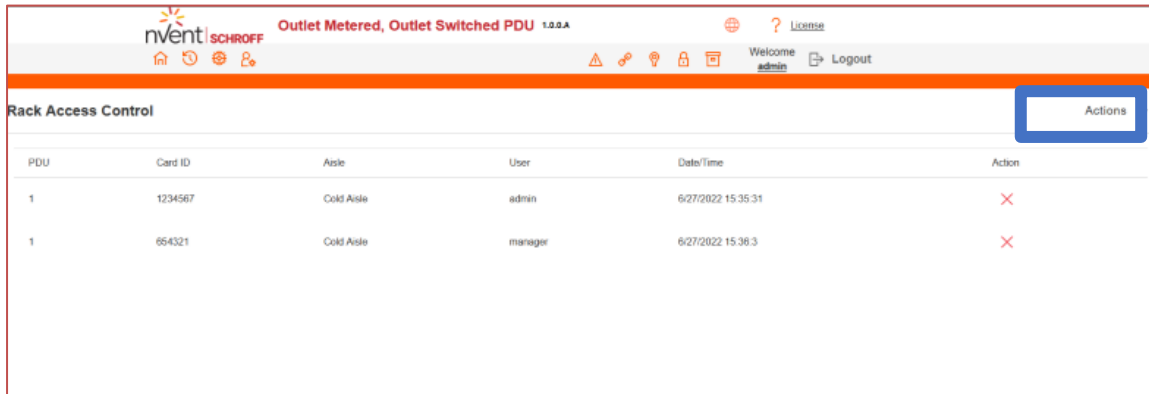
- Alarm Setting: Off
- Enable Alarm Setting:

A red 'Save' button is located at the bottom of the dialog.

### 6.11 Rack Access Control

Configure the Rack Access functions to control and monitor the Racks.

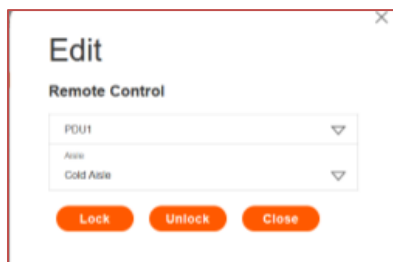
1. Click on the Settings icon to dropdown the Settings menu.
2. Select Rack Access Control to view information.



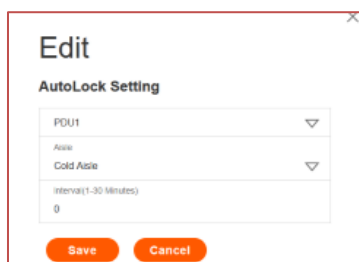
3. Select Actions add New Rack information.



4. Select Actions and Remote Control to edit the information.  
Remote Control - Used to perform Lock, Unlock and Close functions.



5. Select Actions add and AutoLock Settings to edit the information.  
To assign Automatic locking functions within a time limit to the PDU.



### 6.11.1 Handle and Compatible Card Types

Below are the cards listed which are supported on the different swing handle.

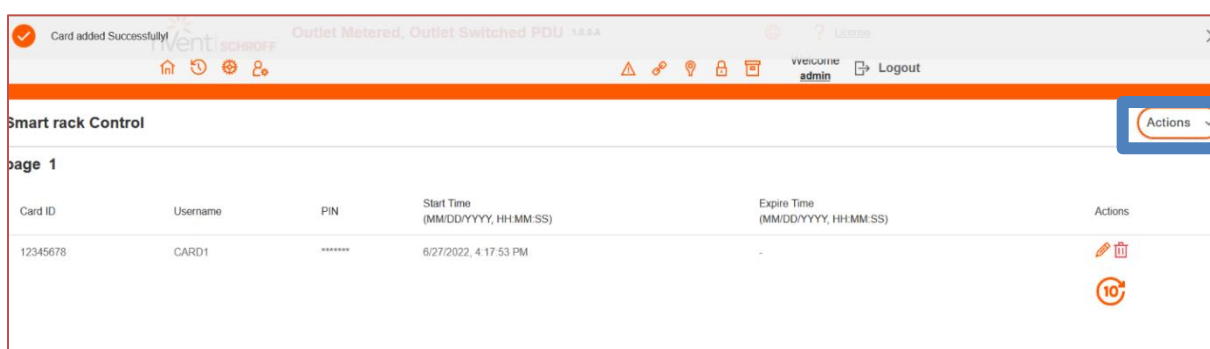
- a) MYFARE® Classic 4K
- b) MYFARE® Plus 2K
- c) MYFARE® DESFire 4K
- d) HID® iCLASS

### 6.12 Smart Rack Control

This page allows you to configure the Smart Rack Access functions to control and monitor the Racks. It is used to set up the access control server door Handle (above 4 Handle and Compatible Cards) that has lot of options. So, the user can use the editing option to modify the data as required.

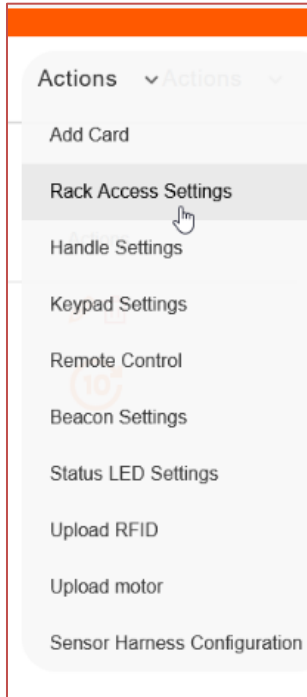
A total of 200 cards are compatible with the smart rack control.

1. Click on the Settings icon to dropdown the Settings menu.
2. Select Smart Rack Control to view information.



3. Click edit icon to edit/change the Rack Access Control Settings
  - Enter the Card ID to ensure security and restrictive access.
  - Enter Username of the card holder.
  - Enter PIN (as set-in card configuration page).
  - Enable or Disable Temporary User as per user status.
  - Click Save button to complete setting.

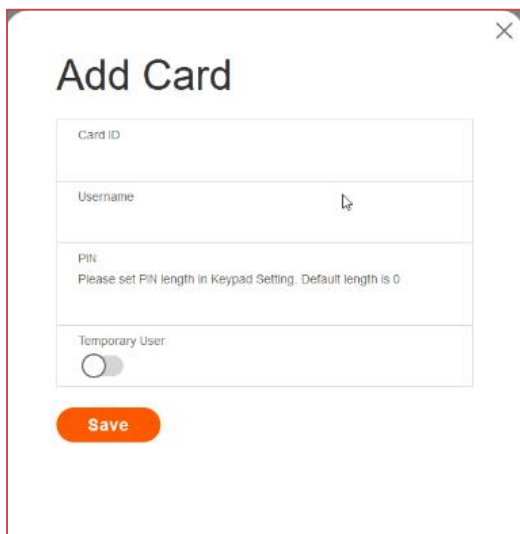
On the top- right side of the Rack Access Control page, click on the “Actions” button to open the drop-down menu.



### 6.12.1 Add Card

To add card details, select Add Card.

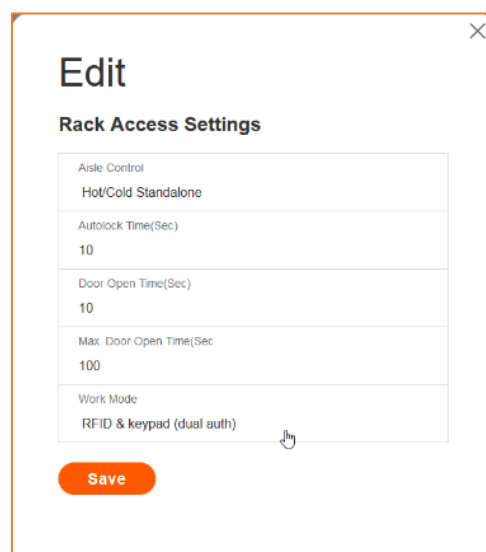
- Enter the Card ID.
- Enter Username of the card holder.
- Enter PIN (as set-in card configuration page).
- Enable or Disable Temporary User as per user status.
- Click Save button to complete setting.



### 6.12.2 Rack Access Settings

To edit rack access details, select Rack Access Settings.

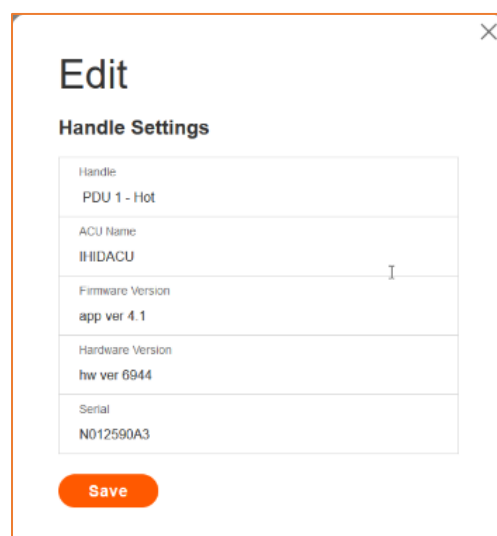
- Select Aisle Control to Standalone or Combined as per rack.
- Set Autolock Time.
- Set Door Open Time.
- Set Max Door Open Time.
- Select the access type in Work Mode.
- Click Save button to complete settings.



### 6.12.3 Handle Settings

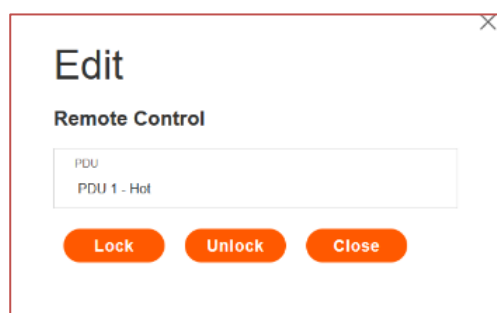
To edit handle settings, select Handle Settings. The Firmware Version and Hardware Version are non-editable fields and are filled by default in their respective Versions.

