User Guide

Easy PDU
Rack Power Distribution Unit

Switched

EPDU1016S
EPDU1116S
EPDU1132S

990-91370

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APC™
by Schneider Electric

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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. The following special messages may appear throughout this document or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning product safety label indicates that an electrical hazard exists that will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **can result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

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 Easy PDU, may be used as a stand-alone, network-manageable power distribution device. The 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).

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)
- RJ45 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
- SNMP traps (V1, V2c, and V3)
- Security protocols for authentication and encryption.
- 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 SNPT 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 2.)
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 12.)

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 2.

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

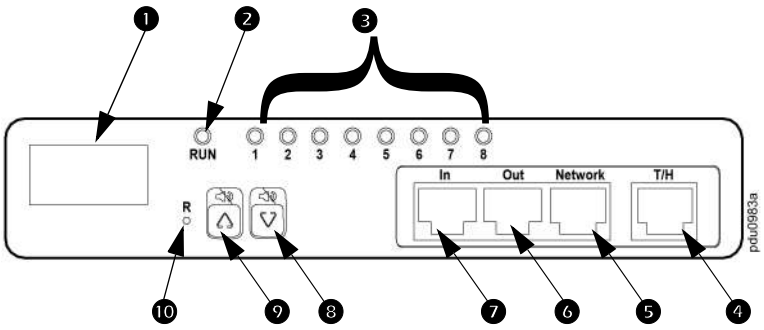
The contents below will NOT be changed:

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

Display Interface Overview

The device has a network port, and a Temperature/Humidity 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 and the buzzer will be turned off.

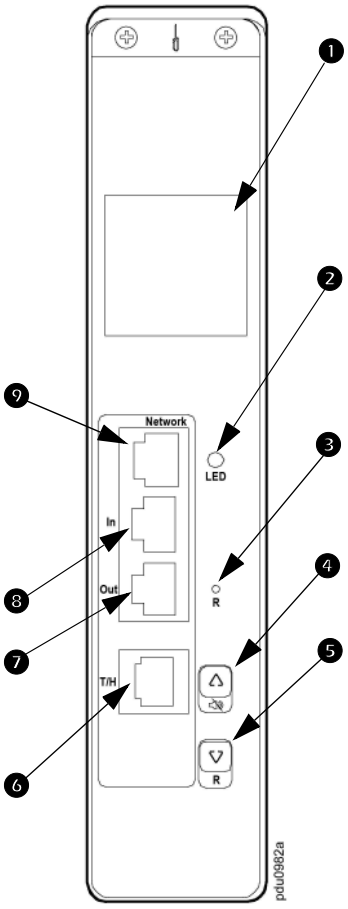
The display interface for EPDU1016S is shown in the figure below.

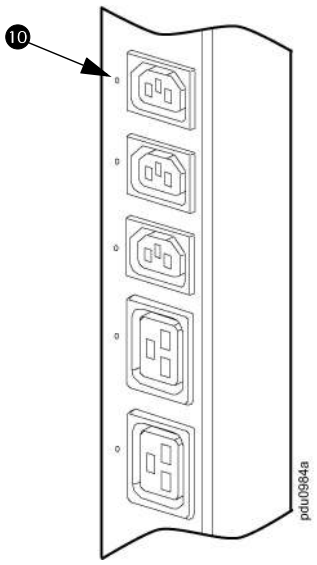


Item	Function	Description
❶	LCD Display	View functional data
❷	Run Indicator LED	Indicates the status when the power is on
❸	Outlet Status LED	Illuminates when the outlet is energized Each status LED is numbered and represents the numbered outlet on the back of the device.
❹	Temp/Humidity Port	Temp/Humidity Sensor connection port
❺	Network Port	Connect the Rack PDU to your network
❻	OUT Port	RS485 port sharing connection
❼	IN Port	RS485 port sharing connection
❽	Down Function Button	Scroll for function status, Alarm shutoff (Press and hold for 10 seconds to reboot)
❾	Up Function Button	Scroll for function status, Alarm shutoff
❿	Reset Button	Press and hold for 4 seconds to reset to the default settings

The display interface for EPDU1116S and EPDU1132S is shown in the figure below.

