Easy Rack Power Distribution Unit

3-Phase Switched

EPDU1216S, EPDU1232S, EPDU1232SX3620

User Guide

Release Date: 12/2020

www.apc.com

by Schneider Electric

Legal Information

Contents

General Information

Important Safety Information

Read the instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it.

Safety

NOTICE
This product has not been tested for Radio Frequency Interference. Sale of this product where Radio Frequency Interference testing is required is prohibited. This includes North America and Japan.

Introduction

Product Features

This APC by Schneider Electric Rack Power Distribution Unit, the Switched Easy PDU, may be used as a stand-alone, network-manageable power distribution device. The Switched Easy PDU provides real-time remote monitoring of connected loads. User-defined alarms warn of potential circuit overloads. You can manage an Easy PDU through its Web User Interface (Web UI), or Simple Network Management Protocol (SNMP).

Switched Easy PDUs have these additional features:

- Monitor device power, apparent power, power factor and energy
- Monitor phase voltage, current
- Configurable alarm thresholds with network access to help avoid overloaded circuits
- Various levels of access: Super User and General User. (Only one user at a time may log in at each access level)
- Individual outlet control
- Configurable power (On/Off delays)
- RS485 cascade connection: Up to 4 Easy PDUs can be connected using an RS485 serial interface so that only one network connection is necessary
- Event logging
- Modbus-TCP (Disabled as default configuration)
- SNMP traps (V1, V2c, and V3)
- Security protocols for authentication and encryption.
- Log file and firmware can be upgraded by inserting a USB Flash drive into the USB port on the Display Interface of the Easy PDU
- Synchronize the time with the SNTP Server.
  NOTE: There is no Real Time Clock (RTC) battery on this device. You will need to set a SNTP server the first time you log in.

Getting Started

To start using the Easy PDU:

1. Install the Easy PDU using the Installation Instructions that were shipped with your device.
2. Apply power and connect to your network. Follow the directions in the Installation Instructions.
3. Establish network settings (See “Establish Network Settings” on page 3.)
4. Begin using the Easy PDU by way of one of the following:
   – Web User Interface (See “Web User Interface” on page 6.)
   – Easy PDU Front Panel (See “Display Interface Overview” on page 4.)
   – SNMP protocol (See “SNMP Settings” on page 13.)

Establish Network Settings

DHCP Configuration

The default TCP/IP configuration setting, **DHCP**, assumes that a properly configured DHCP server is available to provide TCP/IP settings to the Easy PDU.

Static IP Configuration

You must define three TCP/IP settings for the Easy PDU before it can operate on the network:

- The IP address of the Easy PDU
- The subnet mask of the Easy PDU
- The IP address of the default gateway (only needed if you are going off segment)

For detailed information on how to configure the TCP/IP settings in a Easy PDU, see “Establish Network Settings” on page 3.

Reset to Default

In some situations, users want to reset the settings to default. Press the **Reset** button for at least **10** seconds and release. The Display Module will automatically reboot. The settings below will be reset to default:

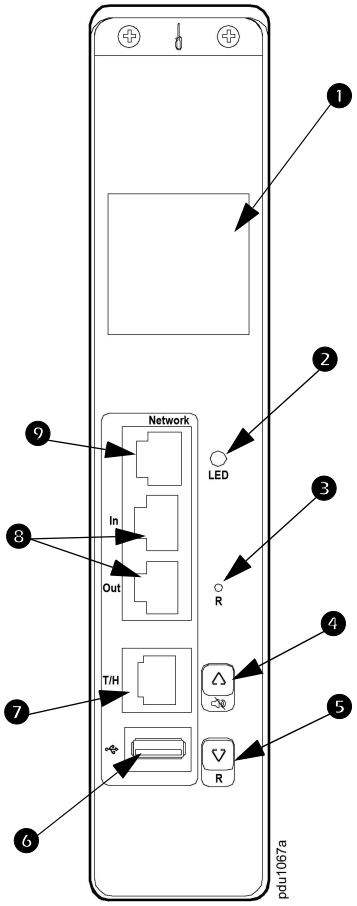
- Alarm Threshold
- Network Settings
- SNMP Settings
- Users Settings (including usernames and passwords)
- SNTP configurations in Time Settings

The settings below will **NOT** be changed:

