enLOGIC

EDGE Series

Power Distribution Unit
User Manual

V 1.0

CONTENTS

Safety Instruction

General Safety Instructions

- This Power Distribution Unit (PDU) unit is intended to provide power to the ITE equipment only. Do not connect the secondary power units to the outlets of the PDU.
- It is recommended not to operate the system with Internet from a public network, but with an internal network protected externally with firewalls.
- When remote accesses are deployed, select a secure access path, such as VPN (Virtual Private Network) or HTTPS.
- Ensure that the current Enlogic firmware is installed on all Enlogic PDU.
- Restrict access authorisations to networks and systems to only persons that need an authorisation 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. Operation of 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

Installation and Operation Safety Instructions

- Assembly and installation of the PDU may only be performed by experienced, trained, and authorised 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 serious injury

- Use only original Enlogic accessories or products recommended by Enlogic along with the Enlogic PDU.

- Changes and modifications to this equipment can affect the warranty. Enlogic is not responsible
for damage to this product, resulting from accident, disaster, or misuse.

Product Labels and Standards

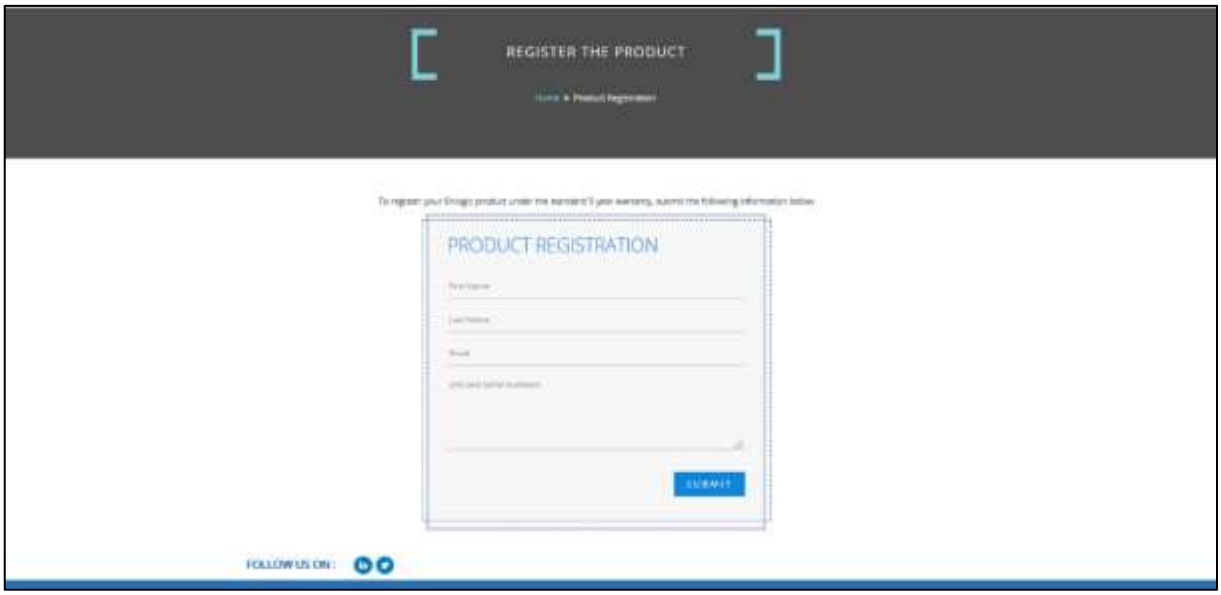
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the **FCC** Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This product is CE compliant and UL tested. An appropriate declaration of conformity has been issued and can be supplied on request.

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

Check the unit for any damage that may have occurred during transport. Any damage and other faults, e.g. incomplete delivery, should be reported immediately, in writing, to the shipping company and to Enlogic Systems LLC.

Use the information provided in the enclosed warranty card to register your product online at www.enLOGIC.com.



System Overview

PDU Controller

All Enlogic EDGE Intelligent PDUs feature a Rotatable or Hot Swappable PDU Controller. This centralized piece of intelligent hardware receives an IP address, contains a Graphical Web Interface and is addressable over the network.

Connecting the PDU via Ethernet Port

Connecting the PDU to a LAN provides communication through an Internet or Intranet connection enabling monitoring and control over the intelligent power distribution unit.

1. Connect an Ethernet cable to the Ethernet port on the PDU (see Figure 1).
2. Connect the other end of the cable to the Ethernet port on the router (or another LAN device).

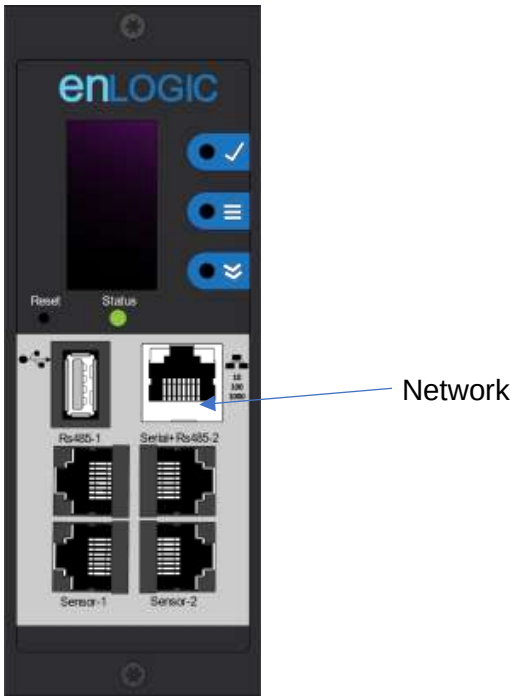


Figure 1: Ethernet Port for Network Connection

From the factory the PDU defaults to DHCP and HTTP**S** connection. If you are connected to a network with a DHCP server, the PDU automatically receives an IP address and will display it on the OLED screen. If there is no DHCP server, the PDU defaults to IP address is 192.168.0.1, which will be displayed on the PDU OLED screen.

Connecting the PDU to a Computer Serial Port

If unable to connect to network, you can change the network setting using the serial interface.

To configure the network setting, perform the following steps:

1. Serial connect the PDU to a computer's serial port. Set baud rate for a terminal emulation program.
2. Using a CLI command to enable DHCP or set a static IP.
3. Verify access to the Web interface. The Ethernet LED on the PDU front panel provides communication status by color and display activity (see Figure 2).

Figure 2: Status LED & Serial In Port Identif

Web User Interface (Web UI) Configuration

Internet Protocol (IP) Addressing

After the PDU receives an IP address, login to the Web interface to configure the PDU and assign a static IP address (if desired).

Connecting to the PDU

1. Ethernet port on the PDU indicates solid green light on the right and a flashing yellow light on the left. This indicates successful connectivity to the network.
2. Use the menu buttons to look up the IP address of the device on the OLED display by selecting Setup > Network > IPv4 or IPv6 as applicable.
3. 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.

Web Configuration

Supported Web Browsers

The supported Web browsers are Google Chrome (mobile and desktop), Mozilla Firefox, Microsoft Internet Explorer Version 11, Microsoft 10 and Apple Safari (mobile and desktop).

Changing Your Password

At initial login, you are required to change the default password:

1. Enter the current password and new password twice to confirm. By default, passwords must be between 8 and 32 characters.