- Enter Handle name for identification.
- Enter ACU Name for identification.
- Enter Serial number of the handle.
- Click Save button to complete settings



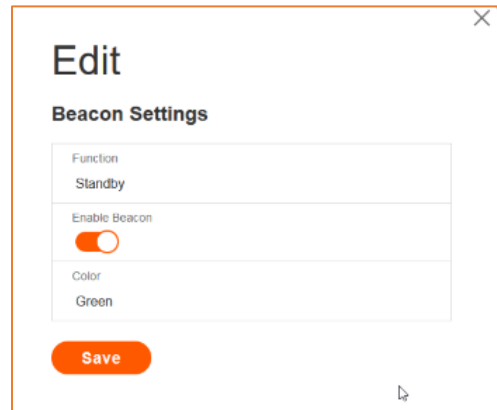
### 6.12.4 Remote Control

Select Remote Control to perform Lock, Unlock and Close functions.



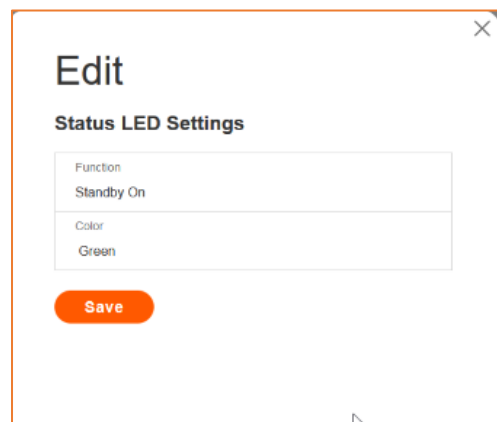
### 6.12.5 Beacon Settings

Select Beacon Settings to Enable Beacon Lock and Color. Click Save button to complete setting.



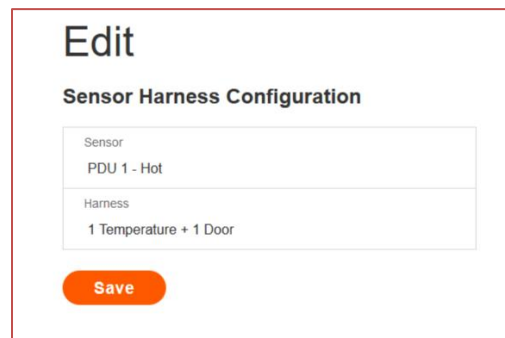
### 6.12.6 Status LED Settings

Select Status LED Settings to configure Function and Color of the LED. Click Save button to complete setting.



### 6.12.7 Sensor Harness Configuration

Select Sensor Harness Configuration to configure the sensor harness. Click Save button to complete setting.





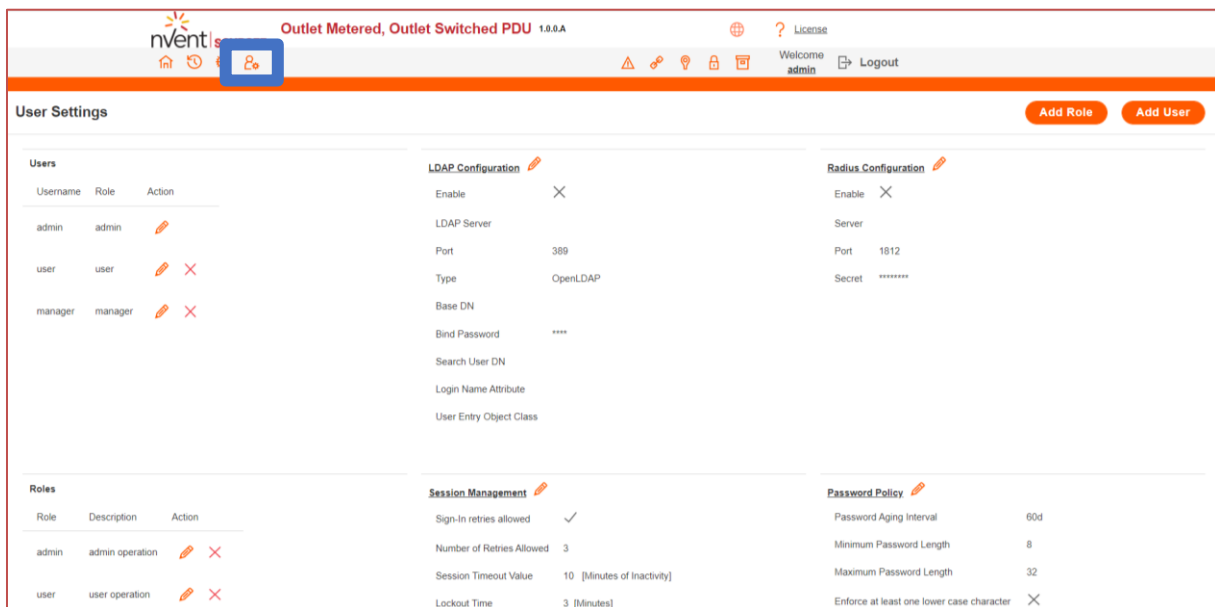
### 6.13 User Settings

The nVent RackPower PDU comes with a standard **Admin** profile and a standard **User** profile.

- The Admin profile is typically the system administrator, and it has the “Admin Role” with full operating permissions.
- The default User profile includes the default “User Role” permissions. All other user privileges must be added by the Admin user. Users are defined by their unique login credentials and by their user role. Before setting up the user profile, determine the roles required. Each user must be given a Role. These Roles define the permissions which are granted to the user.

Role	Default Permissions
Admin	Complete system permissions (that cannot be modified or deleted)
User	Limited permissions that can be modified or deleted. By default, these permissions are: Change own Password
Manager	Complete system permissions (that cannot be modified or deleted)

Click on the User Settings icon  to open the User Settings menu.



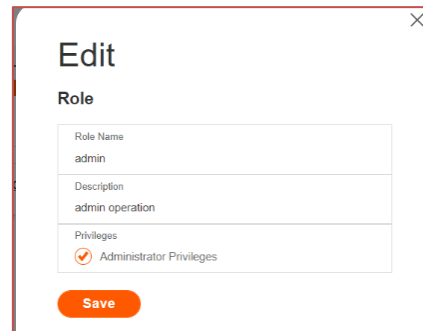
The screenshot shows the nVent web interface for 'Outlet Metered, Outlet Switched PDU 1.0.0.A'. The 'User Settings' icon is highlighted with a blue box. The interface displays the following sections:

- Users:** A table with columns for Username, Role, and Action. It lists three users: 'admin' (admin role), 'user' (user role), and 'manager' (manager role). Each user has edit and delete icons.
- Roles:** A table with columns for Role, Description, and Action. It lists two roles: 'admin operation' and 'user operation'. Each role has edit and delete icons.
- LDAP Configuration:** A configuration panel with fields for Enable (checked), LDAP Server, Port (389), Type (OpenLDAP), Base DN, Bind Password (\*\*\*\*), Search User DN, Login Name Attribute, and User Entry Object Class.
- Session Management:** A configuration panel with fields for Sign-In retries allowed (checked), Number of Retries Allowed (3), Session Timeout Value (10 [Minutes of Inactivity]), and Lockout Time (3 [Minutes]).
- Radius Configuration:** A configuration panel with fields for Enable (checked), Server, Port (1812), and Secret (\*\*\*\*\*).
- Password Policy:** A configuration panel with fields for Password Aging Interval (60d), Minimum Password Length (8), Maximum Password Length (32), and Enforce at least one lower case character (checked).

### 6.13.1 Roles

To create a new role click Add Role button on the top right corner.

- Type the Role Name and Description.
- Assign the Privileges tab.
- Click Save.

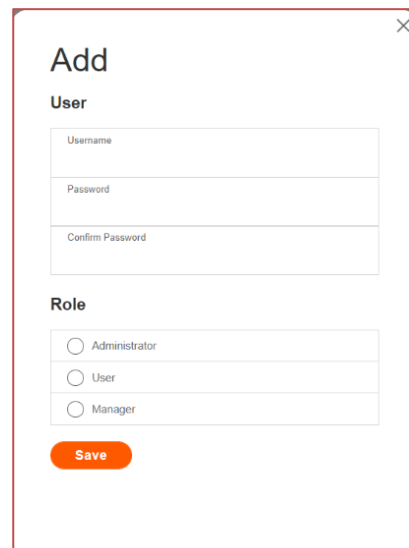


### 6.13.2 Add Users/Change Password


To create a new user profile, click on the  icon, to create a new user profile.

The add user window opens, enter the information:

- Username
- Password
- Confirm Password
- Assign role to admin, user or manager privileges.
- Click “Save” to save the new user profile.

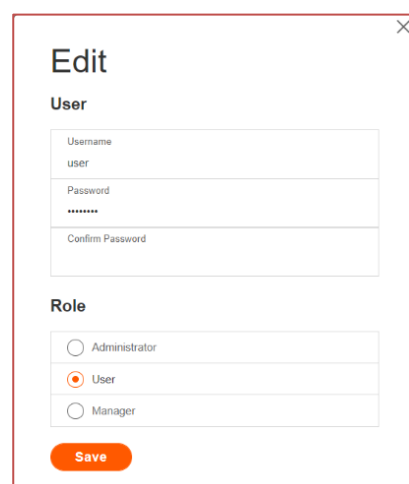


### 6.13.3 Modify/Delete User Profiles

In **User Settings** select the  next to the username to modify.

Make changes to the user profile and select “Save” to save the new user profile.