- Date and Time
- Electric Energy of each phase
- Event Log

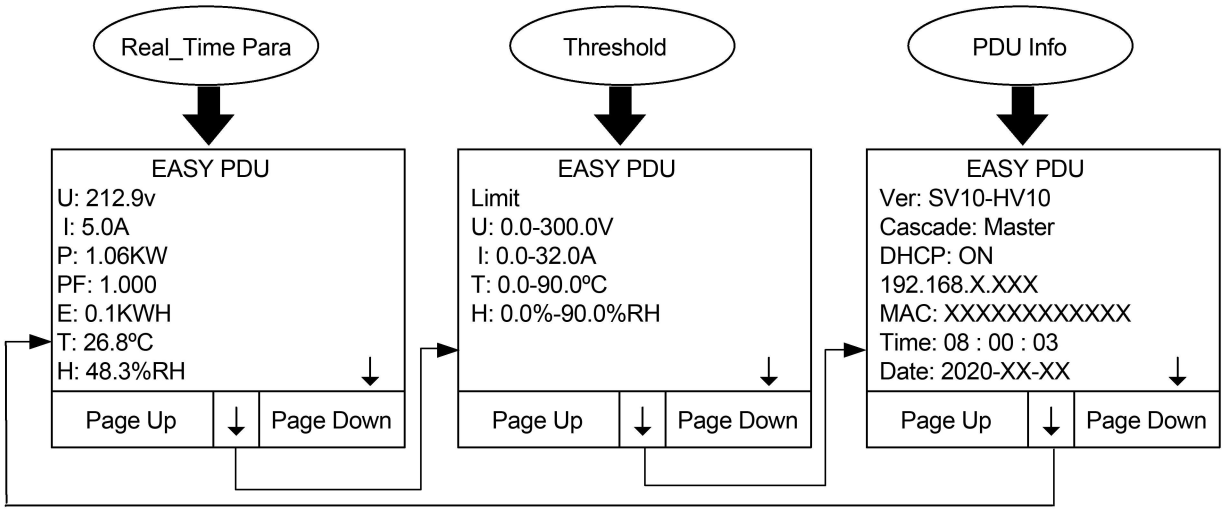
Display Interface Overview

The device has a network port, two (2) RS485 ports, a Temperature/Humidity port, and one (1) USB port. During normal operation, the LCD will flash periodically. When an alarm is triggered, the buzzer will beep, and the LCD backlight will be turned on. Press any button on the display to turn off the buzzer.



Item	Function	Description
❶	LCD Display	View functional data
❷	Run Indicator LED	Indicates the status when the power is on
❸	Reset Button	Press and hold for 4 seconds to reset to the default settings
❹	Up Function Button	Scroll for function status, Alarm shutoff
❺	Down Function Button	Scroll for function status, Alarm shutoff (Press and hold for 10 seconds to reboot)
❻	USB Port	For use with a Flash drive fir firmware upgrades,
❼	Temp/Humidity Port	Temp/Humidity Sensor connection port
❽	RS485 IN/ OUT Ports	For use with cascade connection feature
❾	Network Port	Connect the Easy PDU to your network

Display Tree Menu



Web User Interface

Supported Web Browsers

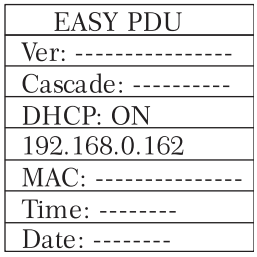
You can use Microsoft® Internet Explorer® (IE) 11 or Google® Chrome® or Mozilla® Firefox® to access the Easy PDU through its Web interface. Other commonly available browsers may work but have not been fully tested by APC by Schneider Electric.

Log On to the Web User Interface

You can use the System IP address of the Easy PDU for the URL address of the Web interface. Use your case-sensitive username and password to log on.

The default username and password for the **Super User** are both "**apc**". The **Super User** must define a username and password for the **General User**.

The DHCP is enabled by default. You must connect the Easy PDU to a network with a DHCP server before you assign a static IP address to the Easy PDU. (See "Establish Network Settings" on page 3 for more information.) The auto-assigned IP address can be requested from the network status page in the LCD display of the Display Module. On your computer, type the IP address of the Easy PDU in your Web browser's URL address field (e.g., 192.168.0.162 or http://192.168.0.162) and press ENTER.



Status

Select the Status tab to view:

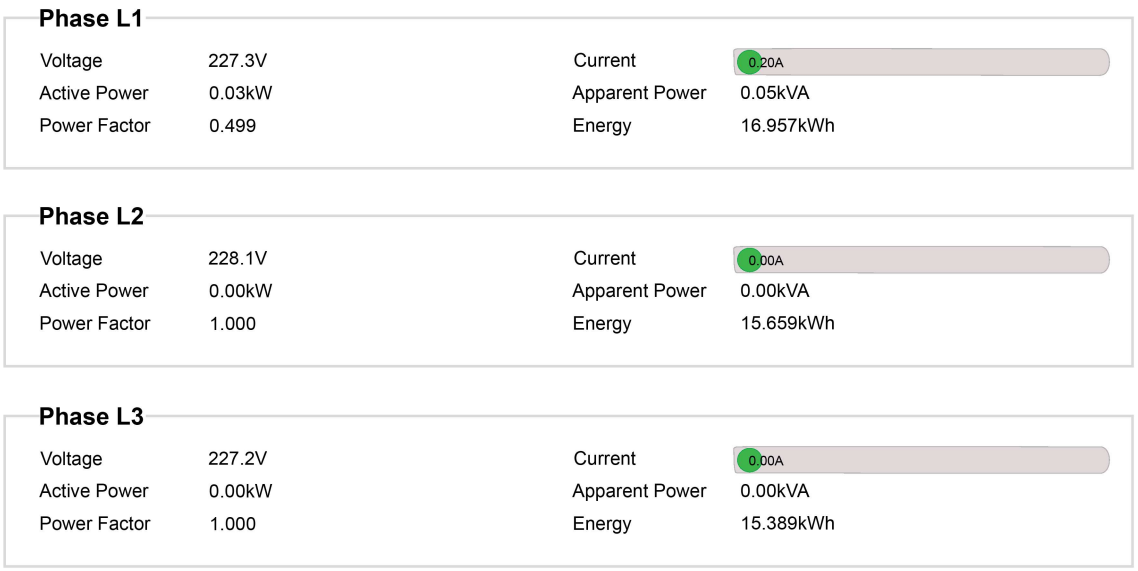
- System information
- Electrical use status
- Temperature and Humidity values
- Alarm status

System Information

The System Information page contains the following information: Model Number, Rating, and (Firmware) Version. The System Information page is useful to users to read the basic system information and for APC by Schneider Electric Customer Support for troubleshooting purposes. The version information allows you to see if updated firmware is available.

Electricity Status

The Electricity Status page displays real-time Voltage, Current, Active Power, Apparent Power, Power Factor, and Energy values.