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, press for Alarm status (Press and hold for 10 seconds to reboot)
❻	Temp/Humidity Port	Temp/Humidity Sensor connection port
❼	IN Port	RS485 port sharing connection
❽	OUT Port	RS485 port sharing connection
❾	Network Port	Connect the Rack PDU to your network
❿	Outlet Status LED	Illuminates when the outlet is energized Each outlet has a status LED





Web User Interface

Supported Web Browsers

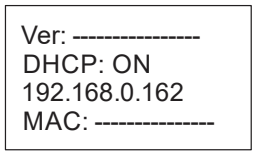
You can use Microsoft® Internet Explorer® (IE) 11 or Google® Chrome® or Mozilla® Firefox® to access the Easy PDU through its Web interface. Other commonly available browsers may work but have not been fully tested by APC by Schneider Electric.

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 2 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.



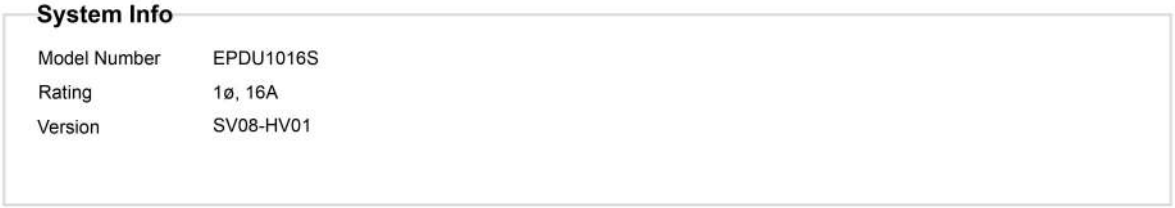
Status

Select the Status tab to view:

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

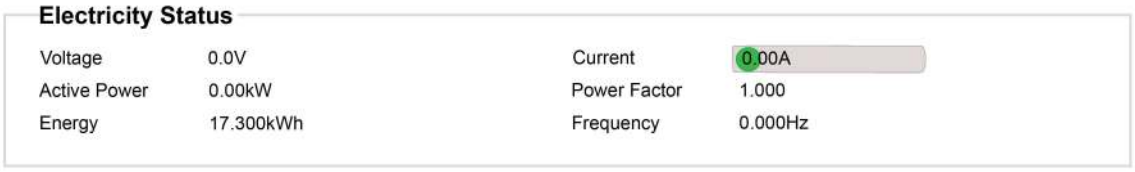
System Information

The System Information page contains the following information: Model Number, Rating, User Type, Version, Uptime, Date and Time. The System Information page provides basic information for the user and can be helpful to APC by Schneider Electric Customer Support if troubleshooting is required. Use the Version information to determine if updated firmware is available.



Electricity Status

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



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.



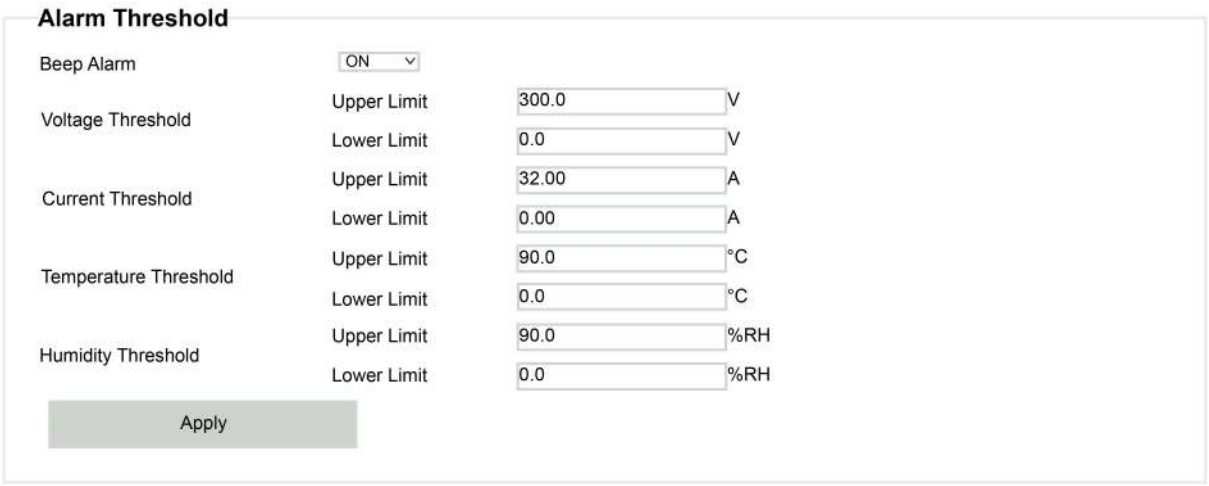
Configuration

Select the Configuration tab to:

- Configure the alarm thresholds
- Reset the energy consumption page to zero

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.