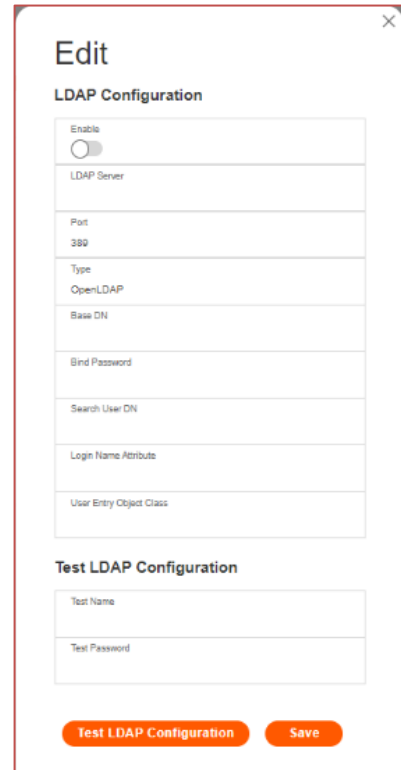
To delete, select the  next to the username.



### 6.13.4 LDAP Server Settings

In User Setting, go to LDAP Configuration to setup LDAP to access the Active Directory (AD) and provide authentication when logging into the PDU via the Web Interface:

- Select the LDAP Enable
- From the Type (Type of LDAP Server) drop down menu, select Open LDAP.
- Type Port number.  
Note: For Microsoft, this is typically 389.
- Type Password in the Bind Password and Confirm Password fields.
- In the Base DN field, type in the account. i.e., CN=myuser, CN=Users, DC=EMEA, DC=mydomain, DC=com
- Type Password in the Bind Password and Confirm Password fields.
- Search User DN.
- Type SAMAccountName (typically) in the Login Name Attribute field.
- Type Person Name in the User Entry Object Class field.



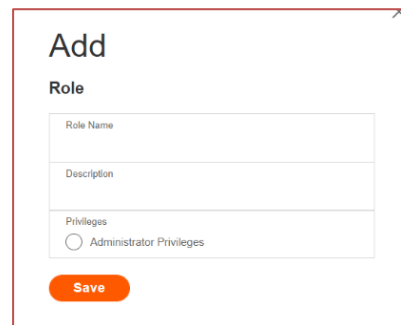
With these LDAP settings configured, the bind is complete.

Once the LDAP is configured, the PDU must understand for which group authentication occurs. A role must be created on the PDU to reference a group within Active Directory (AD).

Click on the Add Role button

Type Role Name, which was created in AD i.e., PDUAdmin.

Administrator privileges must be enabled.



Once LDAP authentication is ready to use.

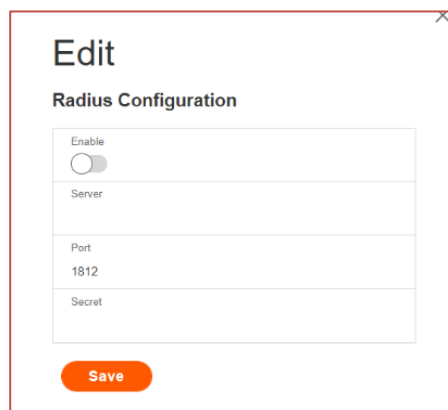
To test this, click save, then click "LDAP Configuration" again and type Active Directory username/password into the test box.

Click Test LDAP Configuration. If a box pops up with all green "SUCCEEDED" (no X's), the LDAP is successfully configured.

### 6.13.5 Radius Configuration

In the **User Settings** go to **Radius Configuration** and click edit .

- Select the Enable button.
- Type Server IP address, Port number and Secret in the corresponding field.
- Click the save button to complete the Radius authentication.



### 6.13.6 Roles

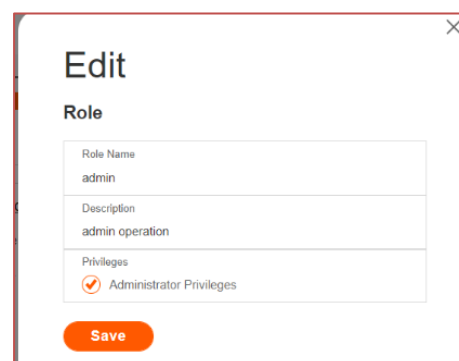
In the **User Settings**, go to **Roles** to change user roles, privileges and settings.

To create a new role, click Add Role button on the top right corner.

- Type the Role Name and Description.
- Assign the Privileges tab.
- Click Save.

To modify a custom user role:

- Select the role and click Edit Button.
- Edit the role name and privileges as needed
- Click Save.

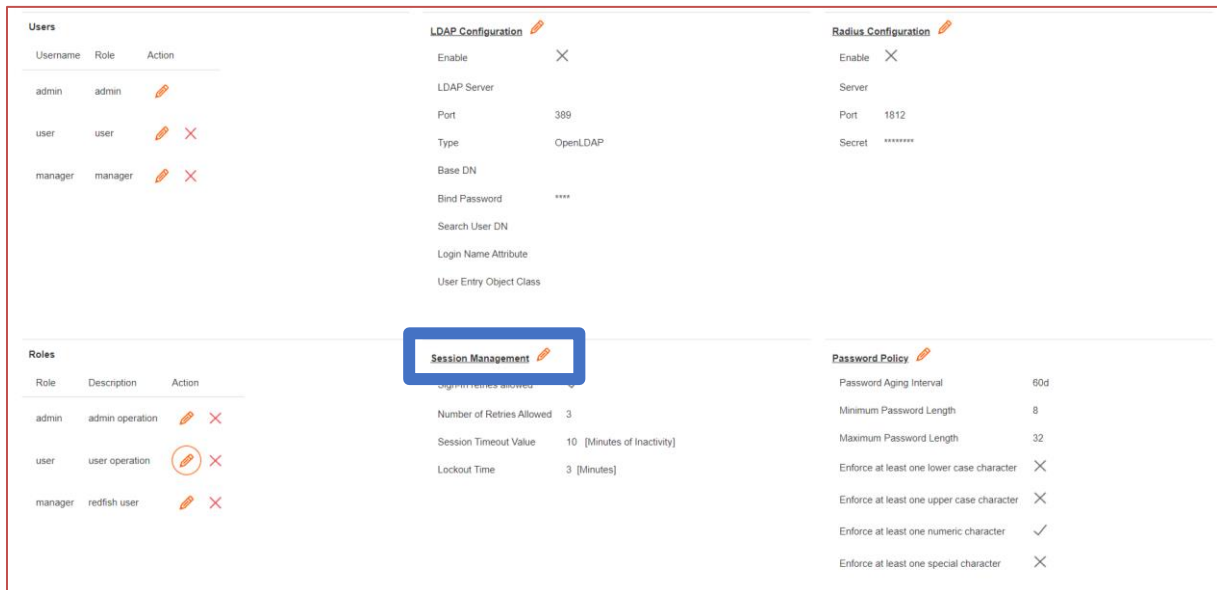


To delete a user role:

- Select the role.
- Click **X** Button.
- Click Yes to confirm the change.

### 6.13.7 Session Management

Session management supports the users to manage the Sign-In retries, number of retries allowed session timeout value and lockout time.



The screenshot shows the configuration interface with the following sections:

- Users:** A table with columns Username, Role, and Action. It lists users: admin (admin), user (user), and manager (manager).
- LDAP Configuration:** A form with fields: Enable (checked), LDAP Server, Port (389), Type (OpenLDAP), Base DN, Bind Password (\*\*\*\*), Search User DN, Login Name Attribute, and User Entry Object Class.
- Radius Configuration:** A form with fields: Enable (checked), Server, Port (1812), and Secret (\*\*\*\*\*).
- Roles:** A table with columns Role, Description, and Action. It lists roles: admin (admin operation), user (user operation), and manager (redfish user). The 'Session Management' link is highlighted in a blue box.
- Password Policy:** A form with fields: Password Aging Interval (60d), Minimum Password Length (8), Maximum Password Length (32), Enforce at least one lower case character (unchecked), Enforce at least one upper case character (unchecked), Enforce at least one numeric character (checked), and Enforce at least one special character (unchecked).

Click edit to setup the parameters.

## Edit

### Session Management

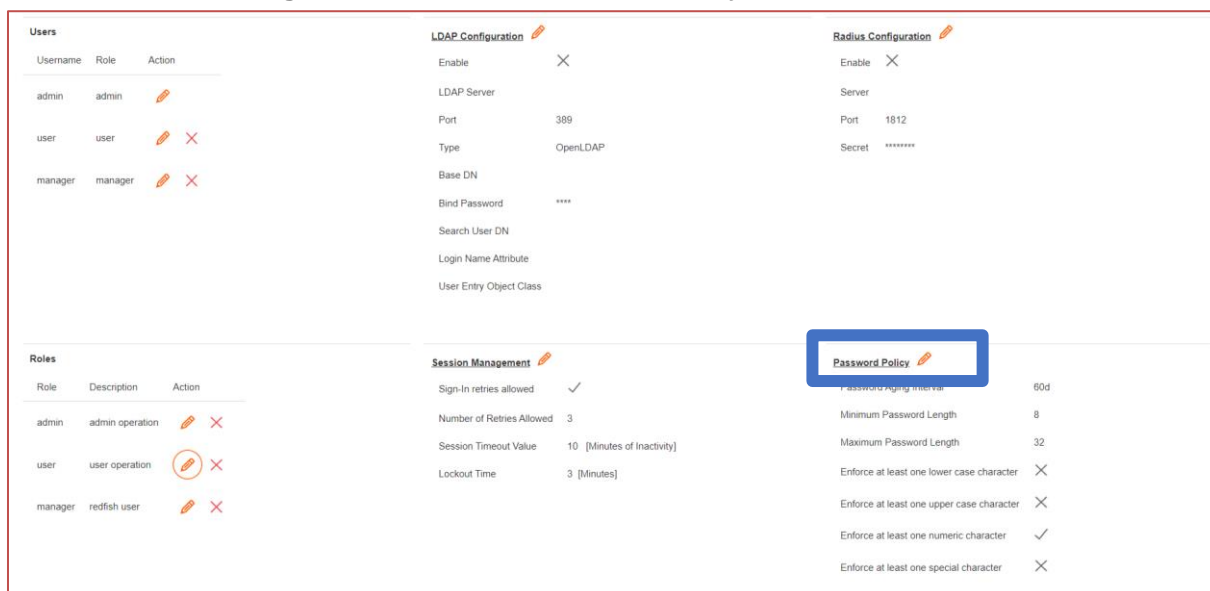
Sign-In retries allowed	<input checked="" type="checkbox"/>
Number of Retries Allowed	3
Session Timeout Value	10 min
Lockout Time	3 min

Save

## 6.13.8 Password Policy

You can set a requirement for users to change their password at set intervals using the Password Aging Interval policy. You can also specify criteria for passwords to ensure that your users enter strong passwords.