Temperature and Humidity

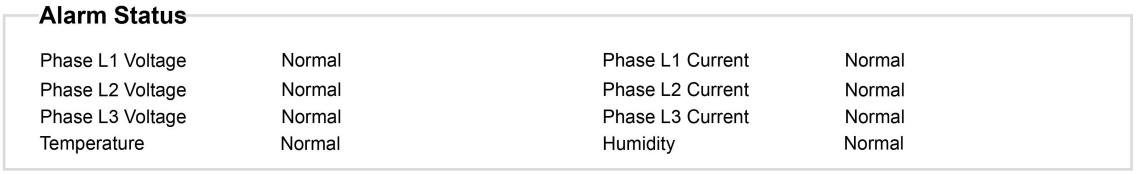
The T/H page displays real-time Temperature and Humidity values collected by the T/H sensor.

If the system cannot read the information from the T/H sensor a dash sign “-” will be displayed instead of the temperature or humidity value.

Alarm Status

The Alarm Status page shows Voltage, Current, Temperature and Humidity status relative to the corresponding thresholds. A status of:

- Lower Limit Violation indicates the current value is lower than the corresponding Lower Limit value configured in the Alarm Threshold column.
- Upper Limit Violation indicates the current value is higher than or equal with the corresponding Upper Limit value configured in the Alarm Threshold column.
- A status of Normal is displayed when there are no threshold violations.



Control

Select the Relay Control tab for:

- Outlet Group Control
- PDU Outlet Control

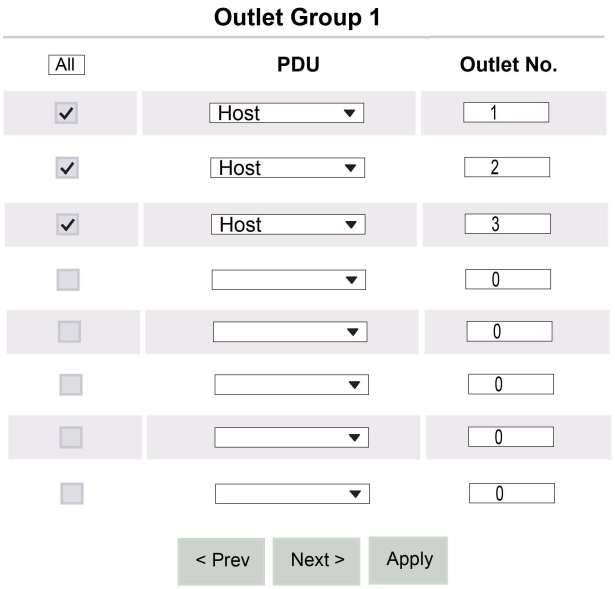
Outlet Group Control

The Outlet Group Control page allows users to customize up to 16 outlet groups and switch on/off all the outlets by group.

Users can allocate outlets of the Host/Guest PDUs to each outlet group.
NOTE: An individual outlet cannot be allocated to multiple outlet groups.

Customize an outlet group by:

1. Clicking on the group number on the Outlet Group Control page
2. **Adding** the desired outlets by selecting the corresponding PDU and outlet number of that PDU to the group or
   Removing an outlet from and outlet group by changing the corresponding outlet number to 0
3. Selecting the checkbox in front of all of the changes
4. Click on the **Apply** button at the bottom of the page to save your changes



PDU Outlet Control

The PDU Outlet control page allows users to read and configure the state of the outlets in both Host and Guest PDUs.

Host PDU Outlet Control

	Outlet Index	Name	Group No.	Action	State
All				All All	
	1	Outlet 1	1	OFF ON	OFF
	2	Outlet 2	2	OFF ON	OFF
	3	Outlet 3	3	OFF ON	OFF
	4	Outlet 4	0	OFF ON	OFF
	5	Outlet 5	0	OFF ON	OFF
	6	Outlet 6	0	OFF ON	OFF
	7	Outlet 7	0	OFF ON	OFF
	8	Outlet 8	0	OFF ON	OFF

Total 24 1 / 3 << < Prev Next > >> Apply

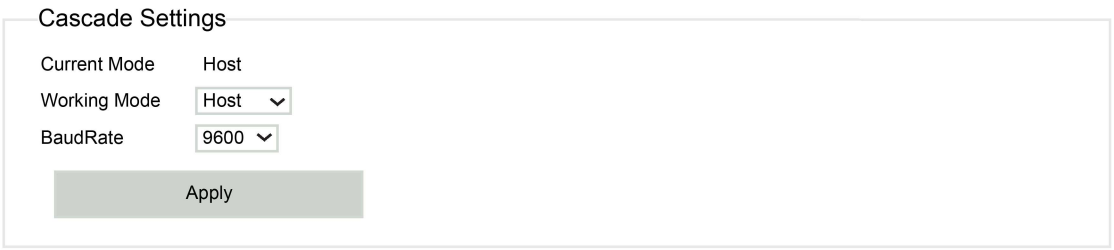
Configuration

Select the Configuration tab to:

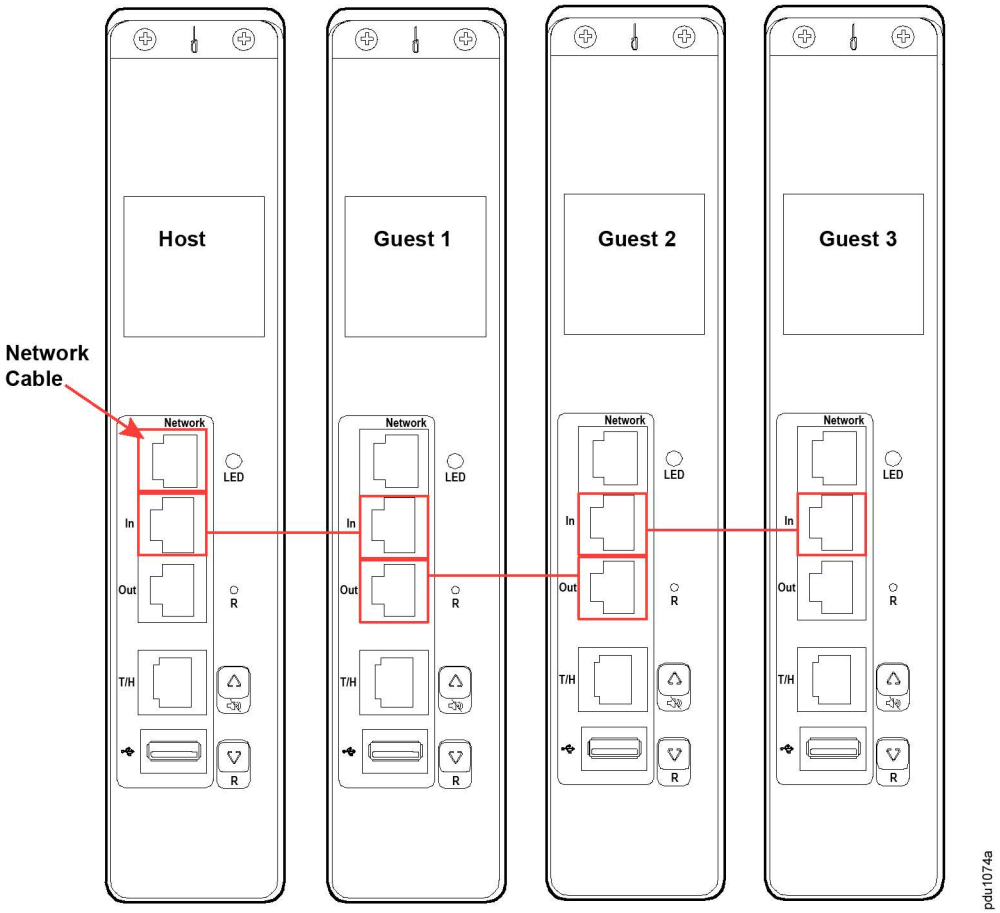
- Configure the system
  - set the Cascade settings
  - enable/disable the Modbus-TCP
  - configure the Outlet interval setting
  - configure Network settings
  - configure the Time settings
  - manage Users
- Configure the alarm thresholds
- Reset the energy consumption page to zero

Cascade Settings

The Cascade Settings page allows users to read and configure the RS485 port for the cascade connection. The Guest devices must use the same baud rate as the Host.

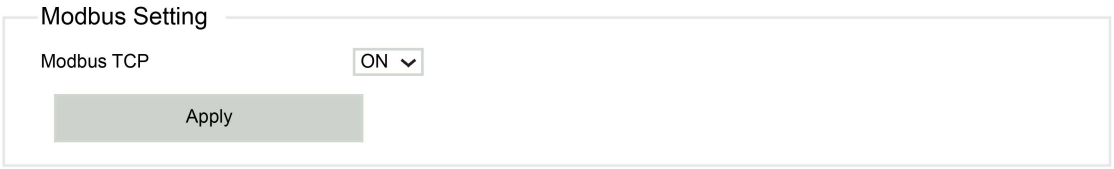


Cable connections example for cascading Easy PDUs



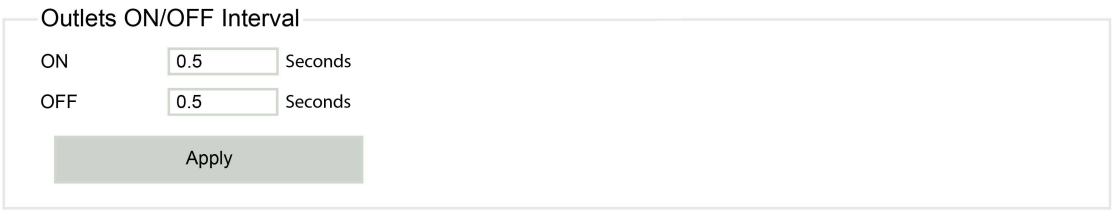
Modbus Settings

The Modbus-TCP is disabled as the default configuration. To enable this feature, select ON, then click the “Apply” button to save your changes. The system will REBOOT to make any change in the settings effective.



Outlet Switch Action Intervals

The Switch Action Interval page allows users to adjust the interval of time for turning switches on or off. The time value should be between 0.5 and 60 seconds. The time value must be a multiple of 0.5 second.

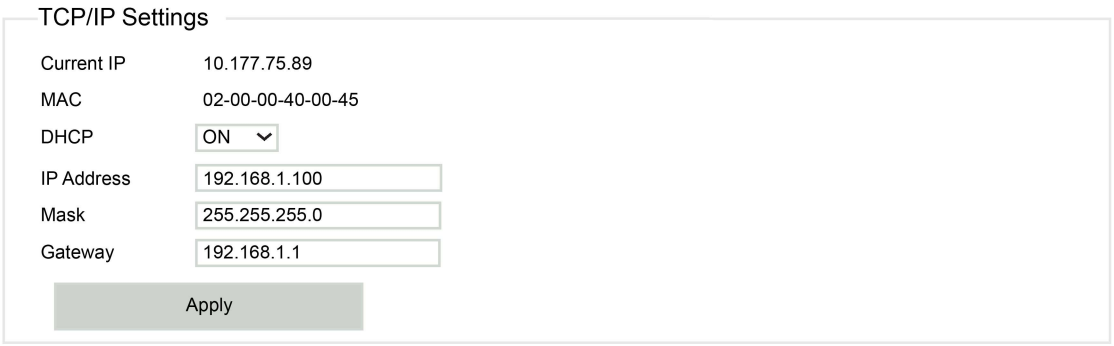


Network

TCP/IP Settings The TCP/IP Settings page allows users to read the current IP address and MAC address and allows users to configure basic network parameters.