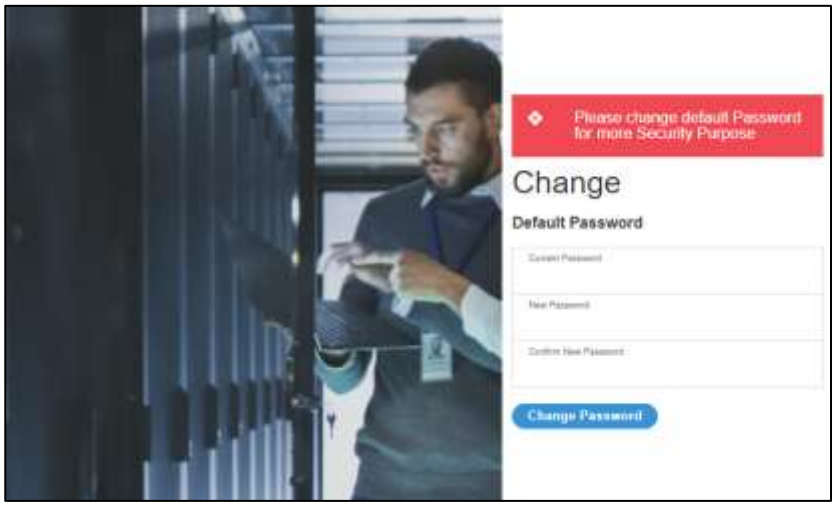


Figure 3: Changing Your Password

2. Click **Change Password** to complete the password change. After the initial login,

Change the password by the following steps:

1. Go to **User Name** and select **Change Password**.

Figure 4: After Login

2. The Change User Password window opens.

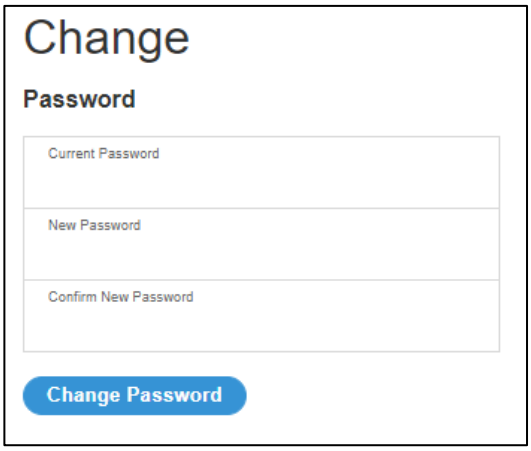


Figure 5: Change User Password window

3. Enter the old password and then new password twice to confirm. By default, passwords must be between 8 and 32 characters.

4. Click **Change Password** to complete the password change.

Logging in to the Web Interface

- Open a supported web browser and enter the IP address of the PDU (HTTPS)
- If browser displays “refused to connect” please *double check* that you are using the “https://” protocol not “http://
- If username and password have NOT been configured, use the default username: ***admin*** and password: ***12345678***. For security purposes, a change of password is required upon initial login.
- If admin credentials are lost, use the factory reset to reset the PDU.

Introduction to the Web GUI

Login Page Note: https:// must be used (for initial login)

Figure 6: Login Page

Landing Page/Dashboard

Figure 7: Landing Page/Dashboard

Icons Present in the Web UI

Icon	Description
	The home icon provides an overview of the PDU with access to the Dashboard, Identification, and Control & Manage.
	The Alarm icon provides details of the active critical alarms and active warning alarms.
	This icon lets you select a Language. There are seven languages available to choose from: English, Chinese, French, Italian, German, Spanish, Korean and Japanese.
	This icon provides the logs of the PDU which can be viewed and downloaded. The Data Log is a log of the Power, Environmental, and Security values.
	The settings icon allows a user to setup the Network Settings, System Management, SNMP Manager, Email Setup, Event Notifications, Trap Receiver, Thresholds, and Rack Access Control.
	The search icon allows you to input key words and search for the related results.
	Information about the PDU can be found using this icon. You also can also click user guide and license to ask for help.
	This icon shows who is logged in (user or admin). Account passwords can be changed, and user accounts managed through this page

Screen Resize Due to Multiple PDU Configuration

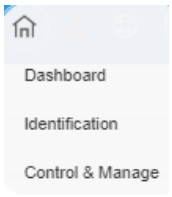
Resizing a Screen

Multiple PDUs can now cause the user to resize the screen to fit the information on the dashboard due to the update.

Figure 8: Resized Dashboard Screen

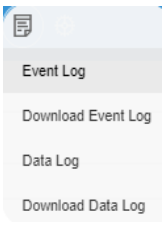
Menu Dropdowns

Overview

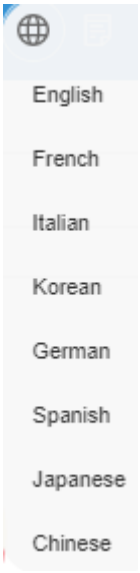


Alarms

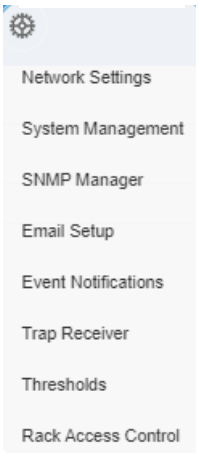
Logs



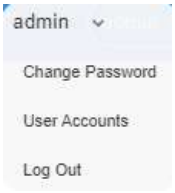
Language



Settings



Admin



Introduction to the Dashboard

Power Summary Pag

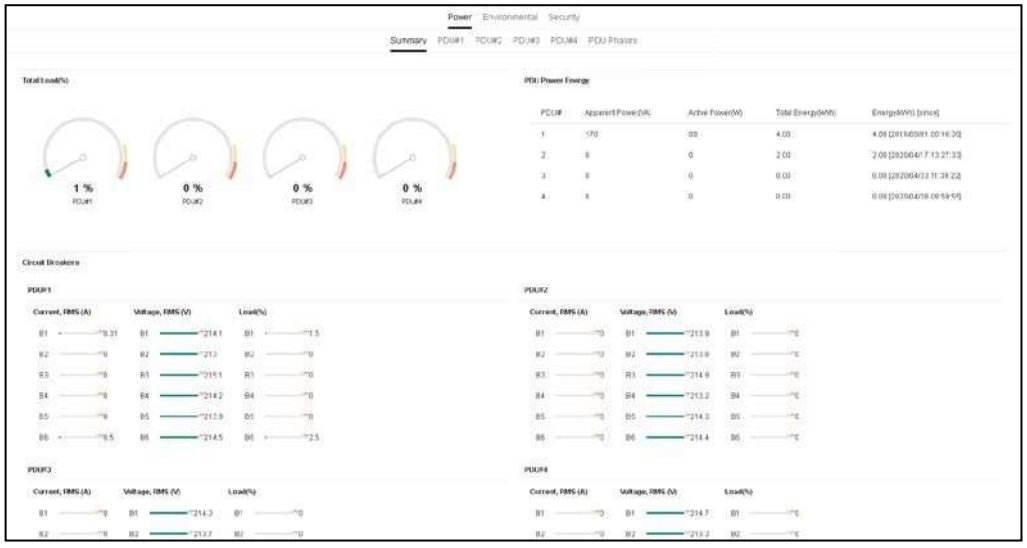


Figure 9: Power Summary Page

Outlet Monitoring Page

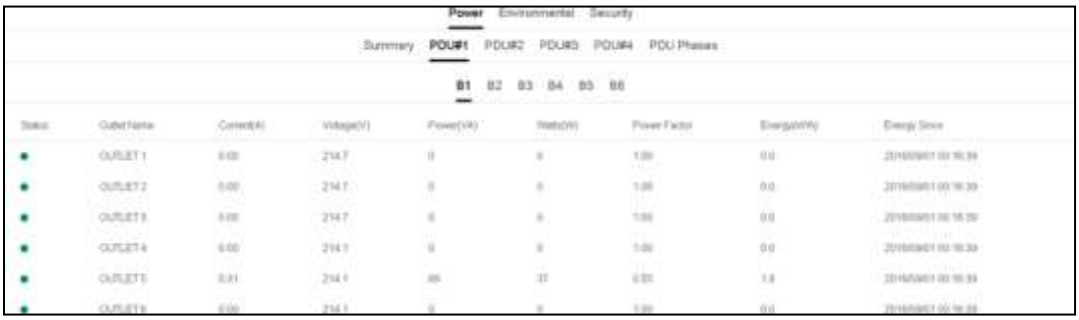


Figure 10: Outlet Monitoring Page

Environmental Monitoring Page

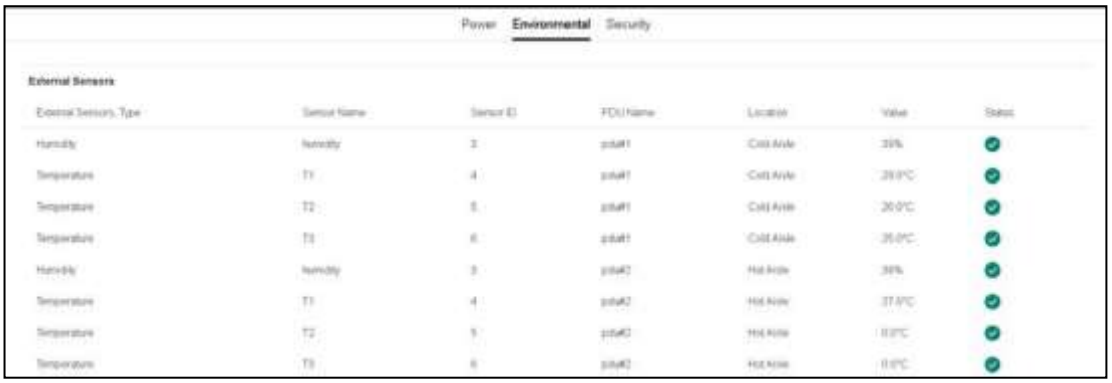


Figure 11: Environmental Monitoring Page

Security Monitoring Page

Figure 12: Security Monitoring Page

Network Settings

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

IP Configuration:

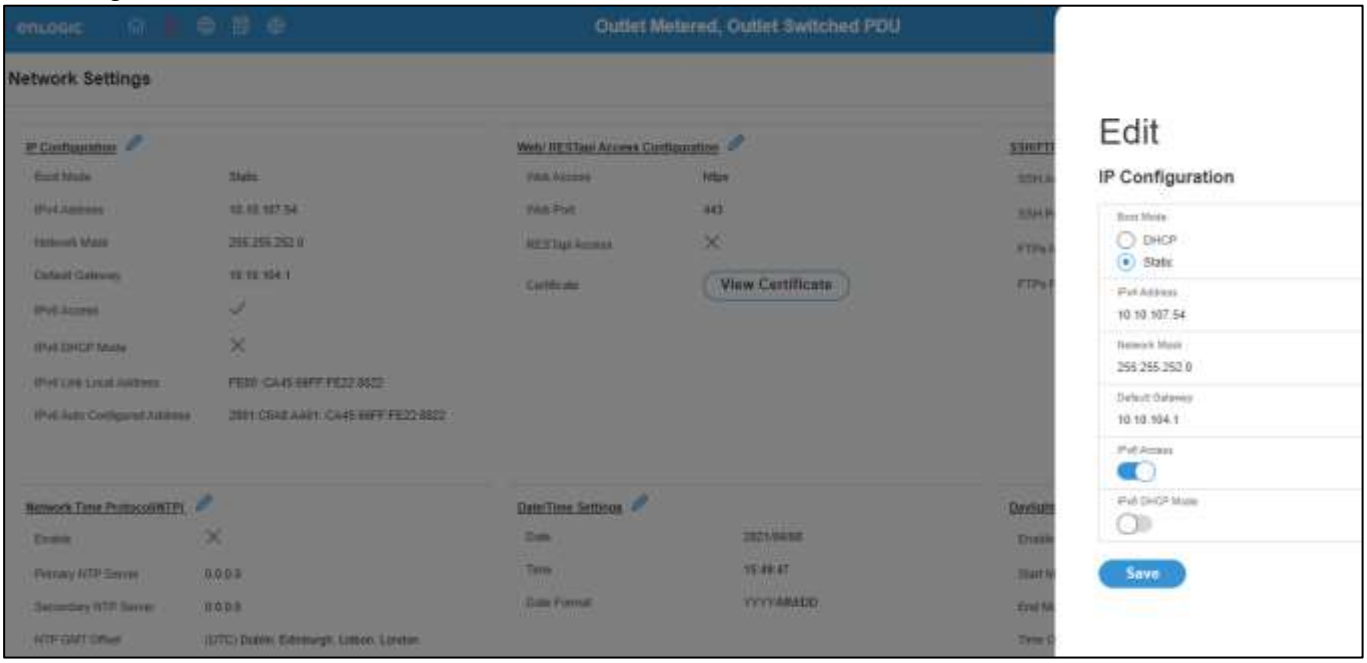


Figure 13: IP Configuration

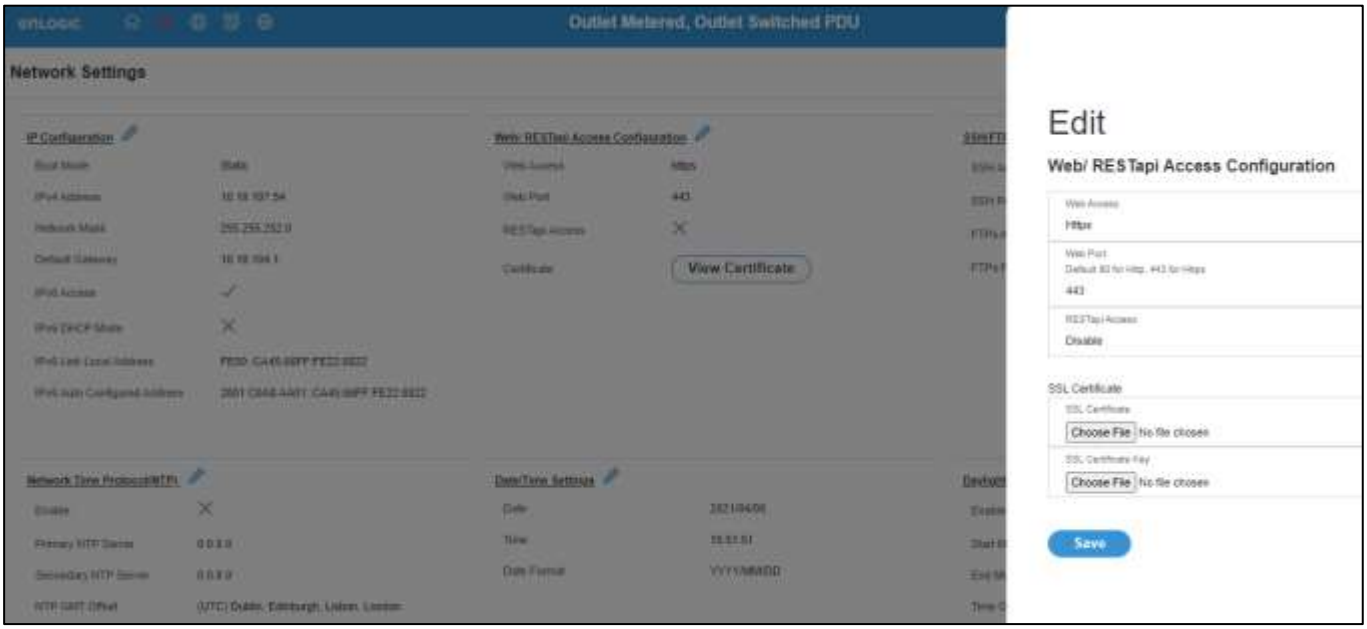


Figure 14: Web RESTapi Access Configuration can be used to set HTTP, HTTPS or Disable the onboard Web GUI.

Figure 15: SSH/FTP Configuration

System Management Information

The system management information is a way to distinguish the PDU system's name and location inside the data center.

To configure the system management information, select **System Management** under the **gear** icon.

Figure 16:System Management

System Info

The system information includes the name of the PDU system and information of the person to contact in case an issue arises. Follow the steps below to set up the system information:

1. Select the **pencil** icon next to **System Management.**

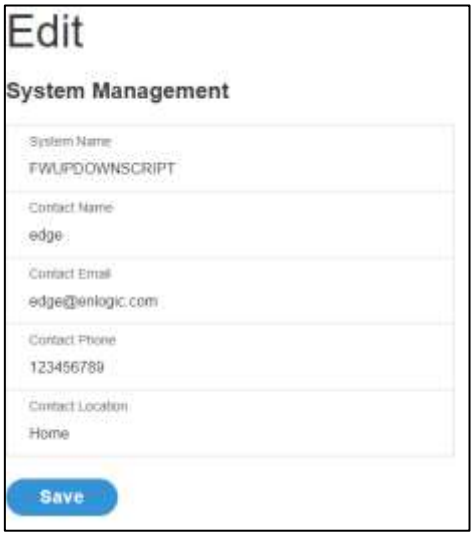


Figure 17: System Management Configuration

2. Enter the **System Name**: The “system” is the main PDU and all daisy-chained PDUs. A system can have 4 PDUs.
3. Enter the name of the person who should be contacted if there is a problem with the system into the **Contact Name** section.
4. Enter the email of the contact person into the **Contact Email**.
5. Enter the phone number of the contact person into **Contact Phone**.
6. Enter the location of the contact person into the **Contact Location**.
7. Press **Save**.