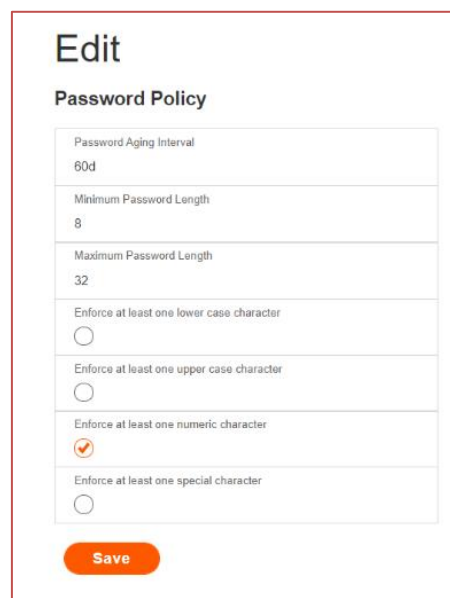
Click the **User Setting** icon and select **Password Policy**.



The screenshot shows a user management interface with several sections:

- Users:** A table with columns Username, Role, and Action. It lists users: admin (admin), user (user), and manager (manager).
- LDAP Configuration:** A configuration panel with fields for Enable, LDAP Server, Port (389), Type (OpenLDAP), Base DN, Bind Password (\*\*\*\*), Search User DN, Login Name Attribute, and User Entry Object Class.
- Radius Configuration:** A configuration panel with fields for Enable, Server, Port (1812), and Secret (\*\*\*\*\*).
- Roles:** A table with columns Role, Description, and Action. It lists roles: admin (admin operation), user (user operation), and manager (redfish user).
- Session Management:** A configuration panel with fields for Sign-In retries allowed (checked), Number of Retries Allowed (3), Session Timeout Value (10 [Minutes of Inactivity]), and Lockout Time (3 [Minutes]).
- Password Policy:** A configuration panel with fields for Password Aging Interval (60d), Minimum Password Length (8), Maximum Password Length (32), and checkboxes for enforcing password strength criteria: at least one lower case character (unchecked), at least one upper case character (unchecked), at least one numeric character (checked), and at least one special character (unchecked).

- Select a password aging interval.
- To specify password criteria, click the Strong Password radio button.
- Set the Minimum Password Length and Maximum Password Length.  
Note: Minimum password length cannot be below 8 characters and the maximum allowed up to 32.
- Enable the checkboxes to force the users to use specific types of characters within the password.
- Click Save button to complete the settings.



The 'Edit Password Policy' form contains the following fields and options:

- Password Aging Interval: 60d
- Minimum Password Length: 8
- Maximum Password Length: 32
- Enforce at least one lower case character:
- Enforce at least one upper case character:
- Enforce at least one numeric character:
- Enforce at least one special character:

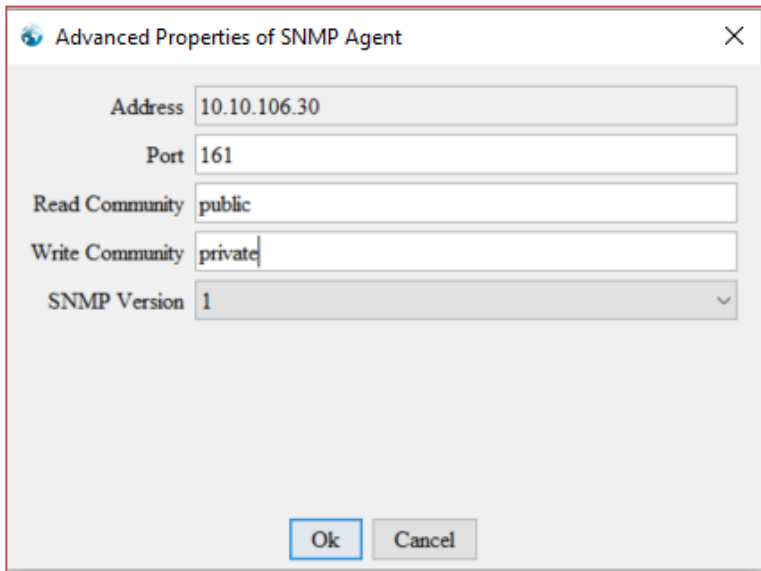
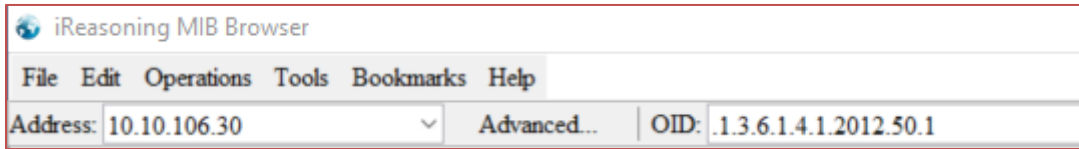
A **Save** button is located at the bottom of the form.

## 7 Working with a MIB Browser



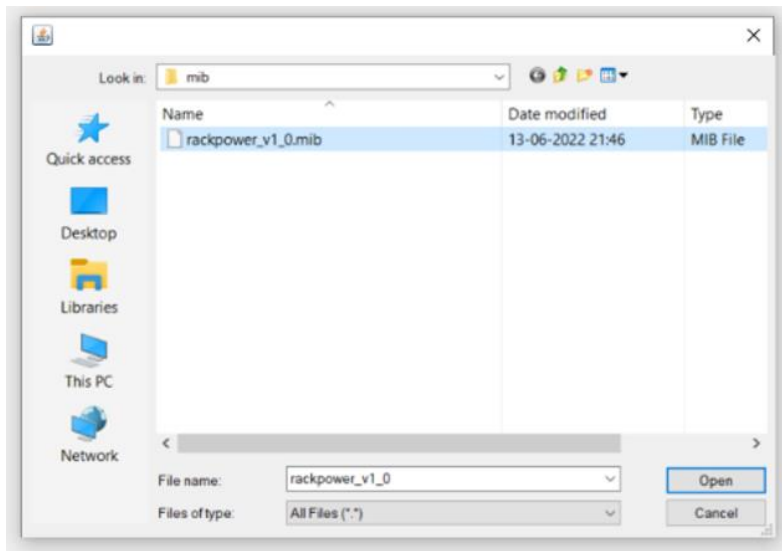
**SNMP must be enabled and configured.**  
The following examples refer to the iReasoning MIB browser.

Open the MIB browser-> Type the IP address of the PDU.

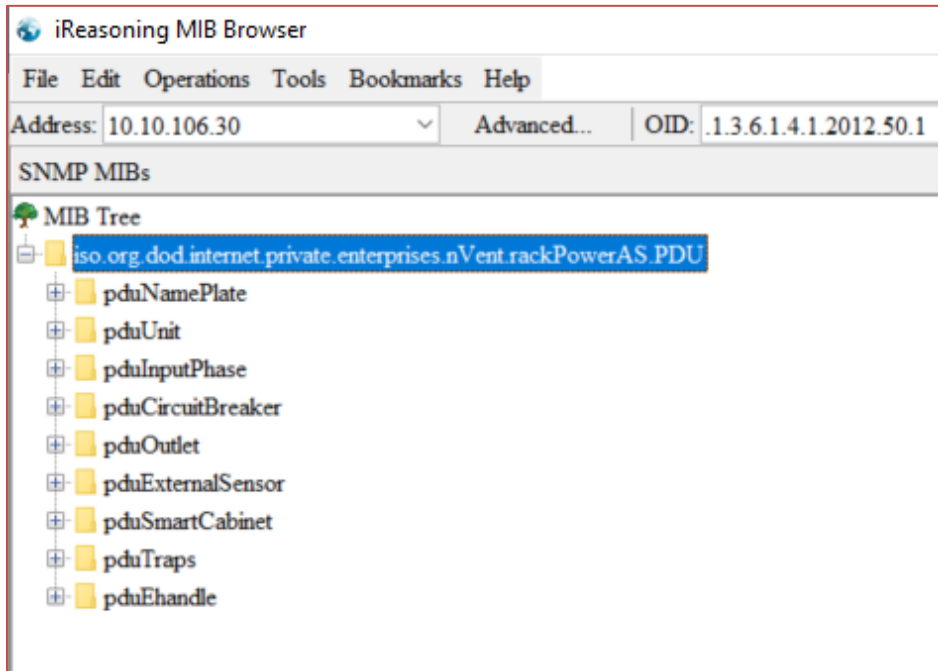


- Click the Advanced button.
- The Advance Properties of SNMP Agent window opens.
- Enter the respective Port, Read Community, Write Community.
- Select the SNMP manager version (1 / 2 / 3).

Click on **File** and select **Load MIBs**, with “**Open**”, the MIB file is loaded.