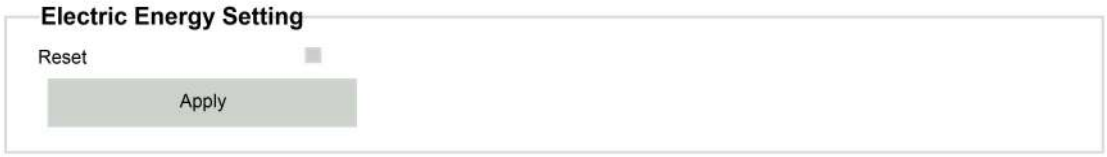


Alarms will be issued through multiple interfaces:

- Web User Interface: read the Alarm Status column.
- SNMP: Alarm Status can be collected though SNMP.
- SNMP Trap: push the corresponding alarm message to the target that configured in the SNMP Settings column.
- Display Module: the buzzer beeps (if enabled), the LCD backlight remains bright, 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.



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 parent/child PDUs to each outlet group.
NOTE: An individual outlet cannot be allocated to multiple outlet groups.

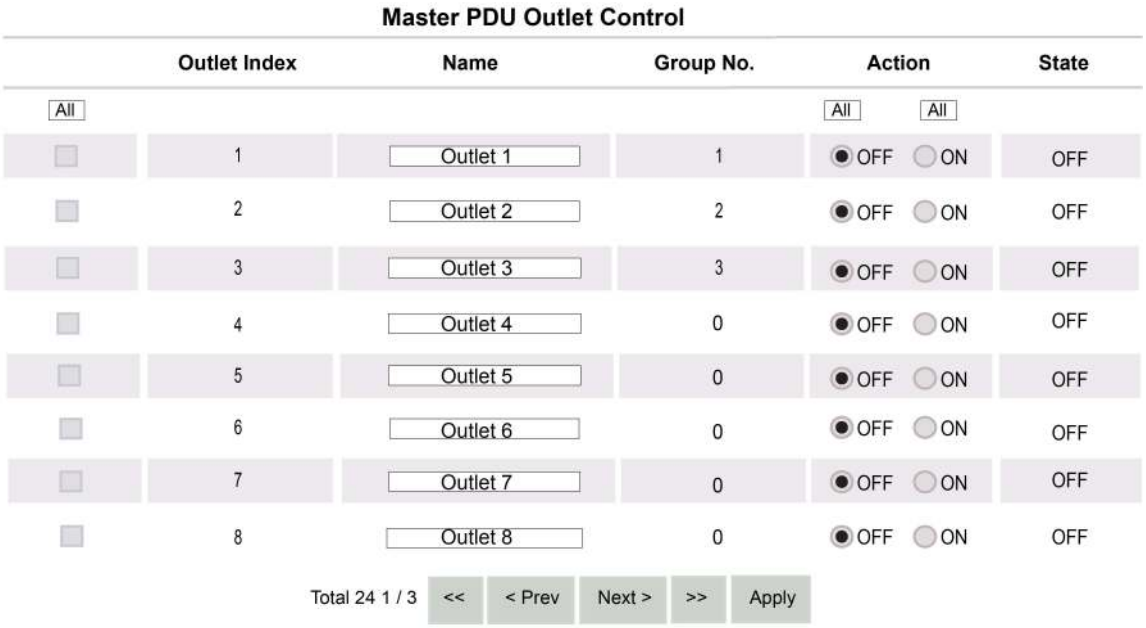
Customize an outlet group by:

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. Clicking on the **Apply** button at the bottom of the page