- Select the DHCP allows the Easy PDU to request the network assignment from any DHCP server. If DHCP is enabled, data in the boxes of the IP Address, Mask, and Gateway will not be used.
- Deselect DHCP to allow users to customize a static IP address, Mask, and Gateway by manually inputting the desired values in corresponding boxes.

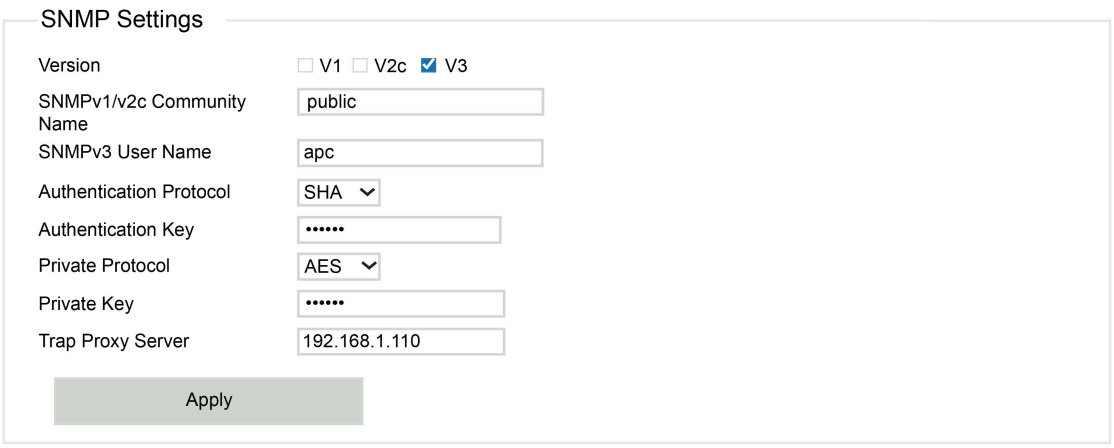
Click the “Apply” button to save your changes. The system will now REBOOT to initiate your changes to the Network Settings.



SNMP Settings The SNMP Settings page allows users to configure the following:

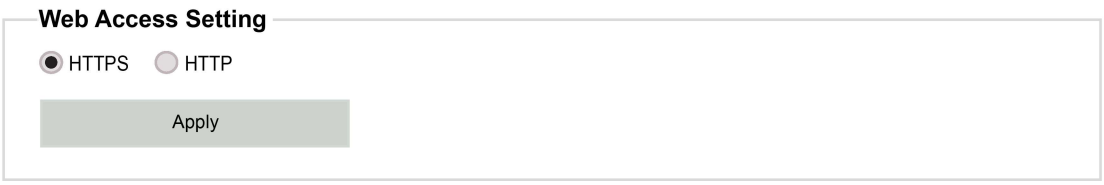
- **Version -** To access your supported SNMP version, Select **V1** to enable SNMPv1 and/or select **V2c** to enable SNMPv2c (V1 and V2C) or select **V3** to enable SNMPv3.
- **Community Name -** The default **Community Name** is "**public**" and can be changed by the user.
- If SNMPv3 is enabled:
  - **User Name** - The default User Name is "**apc**" and can be changed by the user.
  - **Authentication Protocol** - The **Authentication Protocol** supports **SHA** (as the default) and **MD5** authentication. You can choose either from the drop-down menu arrow.
  - **Authentication Key** - The **Authentication Key** is "**APCAUTHKEY**" by default.
  - **Private Protocol** - The **Private Protocol** supports **AES** (as the default) and **DES** for encrypting and decrypting data. You can choose either from the drop-down menu arrow.
  - **Private Key** - The **Private Key** is "**APCPRIVKEY**" by default.
- **Trap Proxy Server** - The box on this line contains the **IP address** of your **Trap Proxy Server** and is used to push the Trap of both SNMPv1 and SNMPv2c to the IP address specified.

Click on the "**Apply**" button to save your changes. The system will now REBOOT and initiate any changes you made.



Web Access Setting

The Easy Rack PDU allows users to connect through HTTPS by default. You can change the active protocol in the following setting.



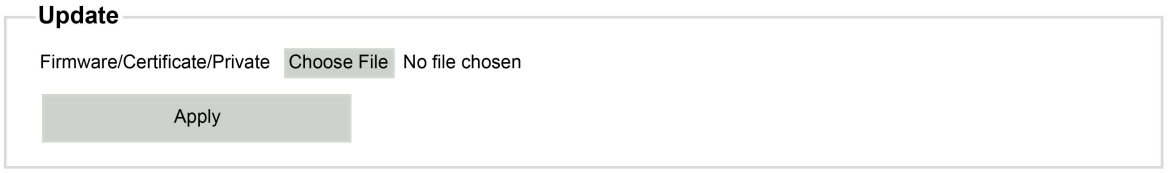
Firmware Upgrade

The Firmware Upgrade page allows users to upgrade the firmware of the Easy PDU in just a few steps. There is no installation required. When you upgrade the firmware on the Easy PDU:

- You obtain the latest bug fixes and performance improvements.
- New features become available for immediate use.

Keeping the firmware versions consistent across your network ensures that all Easy PDUs support the same features in the same manner.