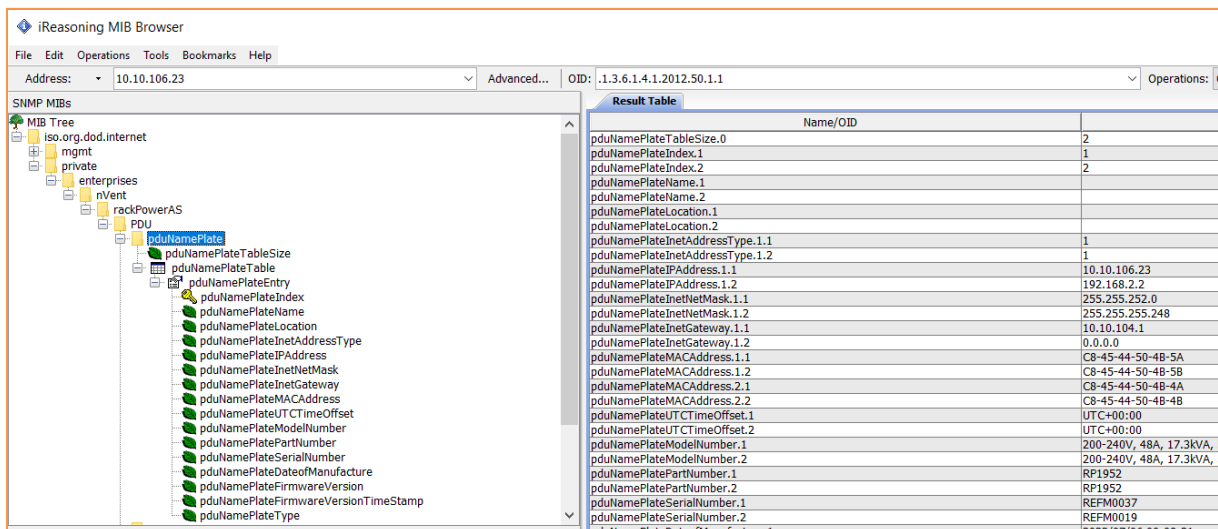


The MIB Tree comes to view on the SNMP MIBs-> Expand the MIB Tree and select the **iso.org.dod.internet.private.enterprises.nVent.rackPowerAS.PDU**



Right click on the iso.org.dod.internet.private.enterprises.apc and select walk to monitor the PDU data.

Click on the '+' icon of the products to open the dropdown and select the dPDU to perform the SNMP functions of the RackPower PDU.

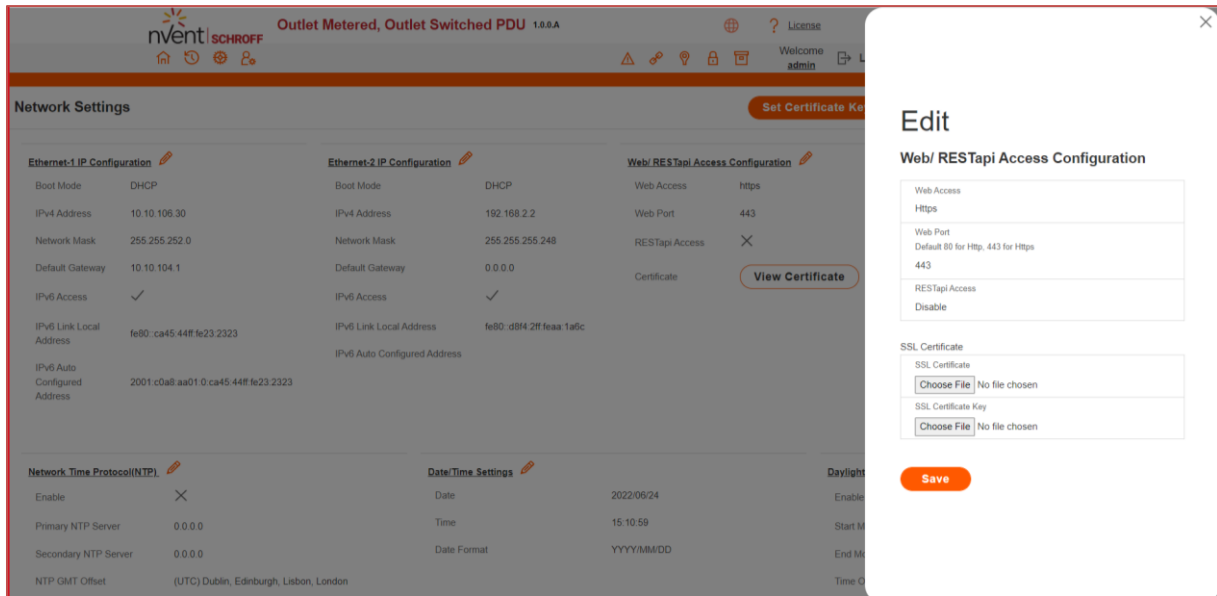




## 8 Redfish

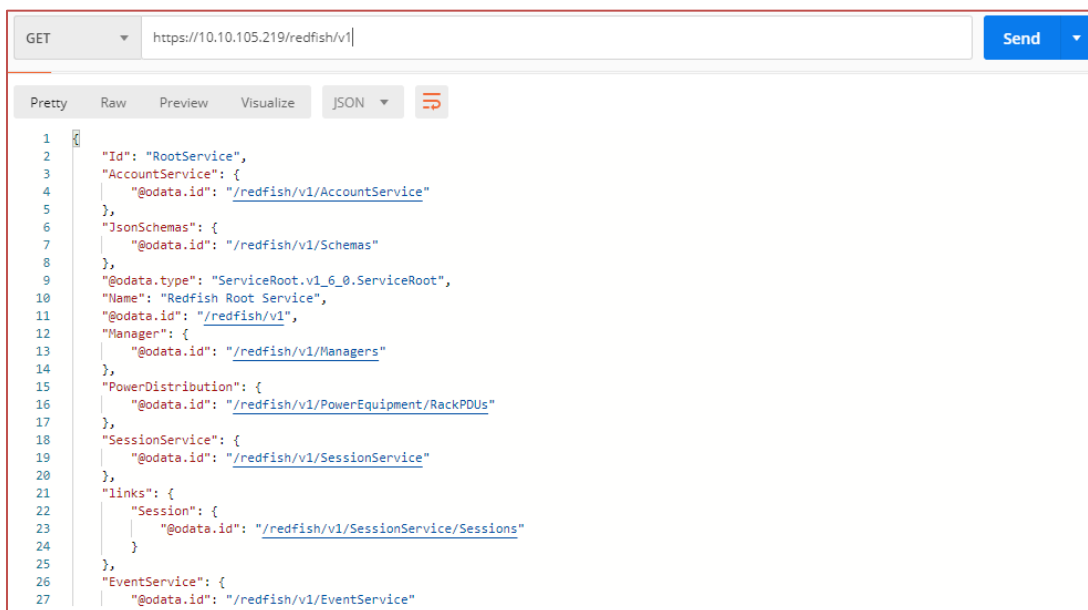
Redfish API is tested using POSTMAN, which is a Google Chrome extension app for GET, POST and DELETE method requests.

1. To setup Redfish access, type the PDU IP in chrome and login to the PDU using the credentials.
2. Go to Network Settings and enable RESTapi Access Configuration.



3. Click Save, Confirm and apply changes. The PDU will reboot
4. Open POSTMAN app. Add the basic authentication header, which is required for all the query requests.

For GET request, type the URL request, basic authentication header with username and password and query the request.

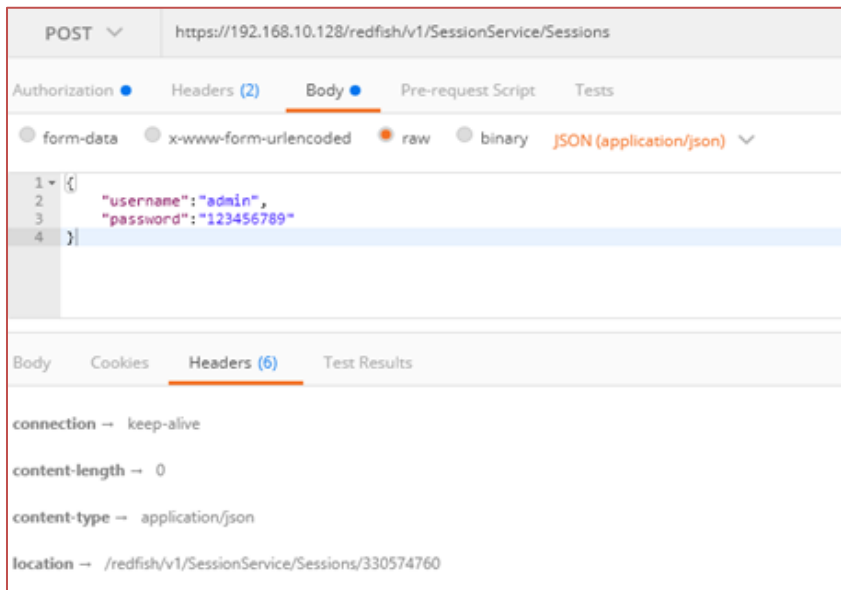


For POST request, include the json object type along with the basic authentication header

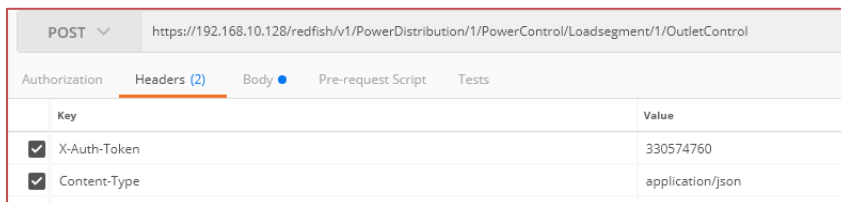
Create a session using POST method:

POST query the URL `http://{pdu_ip}/redfish/v1/SessionService/Sessions` along with the two headers (basic auth and json object type) and the body:

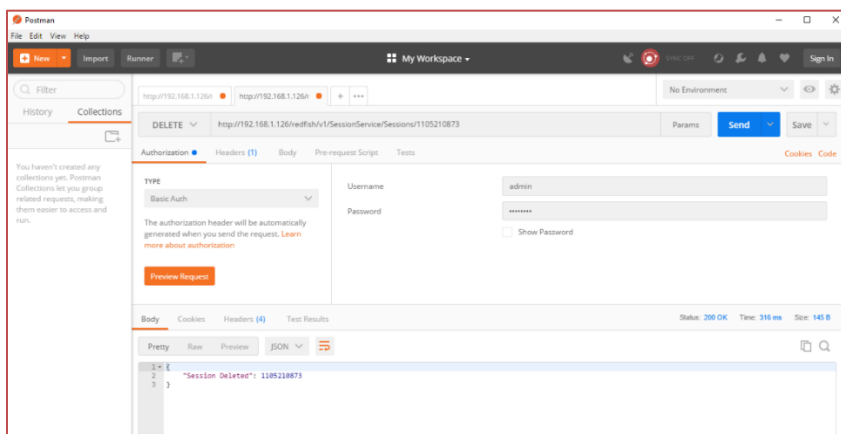
```
{
  "username": "admin",
  "password": "123456789"
}
```



Use the X-Auth Token from the response body along with the other two headers and basic authentication for any POST requests (Refer Error! Reference source not found.).