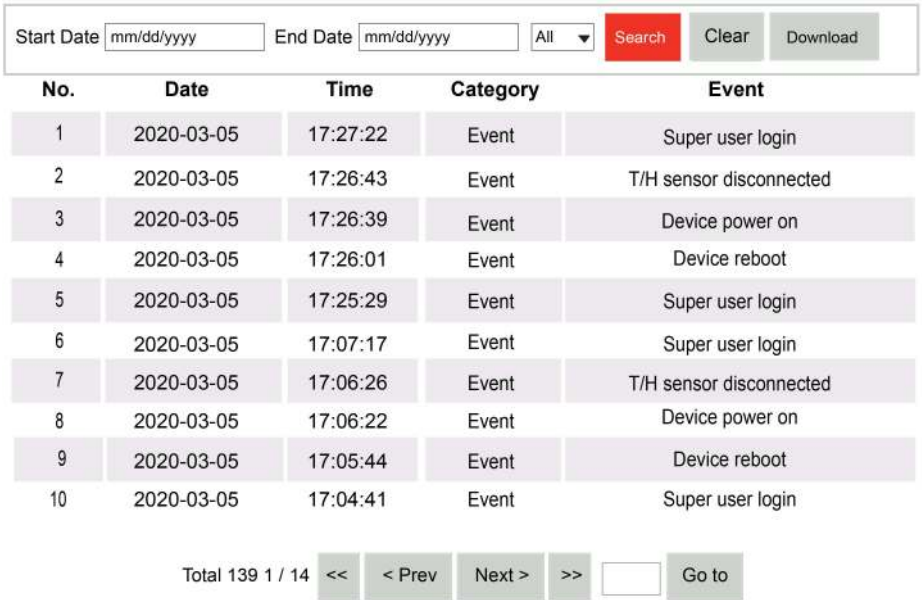
PDU Outlet Control

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



Log

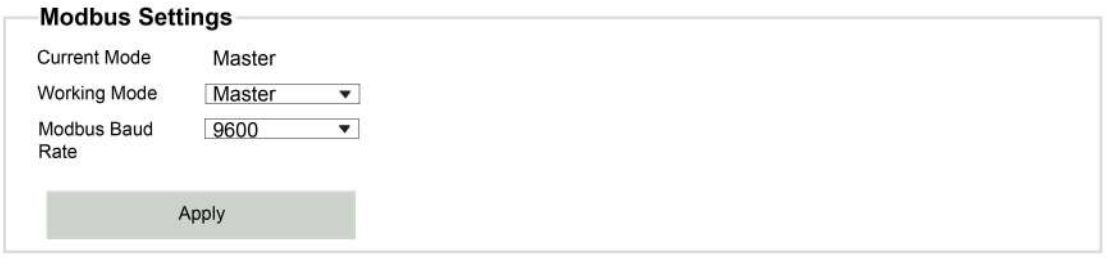
The Log File page allows users to read the event log. The log preserves the most recent 500 events.



System

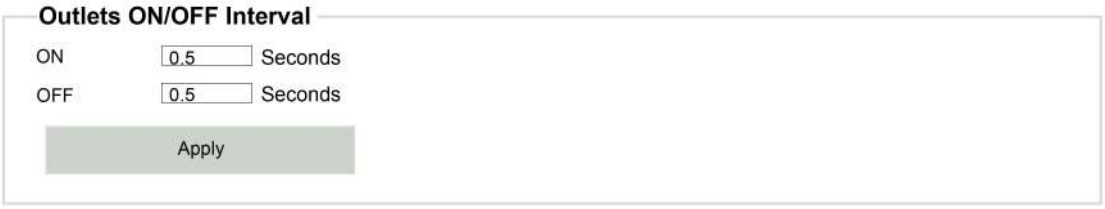
Modbus Settings

The Modbus Settings page allows users to read and configure the RS485 port for a Modbus connection



Outlet Intervals Settings

The Outlet Intervals page allows users to adjust the on/off delay of the outlets. The value should between 0.5 second and 60 seconds, and the value must be a multiple of 0.5 second.



Network Settings

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

Click the "**Apply**" button to REBOOT the system to make any change in the Network Settings effective.