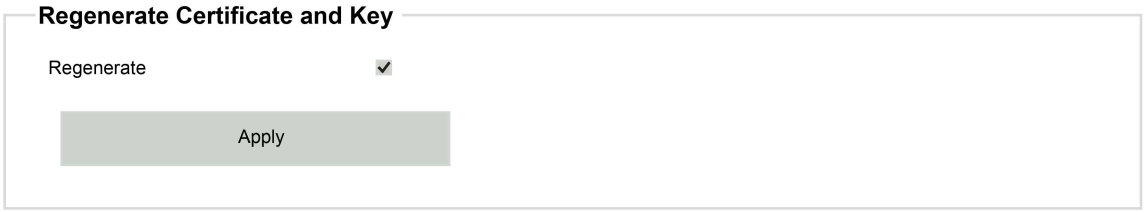
Check regularly on the APC by Schneider Electric website, www.apc.com, for new upgrades.



- Download the firmware file from the APC by Schneider Electric website, www.apc.com.
- Click the "**Choose File**" button and select the correct firmware file to be downloaded.
- Click the "**Apply**" button to upload the selected firmware to the Easy PDU.
- Once the firmware upgrade succeeds, you will see the prompt (below) to remind you to reboot the system to complete the upgrade.
  NOTE: If a firmware upgrade does not load, you may see a prompt describing the reason.

Certificate Regenerate

In some situations, for example, if the Certificate is expired, you can use this page to create a new self-signed Certificate. The valid time for the new certificate will start from current time, so make sure the time is correct before regenerating the certificate.



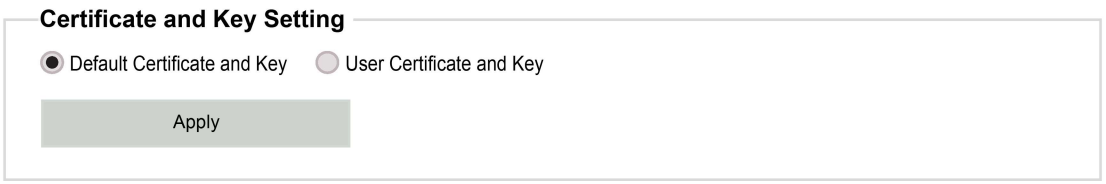
Certificate Upgrade

The default Certificate created by the Easy PDU is a self-signed Certificate, which is not trusted by web browsers.

To use a certificate signed by a CA:

1. Choose the Certificate signed by CA. (Only PEM format is supported.)
2. Click the "**Apply**" button to upload the selected Certificate to the Easy PDU.
3. Choose the Private Key. (Only PEM format is supported.)
4. Click the "**Apply**" button to upload the selected Private Key to the Easy PDU.
5. Once the file upgrades succeed, you will see a prompt to remind you to reboot the system to complete the upgrade.

Choose the updated certificate or the default certificate as shown on the Certificate and Key Setting page.



Time Settings

The time settings page allows users to configure the system time of the Easy PDU. You can set the time manually or synchronize the time through a Simple Network Time Protocol (SNTP) server.

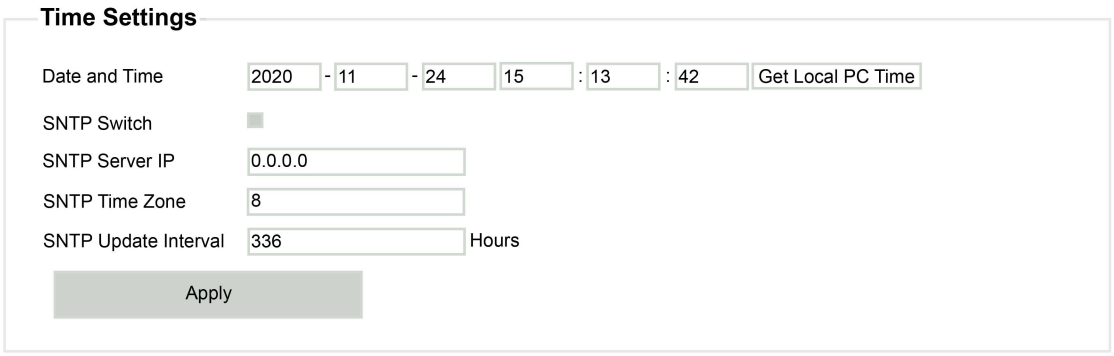
NOTICE
It is recommended that you configure SNTP when you use the Easy PDU the first time or you will need to set the system time manually with the Easy PDU is powered off. The time record in the Log may be incorrect If this is not done.

Selecting the SNTP Switch enables the Easy PDU to synchronize the time from the SNTP server automatically. If SNTP is enabled, inputs in the Date and Time boxes will NOT be effective.

- Input the IP address of the time server that supports SNTP in the box of SNTP Server IP.
- Input your time zone offset value to the SNTP Time Zone box.
- Change the SNTP Update Interval if needed.

Deselect the SNTP Switch to disable automatic time synchronization. Click the “Get Local PC Time” button to get the current time from the PC that has the Web page loaded and fill the boxes of Date and Time. You can also input the date and time manually to the boxes.

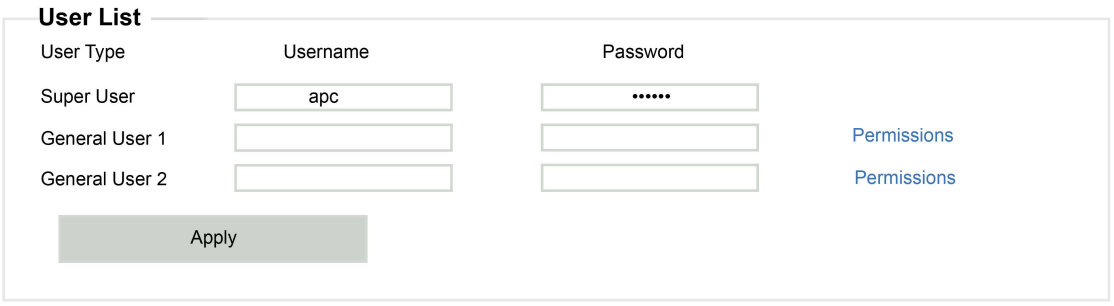
Click the “**Apply**” button to apply your changes.