For DELETE request, type the URL for session or users want to delete along with the basic authentication and send.



### 8.1.1 Redfish URLs Supported with GET Method

#### Session Service

S.No	URL
1	https://<ip_addr>/redfish/v1/
2	/redfish/v1/SessionService
3	/redfish/v1/SessionService/Sessions
4	/redfish/v1/SessionService/Sessions/{session_ids}

#### Account Service

S.No	URL
1	/redfish/v1/AccountService
2	/redfish/v1/AccountService/Accounts
3	/redfish/v1/AccountService/Accounts/{username}
4	/redfish/v1/AccountService/Roles
5	/redfish/v1/AccountService/Roles/{rolename}

#### Managers

S.No	URL
1	/redfish/v1/Managers
2	/redfish/v1/Managers/manager
3	/redfish/v1//Managers/manager/NetworkProtocol
4	/redfish/v1//Managers/1/LogServices
5	/redfish/v1//Managers/1/LogServices/Log
6	/redfish/v1//Managers/1/LogServices/Log/Entries

#### Metrics

S.No	URL
1	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Metrics

#### Power Equipment

S.No	URL
1	/redfish/v1/PowerEquipment
2	/redfish/v1/PowerEquipment/RackPDUs
3	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}

#### Branches

S.No	URL
1	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Branches
2	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id} /Branches/#cbnumber

**Outlets**

S.No	URL
1	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Outlets
2	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Outlets/#outletnumber

**Sensor**

S.No	URL
1	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Sensors/Power{cbnum#}
2	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Sensors/Current{cbnum#}
3	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Sensors/VoltageAL1N
4	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Sensors/CurrentOUTLET#
5	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Sensors/VoltageOUTLET#
6	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Sensors/PowerOUTLET#
7	/redfish/v1/PowerEquipment/RackPDUs/2/Sensors/EnergyOUTLET44
8	/redfish/v1/PowerEquipment/RackPDUs/2/Sensors/PowerMains1-6
9	/redfish/v1/PowerEquipment/RackPDUs/2/Sensors/CurrentMains1-3
10	/redfish/v1/PowerEquipment/RackPDUs/2/Sensors/VoltageMains1-6
11	/redfish/v1/PowerEquipment/RackPDUs/2/Sensors/FreqMains
12	/redfish/v1/PowerEquipment/RackPDUs/2/Sensors/PDUPower

**Mains**

S.No	URL
1	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Mains
2	/redfish/v1/PowerEquipment/RackPDUs/{pdu_id}/Mains/AC1

**Redfish URLs Supported with POST Method**

S.No	URL
1	/redfish/v1/AccountService/Accounts
2	/redfish/v1/PowerDistribution/{pdu_id}/PowerControl/Loadsegment/{loadseg_id}/OutletControl

**Redfish URLs Supported with DELETE Method**

S.No	URL
1	/redfish/v1/AccountService/Accounts/test_user
2	/redfish/v1/SessionService/Sessions/<SessionID>

## 9 The Command Line Interface (CLI)

The Command Line Interface (CLI) is an alternate method used to manage and control the nVent RackPower PDU status and parameters, as well as basic admin functions. Through the CLI a user can:

- Reset the PDU
- Display PDU and network properties
- Configure the PDU and network settings
- Switch outlets on/off
- View user information

The CLI can be accessed over a serial connection using a program such as HyperTerminal.

### 9.1.1 Logging in with HyperTerminal

To login through HyperTerminal, set the COM settings to the following parameters:

- Bits per second: 115200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

### 9.1.2 CLI Commands and Prompts

#### CLI Options

To display a list of available options in the CLI, type '?' in the command prompt. This will display the main categories of command options available: sys, net, usr, dev & pwr.

```
rackpower>?
Sys  PDU system configure and setting
Net  PDU net application configure and setting
Usr  PDU user operation
Dev  PDU device setting
Pwr  PDU power setting
```

To display a list of options available for one of the menus (sys, net, usr, dev or pwr), type the menu command and press enter.

```
parameter Error
sys: system setting
usage:
  sys [date/time/ntp] [2012-09-11/14:16:20/133.100.11.8 133.100.11.9 (serv
er1 server2)]
  sys [ver/def/rst]
  sys upd [pduid] [conf/all]
  sys log [del|edit] [event|data] [on|off] [interval]
  sys ledcolor [pduid]/all] [dark/red/green/yellow/blue/pink/cyan/white]
  sys dualinput get
  sys dualinput set [NA/EMEA]
```

**Note:** You can also type the menu command with '?' to show a list of commands.

### 9.1.3 CLI Commands Table

The following is a list of commands available in the CLI to execute. The commands are divided into 5 main categories: System setting (sys), Network configuration (net), User setting (usr), Device setting (dev) and Power (pwr).

Commands	Description	Example
sys date [yyyy-mm-dd]	Sets the user input date	RackPower>sys date 2013-08-12 SUCCESS
sys date	Query on PDU date	RackPower>sys date SUCCESS Date:2013-08-12 Time: 04:58:16
sys time[hh:mm:ss]	Sets the user input time	RackPower>sys time 09:20:50 SUCCESS
sys time	Query on PDU time	RackPower>sys time SUCCESS Date:2013-08-12 Time: 09:20:53
sys ntp [primary_ip] [secondary_ip]	Sets the NTP	RackPower>sys ntp 129.6.15.28 129.6.15.29 SUCCESS
sys ver	Query on the system versions – firmware, web, boot loader and language version	RackPower>sys ver SUCCESS Firmware Version: 1.0.6.1 Boot loader Version: 1.1 LANGUAGE Version: 1.01 Web Version: 1.0.5.8
sys def	Set the PDU system to default settings	RackPower>sys def Reboot required for change to take effort System Reboot now, Are you sure? (Y/N):
sys rst	Resets the PDU system	RackPower>sys rst Reboot required for change to take effort System Reboot now, Are you sure? (Y/N):

sys upd [pduid] [conf/all]	Updates the configuration file	RackPower>sys upd conf Reboot required for change to take effort System Reboot now, Are you sure? (Y/N):
sys log [del edit] [event data] [on off] [interval]	Edits the data log configuration interval	RackPower>sys log edit data on 5 SUCCESS RackPower>sys log edit data off SUCCESS
Net Commands	Description	Example
net ssh [on/off]	Sets ssh on/off	RackPower>net ssh SUCCESS SSH Port: 22 SSH server is running
net ftps [on/off]	Sets ftps on/off	RackPower>net ftps SUCCESS FTPS Port: 21 Service is running Is Ftp
net http [on/off]	Sets https on/off	RackPower>net http SUCCESS HTTPS Port: 80 Status: ON  RackPower>net https on Reboot required for change to take effort WEB protocol is changed, reboot to validate System Reboot now, Are you sure? (Y/N):
net https [on/off]	Sets https on/off	RackPower>net https SUCCESS HTTPS Port: 443 Status: OFF  RackPower>net https on Reboot required for change to take effort

		<p>WEB protocol is changed, reboot to validate</p> <p>System Reboot now, Are you sure? (Y/N):</p>
net redfish [on/off]	Sets redfish on/off	<p>RackPower&gt;net redfish</p> <p>SUCCESS</p> <p>Status: ON</p> <p>RackPower&gt;net redfish off</p> <p>SUCCESS</p> <p>Status: OFF</p>
net [snmp] [v1v2c/v3/trap] [on/off]		<p>RackPower&gt;net snmp</p> <p>SUCCESS</p> <p>v1v2c: ON</p> <p>v3: ON</p> <p>trap: ON</p> <p>RackPower&gt;net snmp v1v2c off</p> <p>SUCCESS</p>
net [mac/tcpip]	Displays the mac address, IPv4	<p>RackPower&gt;net mac</p> <p>SUCCESS</p> <p>MAC Addr: C8-45-44-66-2B-65</p> <p>MAC Addr: C8-45-44-66-2B-67</p> <p>RackPower&gt;net tcpip</p> <p>SUCCESS</p> <p>eth0 IPv4 Addr: 10.10.105.37</p> <p>eth0 IPv6 Link Local Addr: fe80:ca45:44ff: fe66:2b65</p> <p>eth0 IPv6 DHCP Addr: 2001:c0a8:aa01:0:ca45:44ff: fe66:2b65</p> <p>eth1 IPv4 Addr: 192.168.2.2</p>
Nettcpip [eth0dhcp/eth1dhcp/eth0static/eth1static ip nm gw]	Changes the network to DHCP or Static mode	<p>RackPower&gt;net tcpip dhcp eth0dhcp</p> <p>Reboot required for change to take effort</p> <p>Network is reconfigured, reboot to validate System Reboot now, Are you sure? (Y/N): Y</p> <p>RackPower&gt;net tcpip eth1static &lt;10.10.94.20 255.255.255.0 10.10.94.1&gt;</p>