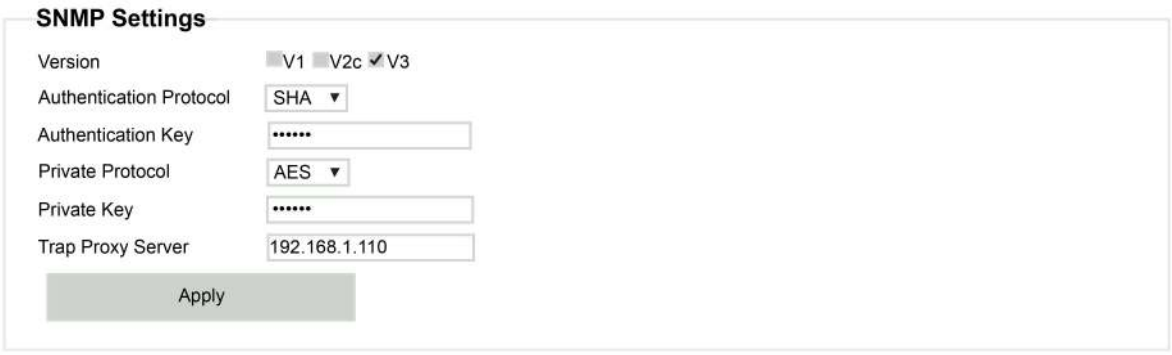


SNMP Settings

The SNMP Settings page allows users to configure:

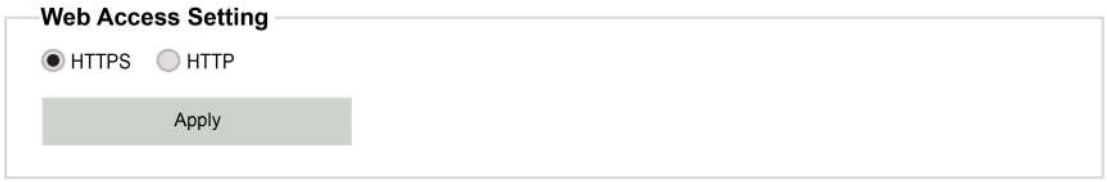
- The access of the supported SNMP version: select v1 to enable SNMP v1 and/or select v2c to enable SNMP v2c (v1 and v2c) or select V3 to enable SNMP V3.
- The **Community Name** is "**public**" and can't be changed.
- The IP address of your Trap Proxy Server to push the Trap of both SNMP v1 and v2c to the IP address to the IP address specified in the box of Trap Proxy Server.
- If SNMP V3 is enabled:
  - User Name: "**apc**", cannot be changed.
  - Authentication Protocol: supports **SHA** and **MD5** authentication.
  - Authentication Key: "**APCAUTHKEY**", by default.
  - Private Protocol: supports **AES** and **DES** for encrypting and decrypting data.
  - Private Key: "**APCPRIVKEY**", by default.

Click the "**Apply**" button to REBOOT the system and initiate the SNMP Setting changes.



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.

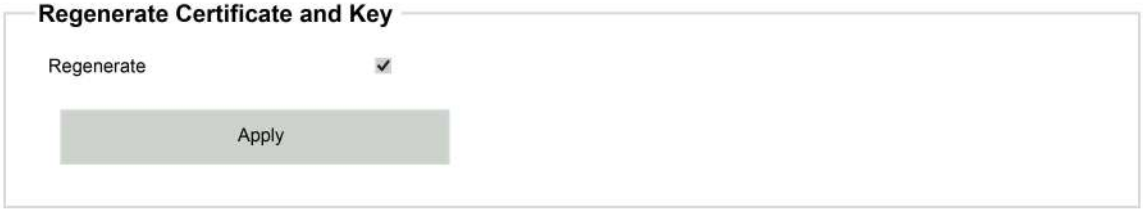
Check regularly on the APC by Schneider Electric website, www.apc.com, for new upgrades.



- 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.

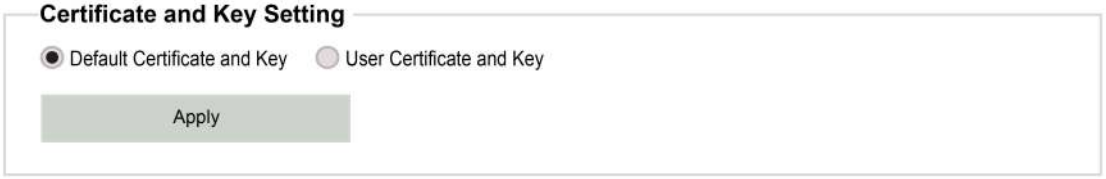


Certificate Upgrade

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.