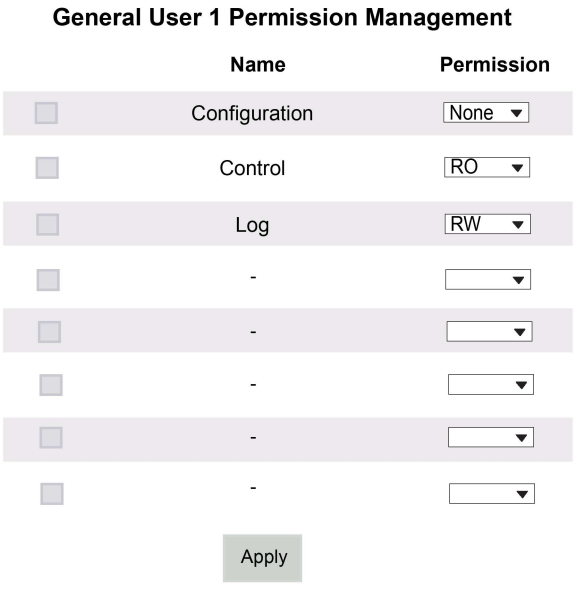
User Settings

The User Settings page allows users to configure usernames and passwords for the Super User and the General User.

- The default Username and Password for the Super User is “**apc**”. The Username and Password for the Super User are mandatory. You cannot leave them empty.
- The Username and Password for General User are optional. You can close a General User account by leaving the Username and Password empty.



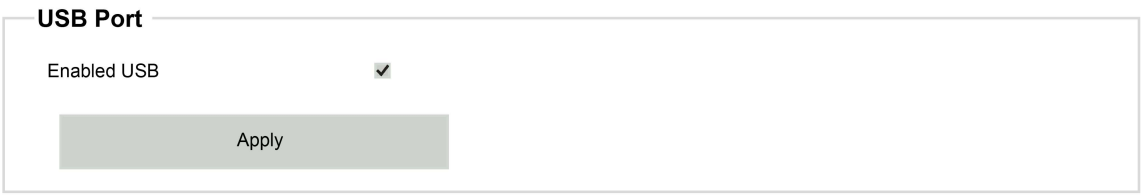
The Super User can manage the Read Only, Read/Write, or None permissions of General users as shown below:



Click the **Apply** button. The system will REBOOT and make any changes in the Users Settings effective.

USB

Use a USB flash drive to transfer and upgrade the files. Before starting the transfer, make sure the USB drive is formatted in exFAT or FAT32, and set the USB to an enabled state.



USB Export The Export Files page allows users to export event log to a USB flash drive.

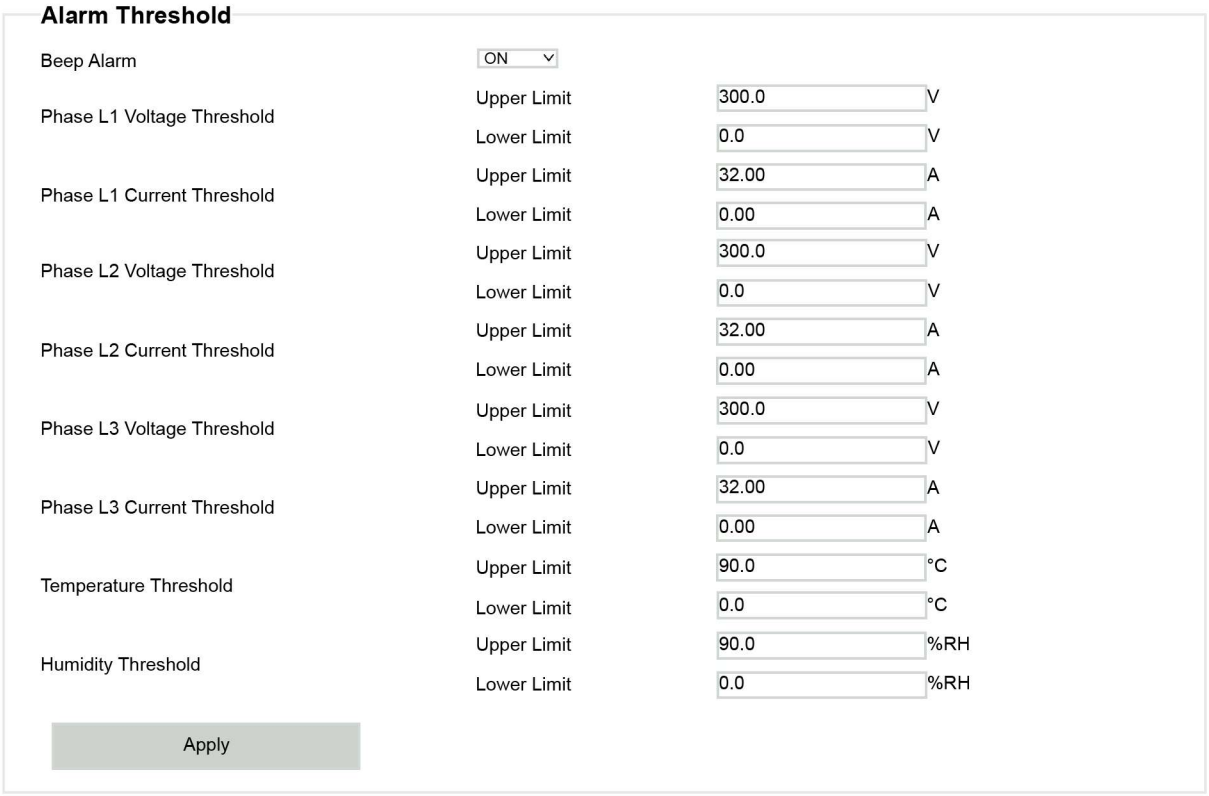
1. Select the content to be exported
2. Click the "**Apply**" button
3. Insert the flash drive into the USB port on your Easy PDU
4. The letter "U" will appear in the upper right corner of the display to indicate the exporting operation is in progress
5. Wait until the letter "U" vanishes and the display backlight goes out.
6. Remove the USB flash drive