		<p>Reboot required for change to take effort</p> <p>Network is reconfigured, reboot to validate</p> <p>System Reboot now, Are you sure? (Y/N):Y</p>
net ip [v4] [v4v6]	Sets ipv4	<p>RackPower&gt;net ip SUCCESS IPV4</p> <p>RackPower&gt;net ipv4 Reboot required for change to take effort IP protocol is changed, reboot to validate System Reboot now, Are you sure? (Y/N):</p>
net phy [auto/10100mbps]	Set the link speed to auto negotiation/10100mbps	<p>RackPower&gt;net phy SUCCESS link speed: auto negotiation</p> <p>RackPower&gt;net phy 10100mbps Reboot required for change to take effort Phy speed is changed, reboot to validate System Reboot now, Are you sure? (Y/N):</p>
net cert [def]	Updates the certificate file	<p>RackPower&gt;net cert SUCCESS Custom certificate key file active, in /cert/cert.key Custom certificate cert file active, in /cert/cert.crt</p> <p>RackPower&gt;net cert def</p> <p>Removing custom certificate key file, in /cert/cert.key</p> <p>Removing custom certificate file, in /cert/cert.crt</p>

		<p>Reboot required for change to take effect</p> <p>Certificate Setting changed, reboot to validate</p> <p>System Reboot now, Are you sure? (Y/N):</p>
--	--	--

Usr Commands	Description	Example
usr list	Lists out the PDU users	<pre>RackPower&gt;usr list SUCCESS Usr          Role      Privilege Role id ===== ===== admin admin  Administrator  1 user  user   User           2 manager                               manager Administrator  3</pre>
usr login	Displays the logged in user details	<pre>RackPower&gt;usr login SUCCESS username: admin ip address: 10.10.94.211 client type: SSH</pre>
usr unlock [username]	Unlocks the blocked user	<pre>RackPower&gt;usr unlock en_user SUCCESS</pre>

Dev Commands	Description	Example
dev cascade [rna/qna] [init] [create]	Setting the PDU Cascade to RNA or QNA mode	RackPower>dev cascade SUCCESS Cascade unit number: 1 Cascade address list: 0 0 0 Cascade Mode: QNA  RackPower>dev cascade qna create Reboot required for change to take effort System Reboot now, Are you sure? (Y/N):
dev outlet pdu ID [status/outlet index] [on/off]	Displays outlet status. Turn on/off the outlet power	RackPower>dev outlet 1 status SUCCESS Relay Outlet Status Outlet# 1: Open Outlet# 2: Open Outlet# 3: Open Outlet# 4: Open Outlet# 5: Open Outlet# 6: Open Outlet# 7: Open Outlet# 8: Open  RACKPOWER>dev outlet 1 1 on SUCCESS
dev [sensor/usb] [on/off]	Lists out the connected sensors on PDU Turn on/off the USB	RackPower>dev sensor SUCCESS  RackPower>dev usb on SUCCESS
dev hid [cold/hot] [lock/unlock]	Displays the PDU Rack Access details Locks/Unlocks the HID	RackPower>dev hid 1 SUCCESS  RackPower>dev hid 1 hot unlock SUCCESS
dev ledstrip [on/off]	Turns on/off the ledstrip	RackPower>dev ledstrip on SUCCESS

<p>dev powershare</p>	<p>Displays the status of PDU power share</p>	<p>RackPower&gt;dev power share SUCCESS</p> <p>PDU 1: Downstream: 0 Upstream: 1 Mains: 1</p> <p>PDU 2: Downstream: 1 Upstream: 1 Mains: 1</p> <p>PDU 3: Downstream: 1 Upstream: 1 Mains: 1</p>
<p>dev ehandle [pduID] [cold/hot] [lock/unlock]</p>	<p>Enables ehandle function</p>	<p>dev ehandle 1 hot lock</p>

Pwr Commands	Description	Example
<p>pwr [unit/phase/cb/outlet] [idx]</p>	<p>Displays the power readings</p>	<p>RackPower&gt;pwr unit 1 SUCCESS UNIT power Feature voltage: 0V current: 0.0A active power: 0W apparent power: 0W power factor: 1.00 energy: 0.000kWh</p> <p>RackPower&gt;pwr outlet 3 SUCCESS OUTLET 3 power Feature voltage: 0V current: 0.0A active power: 0W apparent power: 0W</p>

## 10 Cascade and RNA–Redundant Network Access

### 10.1 Cascade Functionality

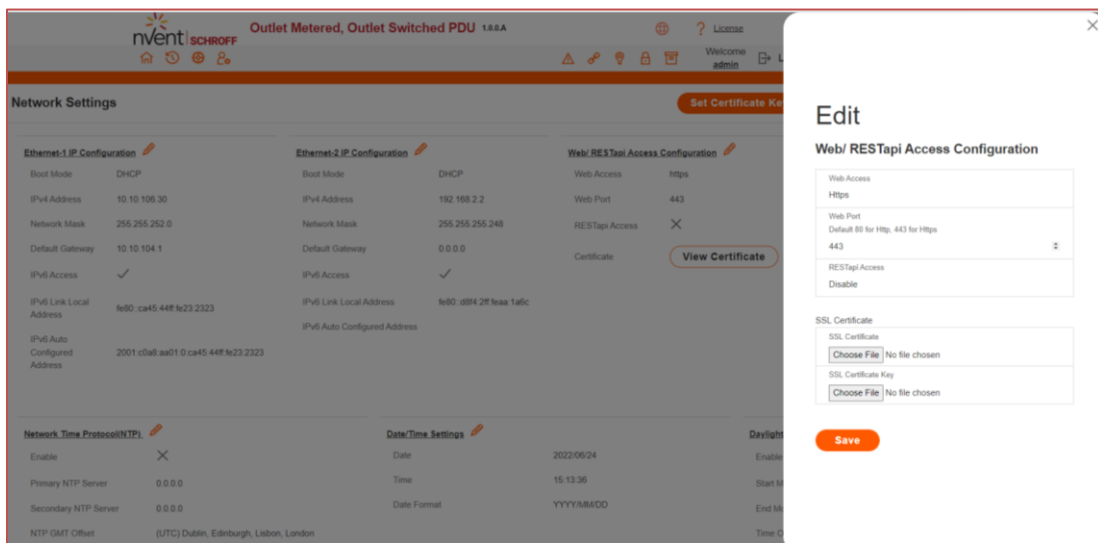
In cascade mode, up to 64 PDUs can be connected via one (1) IP address. This allows the user to gather information and data of all cascade PDUs from the Host PDU.

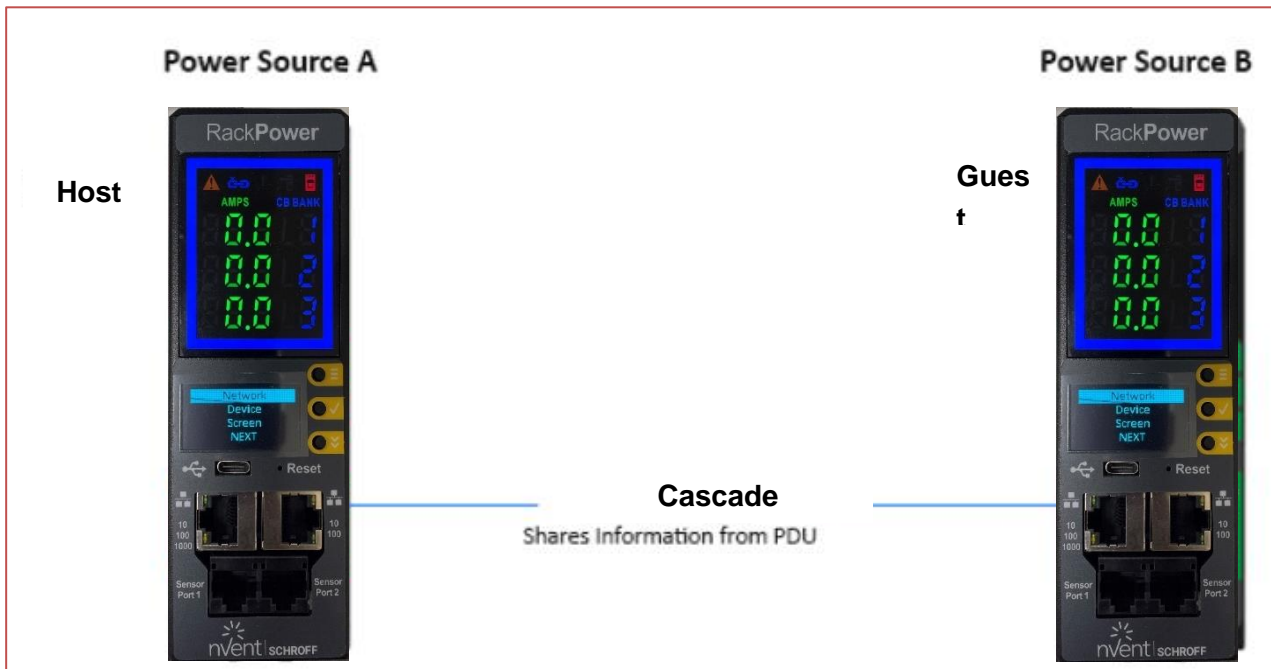
The cascade functionality reduces the network services cost for PDUs. For example, a standard network switch is used in a data center that can contain 24 ports. Without using the cascade function, each port supplies network services to one (1) PDU. However, if using the cascade features of nVent, a typical network switch with 24 ports can supply network services for up to 1536 PDUs.

### 10.2 Cascade Setup

Follow the steps below to set up the connection up to 64 PDUs of the same SKU via single IP address:

1. Configure the PDU, which is first in line on the Cascade.  
Note: Refer to the Network Settings section for more information.
2. After the initial PDU is configured, connect the Ethernet cord from the 10/100 port (on the configured PDU) to the 10/100/1000 port (on the second PDU) in the cascade line.
3. Repeat step 2, connecting PDUs from the 10/100 port to the 10/100/1000 port for up to 64 PDUs.  
Note: The length of the Ethernet cords connecting the PDUs must be less than 6 m (20 ft.).
4. By default, the Cascade command is enabled in the PDU configuration file and default mode of the PDU is QNA. Go to the Web Interface (or Management Software) to manage and control the PDUs in the Cascade.