Note: If editing ‘system management’ – all fields are required to be filled to save the information.

Rack Location

The rack location describes the physical location of the rack or cabinet where the PDU system resides. To setup the system information, follow these steps:

1. Select the **pencil** icon next to **Rack Location.**

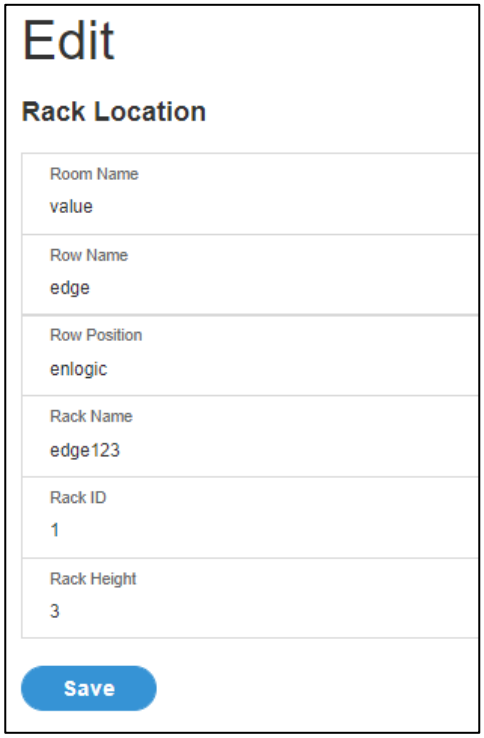


Figure 18:Rack Location Configuration

2. Enter the room location of the rack or cabinet that contains the PDU system into **Room Name.**
3. Enter the name of row where the PDU is located in **Row Name**.
4. Enter the position of the row where the PDU is positioned in **Row Position**.
5. Enter the ID of the rack/cabinet where the PDU is located into **Rack ID**.
6. Enter the height of the rack/cabinet where the PDU is located into **Rack Height**.
7. Press **Save**.

Power Panel & Core Location

The **Power Panel & Core Location** describes the name of each PDU that is part of the PDU system. It also indicates the location of the PDUs inside the rack or cabinet. To configure, follow these steps:

1. Select the **pencil** icon next to **Power Panel & Core Location**.

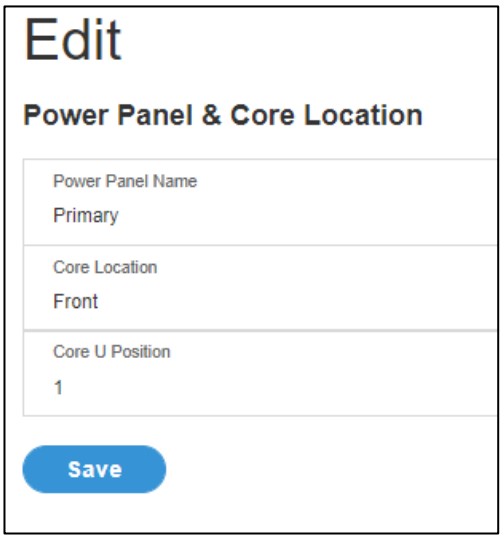


Figure 19: Power Panel & Core Location

2. Enter the name of the PDU in the **Power Panel Name**.
3. Select **Front** or **Back** for the **Core Location.** The **Core Location** is the side of the rack/cabinet where the PDUs are installed. For vertical PDUs, they are typically installed in the back.
4. Enter the rack unit (RU) location into the **Core U Position**. Vertical PDUs are usually installed in the 0 RU space.
5. Press **Save**.

Note: If editing 'Power Panel & Core Location' – all fields are required to be filled to save the information.

Setting Time and Date on the PDU

You can set the internal clock manually or link to a Network Time Protocol (NTP) server and set the date and time:

Manually Setting Time and Date

1. Go to **Network Settings** and select **Date/Time Settings**

2. Enter the date using the YYYY-MM-DD format or use the calendar icon to select a date.
3. Enter the time in the three fields provided: the hour in the first field, minutes in the next field, and seconds in the third field. Time is measured in 24-hour format. Enter 13 for 1:00pm, 14 for 2:00pm, etc.
4. Press **Save**.
5.

Link to a Network Time Protocol (NTP)

1. Go to **Network Settings** and select **Network Time Protocol** (NTP).

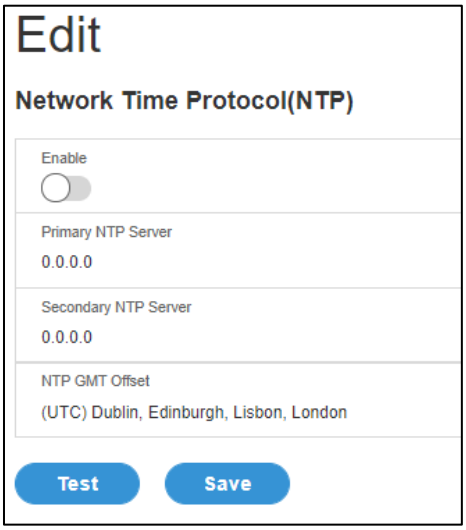


Figure 20: NTP Configuration

2. Click **Enable** to enable NTP.
3. Enter the IP address of the primary NTP server in the **Primary NTP Server** field.
4. Enter the IP address of the primary NTP server in the **Secondary NTP Server** field.
5. Select the appropriate time zone from the Time Zone drop-down list.
6. Press **Save**.

Note: NTP Server must be online to test and save the settings.

Setting Daylight Saving Time

1. Go to **Network Settings** and select **Daylight Saving Time**.

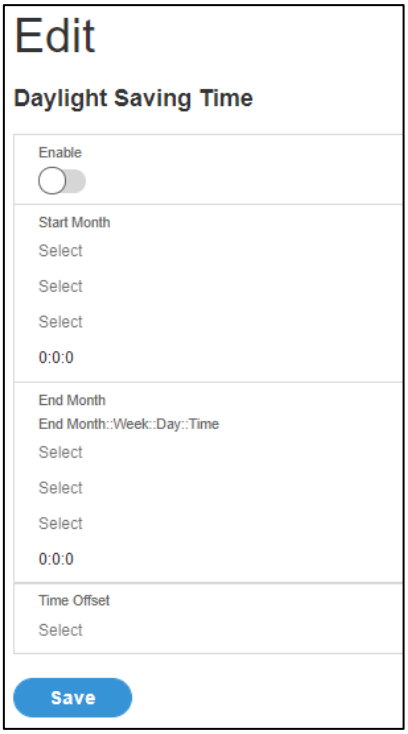


Figure 21: Daylight Saving Time Configuration

2. Ensure **Enable** is selected.
3. Select the specifics of the **Start Month**:
   - Month
   - Week
   - Day
   - Time
4. Select the specifics of the **End Month**:
   - Month
   - Week
   - Day
   - Time
5. Set the **Time Offse**

Outlet Power Management

Naming an Outlet

For Enlogic PDUs with outlet level control or monitoring, you can customize each outlet and view all circuit breaker to outlet associations through the Web GUI.

1. In the Control & Manage tab, expand the **Outlet Information** folder by clicking the pencil icon.
2. Select the outlet to name. In the data panel, select the value field for the Outlet Name.
3. Delete the default name and type the new name.
4. Press **Enter**.

Setting the Outlet Default State

Setting the Outlet Default State on Enlogic PDUs with outlet level control allows the user to determine the initial power status of an individual outlet upon PDU power up.

1. Expand the Outlet Information folder from the Control & Manage tab.
2. In the PDU settings dialog box, choose a selection from the State on Startup dropdown menu:
   - **On**: this will turn an outlet on upon initial startup
   - **Off**: this will turn an outlet off upon initial startup
   - **Last Known**: this will restore outlets to the last known power states before the device was shut down

Switching an Outlet On or Off

This is only applicable to outlet-switched PDUs.