Upgrade Firmware When using a USB drive to upgrade the firmware:

1. Download the firmware file from the APC by Schneider Electric website, **www.apc.com**.
2. Put the firmware file in the root path of the USB flash drive
3. Insert the flash drive into the USB port on your Easy PDU
4. The letter "U" will appear in the upper right corner of the display to indicate the exporting operation is in progress
5. Wait until the letter "U" vanishes and the display backlight goes out.
6. Remove the USB flash drive
7. The Easy PDU will reboot and upgrade the firmware automatically

Alarm Threshold

The Alarm Threshold page allows users to read and configure voltage, current, temperature and humidity thresholds (or limits). If any one of the thresholds (or limits) is reached, an alarm will be issued. Select or deselect the Beep Alarm to enable or disable the Display Module alarm sound when any one of the alarms is issued. Click the "**Apply**" button to save your changes.



Alarms are issued through multiple interfaces:

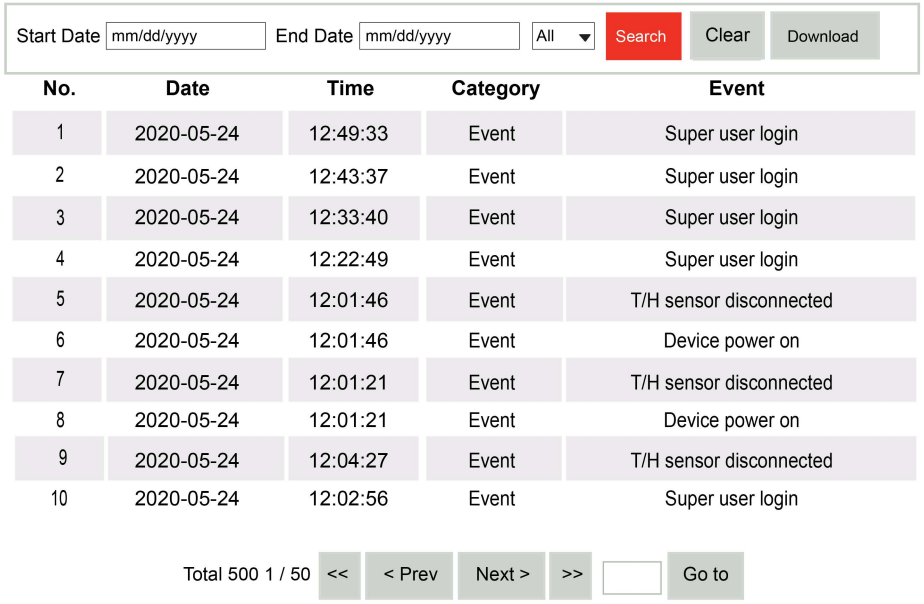
- Web User Interface: see the Alarm Status page.
- SNMP: The Alarm Status can be collected though SNMP.
- SNMP Trap: push the corresponding alarm message to the target configured on the SNMP Settings page.
- Display Module: the buzzer beeps (if enabled), the LCD display backlight remains on, the Status LED blinks.

Energy Reset

The Energy Reset page allows users to reset the statistics of energy consumption to zero. Select the "**Reset**" box to put a check mark in it and click the "**Apply**" button to save the reset.

Log

The Log File page allows users to read the event log. The log preserves the most recent 500 events.



Troubleshooting

For problems that persist or are not described here, contact APC by Schneider Electric Customer Care at www.apc.com.

Easy PDU Access Issues

Problem	Solution
Unable to ping the Easy PDU	If the Network Status LED of the Easy PDU is green, try to ping another node on the same network segment as the Easy PDU. If that fails, it is not a problem with the Easy PDU. If the Network Status LED is not green, or if the ping test succeeds, perform the following checks: • Verify all network connections. • Verify the Network Settings of the Easy PDU
Cannot access the Web User Interface	• Verify that HTTP or HTTPS access is enabled. • Make sure you are specifying the correct URL — one that is consistent with the security system used by the Easy PDU. SSL requires HTTPS, not HTTP, at the beginning of the URL. • Verify that you can ping the Easy PDU. • Verify that you are using a Web browser supported for the Easy PDU. See “Supported Web Browsers” on page 6. • If the Easy PDU has just restarted and SSL security is being set up, the Easy PDU may be generating a server certificate. The Easy PDU can take up to several minutes to create this certificate, and the SSL server is not available during that time

SNMP Issues

Problem	Solution
Unable to perform a GET or SET	• Verify the community name (SNMPv1 or SNMPv2c) or the Authentication configuration (SNMPv3). See “SNMP Settings”. • Verify the UDP port 161 of NMS is correctly opened.
Unable to receive traps at the NMS	• Verify the Trap Proxy Server IP address configuration is correct. • Verify the UDP port 162 of NMS is correctly opened
Traps received at an NMS are not identified	See your NMS documentation to verify that the traps are properly integrated in the alarm/trap database.

APC by Schneider Electric
70 Mechanic Street
Foxboro, MA 02035
USA

www.apc.com

As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

990-91465