### 10.2.1 RNA (Redundant Network Access) Functionality

RNA allows to secure the access of the RackPower PDU data and statistics on two separate private networks. RNA is used with a redundant power delivery design including two RackPower PDUs for each IT rack. PDUs are used in RNA applications that must be the same SKU.

### 10.2.2 Power Share Functionality

Power share functionality is enabled by default in the NMC on MB & GB ports. It can power share in either way, i.e. [10/100/1000] GB port and [10/100] MB port both can power share to the adjacent PDUs connected.

#### How it Works

- Using RNA, the landlord and tenant maintain two separate private networks that do not overlap.
- RNA works using a redundant power delivery design (i.e., two RackPower PDUs for each IT rack).
- Each PDU is separately connected to the Tenant or Landlord's private communications network.
- The two PDUs are connected with the data communications bus to allow PDUs to share user-defined information.
- Each PDU acts like a Host PDU to report PDU data to both networks.

### 10.2.3 RNA Setup

To setup RNA mode on Cascade setup:

- Configure the PDU for RNA Mode (using CLI).
- Connect the LAN Network cords and Ethernet cords between PDUs.

After the PDUs are configured for RNA:

- Connect the LAN network cable from network switch to the PDU1 Port1.
- Connect another LAN NETWORK cable to Port 2 of last PDU in the cascade setup.
- Connect the Ethernet cable from the Master PDU port 2 to Slave PDU port 1 (to establish cascade connection).
- Configure RNA mode to establish RNA connection.

To Configure RNA Mode login to the CLI and type the command 'dev cascade rna' on the last PDU of cascade setup.

The following message will appear:

#### **SUCCESS**

**System Reboot now, Are you sure? (Y/ N)**

- Type Y to confirm reboot.

After reboot, the PDU will be setup to RNA Mode.

**Note:** RNA mode enabled PDU's should not be placed in between the cascade-system.

### 10.2.4 Cascade and RNA Commands in CLI

The following is a list of executable commands available in the CLI for nVent RNA use only.

Command	Description	Example
Dev cascade rna	Changes mode from cascade to RNA	RackPower> dev cascade rna System Reboot now, Are you sure? (Y/ N):
dev cascade qna	Changes mode from RNA to Cascade	RackPower> dev cascade qna System Reboot now, Are you sure? (Y/ N):

## 11 Firmware Update

The firmware of RackPower PDUs and Inline Meters can be updated in a variety of ways.

### 11.1 Firmware Update via USB

- Download the firmware at <https://schroff.nvent.com>
- Extract the firmware and copy it to an USB drive.
- Insert the USB drive into the USB port of the PDU.
- Go to Settings-> USB on the LED display.
- Select Firmware Upload and click Yes to confirm.  
**Note:** The LED display will show the Firmware update progress and the process of updating. When the update is complete, the PDU will automatically reboot.
- Remove the USB drive.
- Go to Settings -> Device -> Firmware to confirm that the Firmware is updated successfully.

### 11.2 Firmware Update via Web Interface

- Download the firmware at <https://schroff.nvent.com>
- Extract the firmware to a folder.
- Go to System management page and select the Upload Firmware option.
- Select the PDU you want to upload firmware, and upload firmware file.

### 11.3 Firmware Update via FTPS

To access the PDU using an FTPS program, FTPS must be enabled through the PDU Web Interface, through CLI or through SSH.

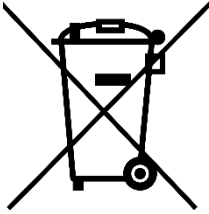
- In the Web Interface, go to Network Settings -> FTPS.
- Select the check box to enable FTPS Access.
- Login to an FTP program with a role with administration privileges.
- Transfer the firmware file to the accessible folder.
- Connect to the PDU via SSH using a program such as HyperTerm or PUTTY.
- Login using a role with administration privileges.
- Type the command `sys upd <pduid> all`.

After reboot message indication in console, Issue `sys upd <pduid> rst` (In Cascade for the guest device).

**Note:** For Master PDU / Standalone configuration, type the command `sys upd <pduid> all` and (Y/N) prompt will be appeared for PDU reboot, type Y. When the upload is finished, the system will reboot automatically.



## 12 Disposal



The devices described in this manual must be recycled. In accordance with the Directive 2012/19/EC on waste electronic and electrical equipment (WEEE), they may not be disposed of in the municipal waste disposal services. To ensure environmentally friendly recycling the devices can be returned to a locally approved disposal center. Make sure that you observe the regulations applicable in your country.

### 13 nVent RackPower PDU Product Range

Phase	Rack Power SKU	Hoffman Model Code	Phase Connection	Outlet Count	Outlet Type	Length (mm)	Width (mm)	Depth (mm) at Outlet position	Apparent Power (kVA)	Input Voltage	Input Current per phase
Three Phase	RP1850	57442	wye, L-N	48	(24)C13, (24)C13/(24)C19	1780	56	55	22.0 /16.5kVA	230	32/30(24)
	RP2850	57443	wye, L-N	48	(24)C13, (24)C13/(24)C19	1780	56	75	22.0 /16.5kVA	230	32/30(24)
	RP6850	57444	wye, L-N	48	(24)C13, (24)C13/(24)C19	1780	56	75	22.0 /16.5kVA	230	32/30(24)
	RP1851	57446	wye, L-L	42	(21)C13, (21)C13/(21)C19	1780	56	55	8.6 kVA	208	30
	RP2851	57447	wye, L-L	48	(24)C13, (24)C13/(24)C19	1780	56	75	8.6 kVA	208	30
	RP6851	57448	wye, L-L	48	(24)C13, (24)C13/(24)C19	1780	56	75	8.6 kVA	208	30
	RP1952	57451	delta, L-L	42	(21)C13, (21)C13/(21)C19	1780	56	75	17.3 kVA	208	60
	RP2952	57452	delta, L-L	42	(21)C13, (21)C13/(21)C19	1826	56	75	17.3 kVA	208	60
	RP6952	57453	delta, L-L	42	(21)C13, (21)C13/(21)C19	1780	56	75	17.3 kVA	208	60
	RP1450	57455	wye, L-N	42	(21)C13, (21)C13/(21)C19	1490	56	55	11.5/11.0 kVA	230	16/20(16)
	RP2450	57456	wye, L-N	42	(21)C13, (21)C13/(21)C19	1490	56	75	11.5/11.0 kVA	230	16/20(16)
	RP6450	57457	wye, L-N	48	(24)C13, (24)C13/(24)C19	1490	56	75	11.5/11.0 kVA	230	16/20(16)
	RP1950	57458	wye, L-N	42	(21)C13, (21)C13/(21)C19	1826	56	75	43.5/34.6 kVA	230	63/60(48)
	RP2950	57459	wye, L-N	42	(21)C13, (21)C13/(21)C19	1826	56	75	43.5/34.6 kVA	230	63/60(48)
	RP6950	57461	wye, L-N	42	(21)C13, (21)C13/(21)C19	1826	56	75	43.5/34.6 kVA	230	63/60(48)
	RP1951	57462	delta, L-L	42	(21)C13, (21)C13/(21)C19	1780	56	75	14.4 kVA	208	50(40)
	RP2951	57463	delta, L-L	42	(21)C13, (21)C13/(21)C19	1826	56	75	14.4 kVA	208	50(40)
	RP6951	57464	delta, L-L	42	(21)C13, (21)C13/(21)C19	1780	56	75	14.4 kVA	208	50(40)

Phase	Rack Power SKU	Hoffman Model Code	Phase Connection	Outlet Count	Outlet Type	Length (mm)	Width (mm)	Depth (mm) at Outlet position	Apparent Power (kVA)	Input Voltage	Input Current per phase
Single Phase	RP2326A	57422	L-L or L-N	24	(20)C13, (4)C19	1490	52	53	3.68 kVA	230	16
	RP1316	57428	L-N	16	(16)5-20R	817	52	53	1.92 kVA	120	16
	RP1324	57429	L-L	24	(20)C13, (4)C19	1490	52	53	5.0 kVA	208	24
	RP1325	57431	1-phase, L-N	24	(20)C13, (4)C19	1490	52	53	7.4 kVA	230	32
	RP1326A	57432	L-L or L-N	24	(20)C13, (4)C19	1490	52	53	3.3 kVA	208	16
	RP1327	57433	L-N	24	(24)5-20R	1490	52	53	2.9 kVA	120	24
	RP2325	57434	1-phase, L-N	24	(20)C13, (4)C19	1750	52	53	7.4 kVA	230	32
	RP2310	57435	L-N	12	(12)5-20R	917	52	53	1.92 kVA	120	16
	RP2319	57436	L-N	18	(18)5-20R	1490	52	53	2.9 kVA	120	24
	RP2324	57437	L-L	24	(20)C13, (4)C19	1750	52	53	5.0 kVA	208	24
	RP6324	57438	L-L	24	(20)C13, (4)C19	1750	52	53	5.0 kVA	208	24
	RP6325	57439	1-phase, L-N	24	(20)C13, (4)C19	1750	52	53	7.4 kVA	230	32

## 14 Sensors Product Range

nVent SKU	Hoffman Model Code	Description
EA9102	57465	SINGLE TEMPERATURE PROBE SENSOR
EA9103	57466	SINGLE T+H PROBE SENSOR
EA9105	57467	3T+1H PROBE SENSOR
EA9106	57468	SENSOR INPUT HUB
EA9109	57469	DOOR SWITCH SENSOR
EA9110	57471	DRY CONTACT CABLE
EA9111	57472	SPOT FLUID SENSOR
EA9112	57473	ROPE FLUID LEAK SENSOR
EA9119	57474	RJ45-DB9 CABLE
EA9500	57475	eHandle RFID with keypad
EA9502	57476	eHandle RFID only
EA9530	57477	eHandle to nVent iPDU Harness
EA9550	57478	eHandle Temperature and Door Sensor
EA9551	57479	eHandle (3) Temperature and Door Sensor