Outlets on the switched PDU models in the Enlogic PDU are easily switched on, switched off, or power cycled. This action requires the user to have Administrator Privileges.

1. Select the Control & Manage folder from the Home icon.
2. In the Power Control panel, select the outlet that must be switched on, switched off, or reboot.
3. Select the desired Power Control from the dropdown menu.
4. Select Apply.

Setting the Outlet Power On/Off Delay for Enlogic PDUs

This is only applicable to outlet-switched PDUs. When the PDU is turned ON, outlets will consecutively power on from Outlet 1 to the highest available outlet number.

1. Select the **Home Icon** then **Control & Manage** from the drop-down menu in the Web UI.
2. Select the outlet(s) for which to set a delay by clicking on the pencil icon.
3. Configure the length of the delay and/or length of reboot.
4. Select **Save.**

Outlet Power Sequence Setup

The outlets can be programmed to have a pre-determined on delay or off delay.

(Eg:- On Delay can be used to implement power on sequencing to avoid surge spikes or circuit breaker overload associated with IT equipment all being turned on at the same time.)

1. From the **PDU GUI Home Menu,** select **Control & Manage**.

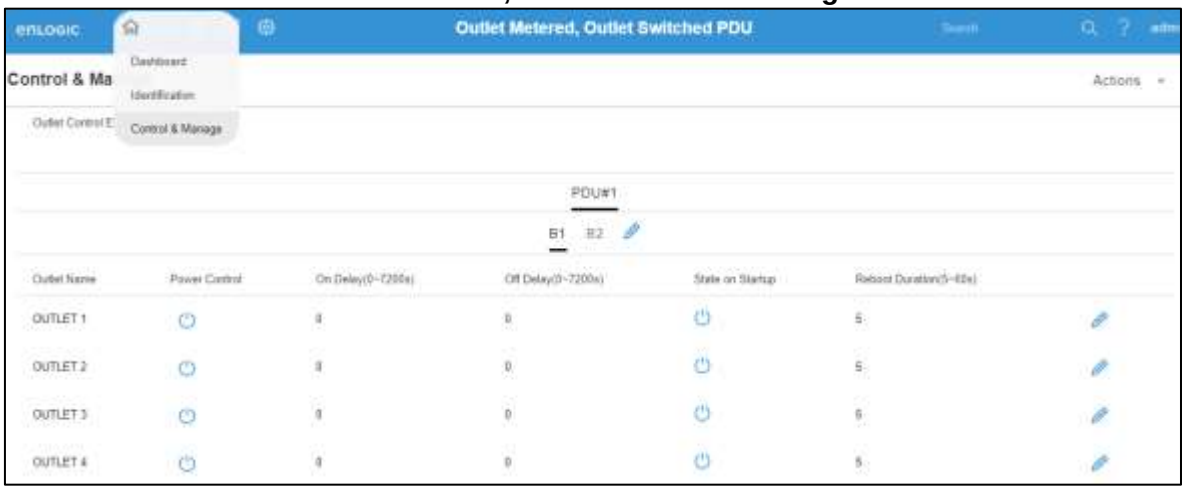


Figure 22: Control & Manage PDU

2. Select **Outlet Control Enabled**.

Figure 23: Outlet Control Enabled

3. For each Outlet select the **Edit** pencil.

Figure 24: Edit Outlets

4. In the Edit Outlet window enter the **On-Delay** time (0-7200 seconds) then select **Save.**

Figure 25: One-Delay Time

5. Your Outlet Power Sequence has been set.

Figure 26: Saved Sequence

Setting Metering Thresholds

Power Threshold

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

1. Go to the **Thresholds** > **Input Page**.
2. Click the pencil for the Power Threshold to update.

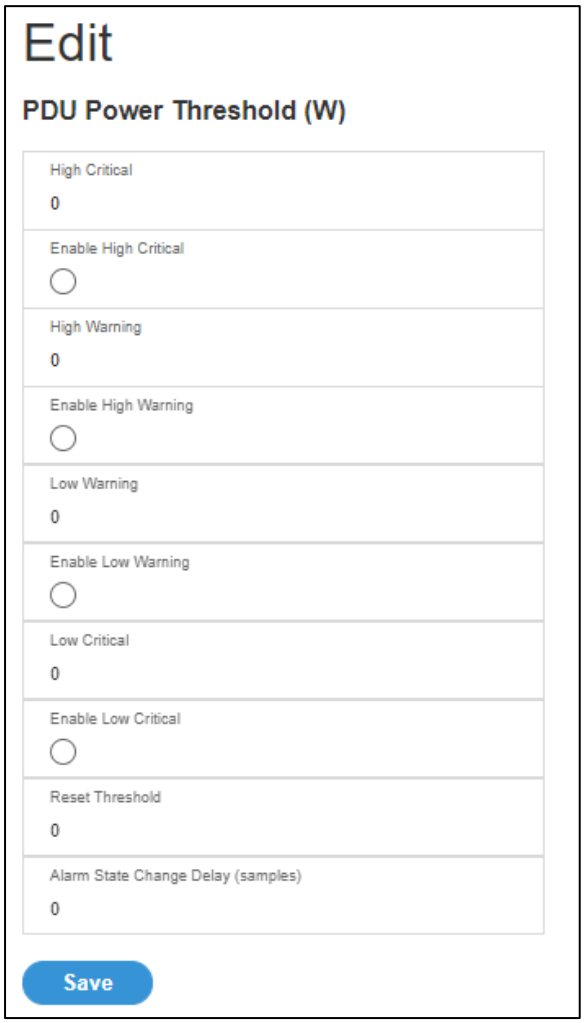


Figure 27: Power Threshold

3. Select and enter the appropriate thresholds in amps and click **Save**.
    - Lower Critical (W)
    - Lower Warning (W)
    - Upper Warning (W)
    - Upper Critical (W)

- Reset Threshold (W)

  The Reset threshold is the number of watts the reading needs to fall below the threshold setting for the condition to be cleared.
  For example, the current critical threshold for the input phase is set to 19 watts (W). The current draw rises to 20W, triggering a Current Critical alert. The current then continues to fluctuate between 18.1W and 20W. With the reset threshold set to 1W, the PDU continues to indicate that the current on the input phase is above critical. Without a reset threshold (that is, the reset threshold is set to zero), the PDU would de-assert the condition each time the current dropped to 18.9W and re-assert the condition each time the current reached 19W or higher. With the fluctuating current, this could result in repeating event notifications, such as SNMP traps, SMTP alerts or Syslog notifications.

- Alarm State Change Delay (samples)

  If enabled, the PDU asserts any warning or critical condition only after a specified number of consecutive samples that cross a threshold are generated. This prevents several threshold alerts from being generated if the measurements return to normal immediately after rising above an upper threshold or dropping below a lower threshold.

4. Repeat steps 1 - 3 for all PDUs.

Energy Threshold

The ENLOGIC PDU will send alert notifications when an energy threshold kilowattage crosses above or below the settings you specify in the Energy Threshold configuration:

1. Go to the **Thresholds** > **Energy Page**.
2. Click the pencil for the Energy Threshold to update.

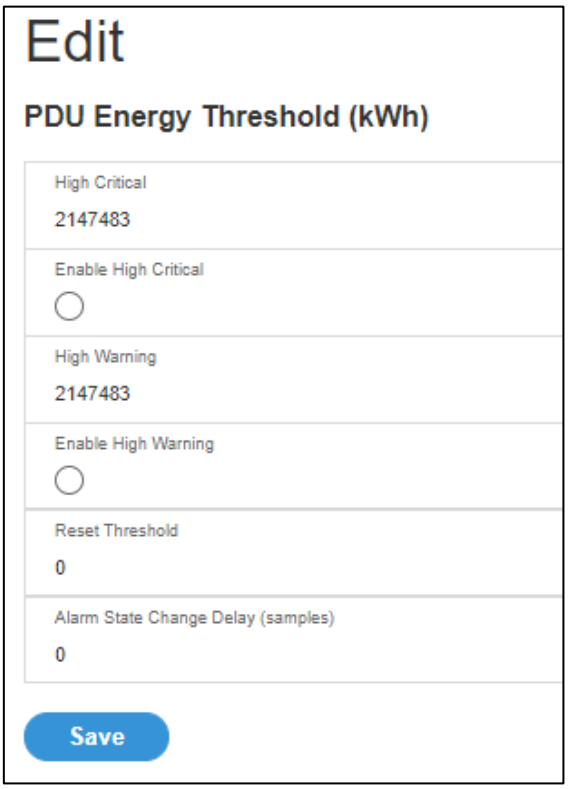


Figure 28: Energy Threshold

3. Select and enter the appropriate thresholds in kilowatts and click **Save**.
    - Upper Critical (kWh)
    - Upper Warning (kWh)
    - Reset Threshold (kWh)
    - Alarm State Change Delay (samples)

      If enabled, the PDU asserts any warning or critical condition only after a specified number of consecutive samples that cross a threshold are generated. This prevents several threshold alerts from being generated if the measurements return to normal immediately after rising above an upper threshold or dropping below a lower threshold.
4. Repeat steps 1 - 3 for all PDUs.