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.

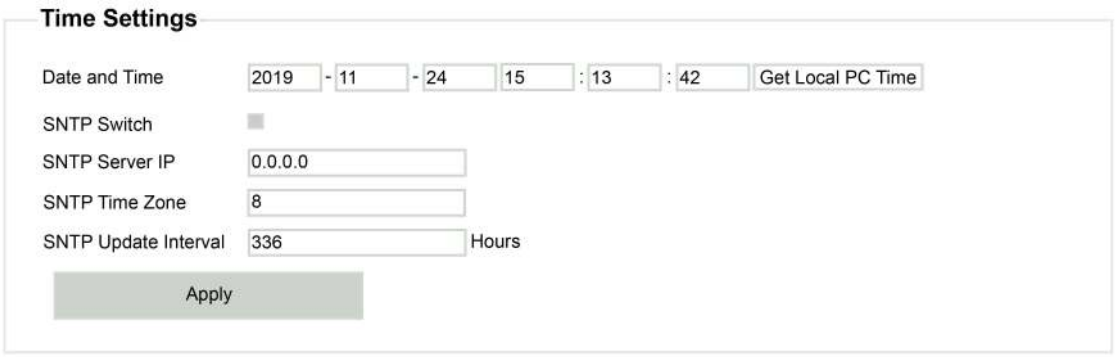
NOTICE
It is recommended that you configure SNTP when you use the Easy PDU the first time or you will need to set the system time manually with the Easy PDU is powered off. The time record in the Log may be incorrect If this is not done.

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.

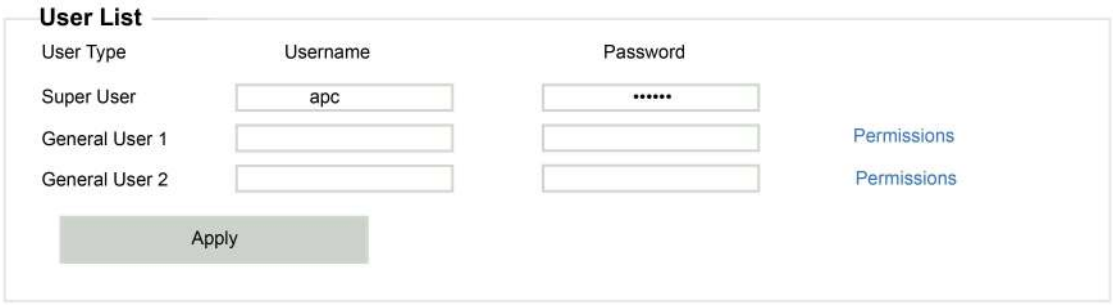
Click the “**Apply**” button to apply your changes.



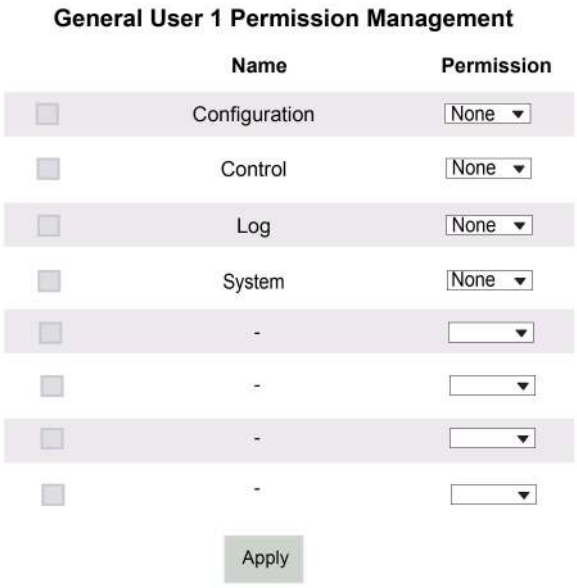
User Settings

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 any of them empty.
- The Username and Password for General User are optional. You can close the General User account by leaving the Username and Password empty.



The Super User can manage the Read/Write/None permissions of General users like following:



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

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.

Worldwide Customer Support

Customer support is available at www.apc.com.

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