Phase Current Alarm Threshold

The ENLOGIC PDU will send alert notifications when a phase current alarm amp crosses above or below the settings you specify in the Phase Current Alarm configuration:

1. Go to the **Thresholds** > **Phase Page**.
2. Click the Pencil for the Phase Current Alarm to update.

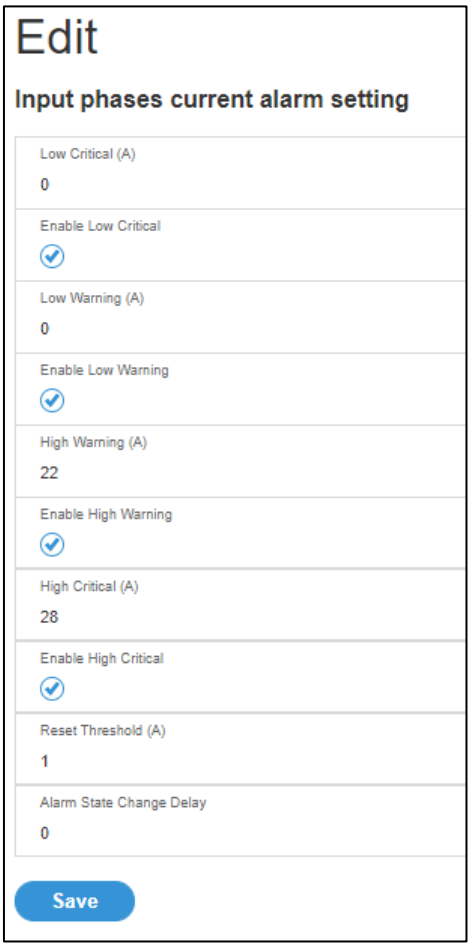


Figure 29: Phase Current Alarm

3. Select and enter the appropriate thresholds in amps and click **Save**.
    - Lower Critical (A)

- Lower Warning (A)
- Upper Warning (A)
- Upper Critical (A)
- Reset Threshold (A)
- Alarm State Change Delay (A)

  The Reset threshold is the number of amperage the reading needs to fall below the threshold setting for the condition to be cleared.
  For example, the current critical threshold for the input phase is set to 19 amps (A). The current draw rises to 20A, triggering a Current Critical alert. The current then continues to fluctuate between 18.1W and 20W. With the reset threshold set to 1A, the PDU continues to indicate that the current on the input phase is above critical. Without a reset threshold (that is, the reset threshold is set to zero), the PDU would de-assert the condition each time the current dropped to 18.9A and re-assert the condition each time the current reached 19A or higher. With the fluctuating current, this could result in repeating event notifications, such as SNMP traps, SMTP alerts or Syslog notifications.

- Alarm State Change Delay (samples)

  If enabled, the PDU asserts any warning or critical condition only after a specified number of consecutive samples that cross a threshold are generated. This prevents several threshold alerts from being generated if the measurements return to normal immediately after rising above an upper threshold or dropping below a lower threshold.

4. Repeat steps 1 - 3 for all phases.

Phase Voltage Alarm Threshold

The ENLOGIC PDU will send alert notifications when a phase voltage crosses above or below the settings you specify in the Phase Voltage Alarm configuration:

1. Go to the **Thresholds** > **Phase Page**.
2. Click the pencil for the Phase Voltage to update.

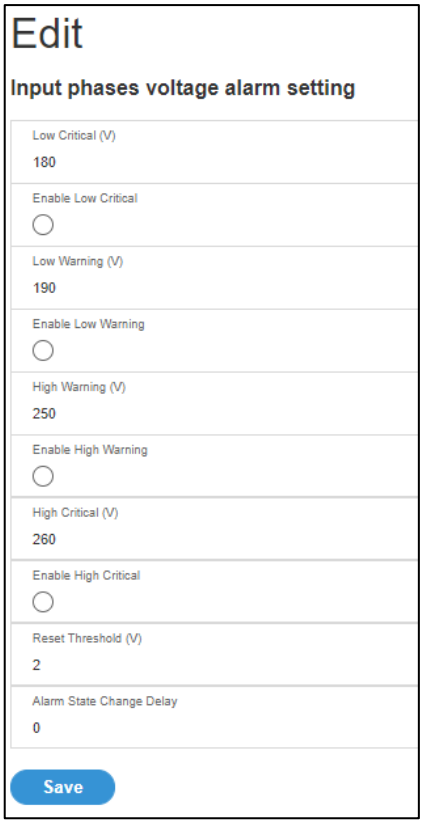


Figure 30: Phase Voltage Alarm

3. Select and enter the appropriate thresholds in voltage and click **Save**.

    - Lower Critical (V)
    - Lower Warning (V)
    - Upper Warning (V)
    - Upper Critical (V)
    - Reset Threshold (V)

      The Reset threshold is the number of amps the reading needs to fall below the threshold setting for the condition to be cleared.

For example, the current critical threshold for the input phase is set to 19 voltage (V). The current draw rises to 20V, triggering a Current Critical alert. The current then continues to fluctuate between 18.1V and 20V. With the reset threshold set to 1V, the PDU continues to indicate that the current on the input phase is above critical. Without a reset threshold (that is, the reset threshold is set to zero), the PDU would de-assert the condition each time the current dropped to 18.9V, and re-assert the condition each time the current reached 19A or higher. With the fluctuating current, this could result in repeating event notifications, such as SNMP traps, SMTP alerts or Syslog notifications.

- Alarm State Change Delay (samples)

  If enabled, the PDU asserts any warning or critical condition only after a specified number of consecutive samples that cross a threshold are generated. This prevents several threshold alerts from being generated if the measurements return to normal immediately after rising above an upper threshold or dropping below a lower threshold.

4. Repeat steps 1 - 3 for all phases.

Circuit Breaker Alarm Threshold

The ENLOGIC PDU will send alert notifications when a circuit breaker amperage crosses above or below the settings you specify in the Circuit Breaker Alarms configuration:

1. Go to the **Thresholds** > **Circuit Breaker Page**.
2. Click the pencil for the Circuit Break to update.

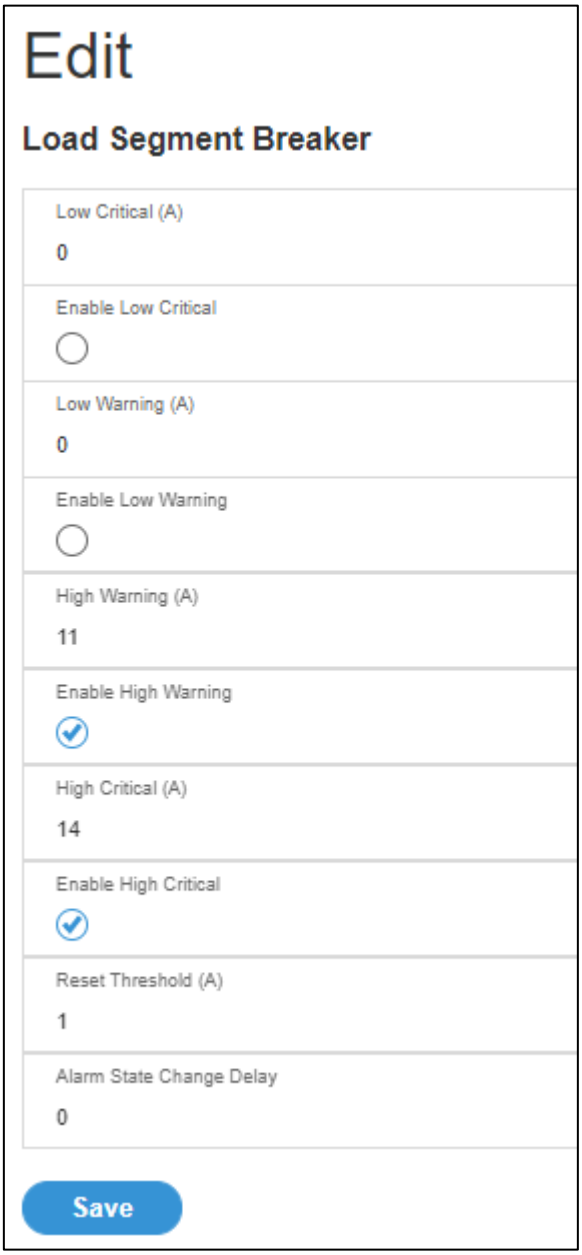


Figure 31: Load Segment Breaker

3. Select and enter the appropriate thresholds in amps and click **Save**.
   - Lower Critical (A)
   - Lower Warning (A)
   - Upper Warning (A)

- Upper Critical (A)
- Reset Threshold (A)

  The Reset threshold is the number of amps the reading needs to fall below the threshold setting for the condition to be cleared.
  For example, the current critical threshold for the input phase is set to 19 amps (A). The current draw rises to 20A, triggering a Current Critical alert. The current then continues to fluctuate between 18.1A and 20A. With the reset threshold set to 1A, the PDU continues to indicate that the current on the input phase is above critical. Without a reset threshold (that is, the reset threshold is set to zero), the PDU would de-assert the condition each time the current dropped to 18.9A and re-assert the condition each time the current reached 19A or higher. With the fluctuating current, this could result in repeating event notifications, such as SNMP traps, SMTP alerts or Syslog notifications.

- Alarm State Change Delay (samples)

  If enabled, the PDU asserts any warning or critical condition only after a specified number of consecutive samples that cross a threshold are generated. This prevents several threshold alerts from being generated if the measurements return to normal immediately after rising above an upper threshold or dropping below a lower threshold.

Repeat steps 1 - 3 for all circuit breakers.

Device Detection Threshold

The Device Detection Threshold is the minimum threshold before current will be reported. Any detected current below the threshold will be reported as zero. To change this threshold, follow the following steps:

1. Go to the **Thresholds** > **Outlet Page**.
2. Click the pencil next to **Device Detection Threshold**.

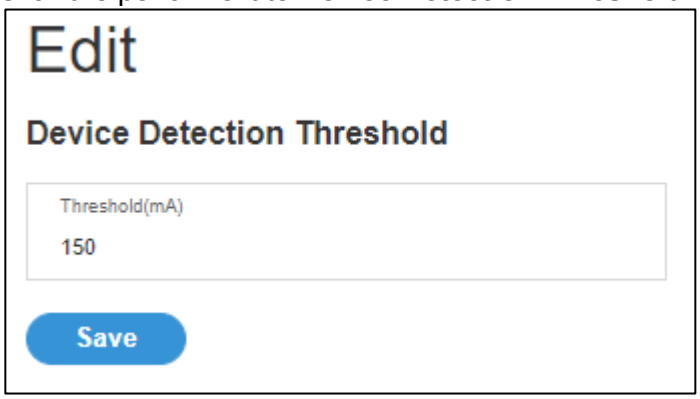


Figure 32: Device Detection Threshold Information

3. Change the value for the number of milli-amps to set the threshold.

Outlet Alarm Threshold

The ENLOGIC PDU will send alert notifications when an outlet amperage crosses above or below the settings you specify in the Outlet Alarms configuration:

1. Go to the **Thresholds** > **Outlet Page**.
2. Click the pencil for the Outlet to update.

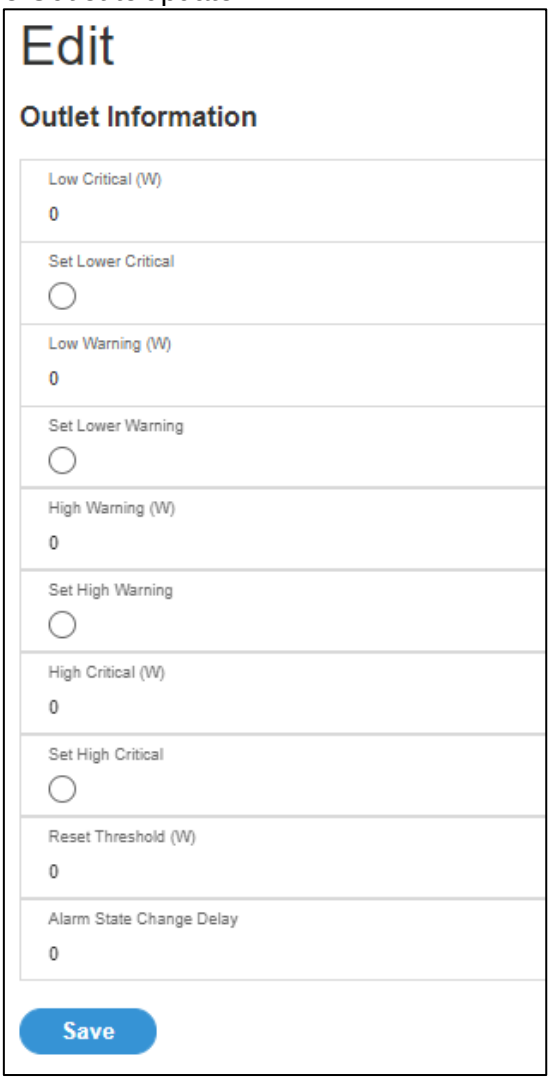


Figure 33: Outlet Information

3. Select and enter the appropriate thresholds in amps and then click Save.

- Lower Critical (W)
- Lower Warning (W)
- Upper Warning (W)
- Upper Critical (W)
- Reset Threshold (W)

  The Reset threshold is the number of amps the reading needs to fall below the threshold setting for the condition to be cleared.
  For example, the current critical threshold for the input phase is set to 19 watts (W). The current draw rises to 20W, triggering a Current Critical alert. The current then continues to fluctuate between 18.1W and 20W. With the reset threshold set to 1A, the PDU continues to indicate that the current on the input phase is above critical. Without a reset threshold (that is, the reset threshold is set to zero), the PDU would de-assert the condition each time the current dropped to 18.9W and re-assert the condition each time the current reached 19W or higher. With the fluctuating current, this could result in repeating event notifications, such as SNMP traps, SMTP alerts or Syslog notifications.

- Alarm State Change Delay (samples)

  If enabled, the PDU asserts any warning or critical condition only after a specified number of consecutive samples that cross a threshold are generated. This prevents several threshold alerts from being generated if the measurements return to normal immediately after rising above an upper threshold or dropping below a lower threshold.

Repeat steps 1 - 3 for all outlets.

Email Setup

The Enlogic PDU can be configured to send Emails to specific users when an event occurs. To do this, the information about the SMTP (Simple Mail Transfer Protocol) server needs to be configured.

1. From the top ribbon of the dashboard, go to the gear settings and select **Email Setup**.

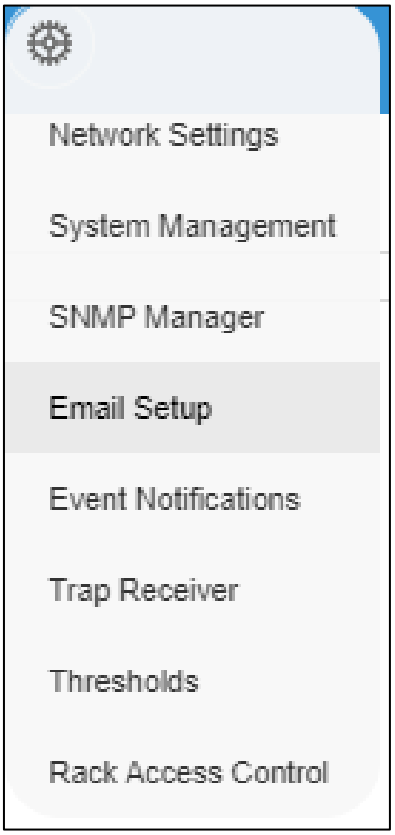


Figure 34: Email Setup

2. Select the pencil icon next to SMTP Account Settings and begin filling out the **Edit** screen.

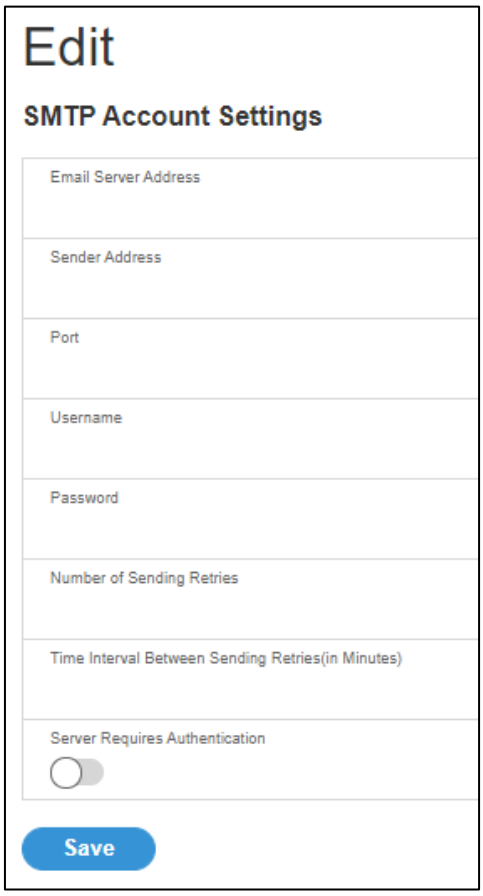


Figure 35 : SMTP Account Settings

- Set the **Email Server Address**. This is the IP address of the SMTP that is going to accept the messages.
- Set the **Sender Address.** This is the email address that the email is sent from. You could use a unique email address on each PDU or the same email address across all PDUs.
- Configure the **Port** number. The port number is the communication endpoint on the server. The default is 25. Other common SMTP ports are 587 and 465
- If the SMTP server requires authentication, enter the **username** and **password.** These will be determined by the configuration on the SMTP server. If the SMTP does not require authentication, a **username** and **password** will need to be entered, but they will not be used.
- Set **Number of Sending Retries.** This will be the number of times the

PDU will attempt to resend a message if the message fails. The default setting is 3.

- Set **Time Interval Between Sending Retires (In Minutes).** This is the time, in minutes, the PDU will wait before retrying to send a failed message. The default setting is 6 minutes.
- Choose whether **Server Requires Password Authentication** is needed or not. If the SMTP server requires a username and password, this option needs to be selected.

3. Press **Save** when done.

Next, fill out the Email Recipients list.

1. Select the pencil icon to display the Email Recipients screen.

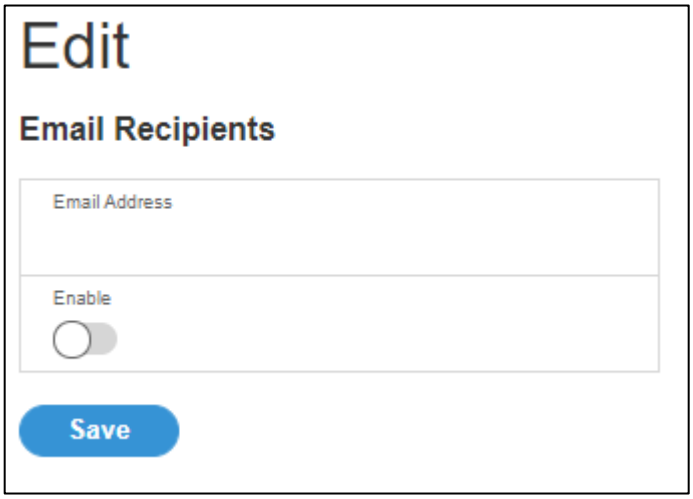


Figure 36: Email Recipients

2. Enter the desired email address and press **Enable**.
3. Press **Save**.

Note: A maximum of 5 users can be entered to receive email alerts.

Data Log

The period visible in the data log at any one time depends on the time between data log entries. The time range of each record can be configured from 1 to 1440 minutes. (As an example, if a data log is in an interval of 10 minutes, the entire data log contains 2000 records with up to 13.89 days of data.) Once the data log reaches the maximum of 2000 records, the oldest entries ae overwritten by the newer entries.

1. Go to **Logs** and select **Data Log**.

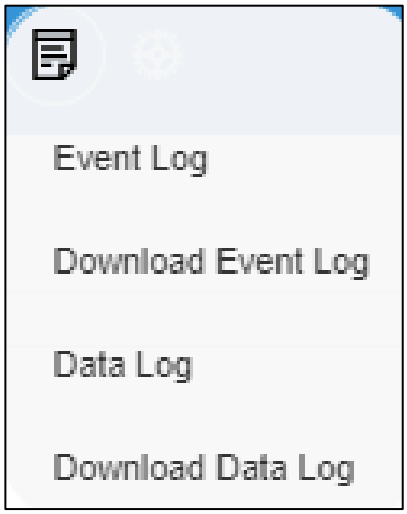


Figure 37: Data Log

2. Select the **Actions** drop-down menu and choose **Data Log Configuration**.

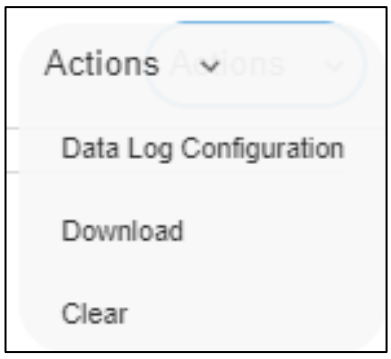


Figure 38: Data Log Configuration

3. **Enable** must be selected and enter an interval number in the **Log Interval** field. (Valid range is from 1 to 1440 minutes. The default time is 10 minutes.)

4. Select **Save**.

Web Interface Access

Logging Out

Users should logout after each session to prevent unauthorized changes to the system.

1. Click the **user name icon** in the top right corner of the screen (see Introduction to the Web Menu).
2. Click **Log Out** in the drop-down menu.

Access Types

There are two levels of access privileges:

- Administrator Privileges
- Read Only

The PDU comes with a standard **Administrator Privileges** profile and a standard **Read Only** profile. The “Admin Role” is typically the system administrator and has the Administrator Privileges with full operating permissions. By default, the User Role is a Read Only profile. All other users must be added by a user with administrator

privileges. Users are defined by their unique login credentials and by their user role. The level of access privilege determines what the user will see and what actions the user can perform. The level of access privilege determines which menu items the user can access, or which fields display on individual setting and configuration dialogs. Before setting up users, determine the Roles that will be required. Each user must be given a Role. These Roles define the permissions granted to the user.

Role	Default Permissions
admin	Full permissions that cannot be modified or deleted.
user	Read-only permissions. Can monitor the system but cannot change any configuration
manager	Full permissions that can be modified and deleted

User Accounts

Add a user with the following steps:

1. Go to **User Administration** and select **User Accounts**.
2. Select **Add User** to create a new user profile.
3. Use the Settings tab to enter the following information:
    - User Name (required)
    - Password (required)
    - Confirm Password (required)

    NOTE: Set password requirements in the required field. By default, passwords must be 8-32 characters in length, and have at least one numeric character, and at least one special character.
4. Use the **Roles** tab to set full or read only privileges.
5. Select **Add User** to save the new user profile.

Modify user profile:

1. Go to **User Administration** and select **Users**.
2. Select the **User Name**.
3. Select **Edit**. Make changes to the user profile.
4. Select **Update**.

Delete user profile with the following steps:

1. Go to **User Administration** and select **Users**.
2. Select the red **X** next to user name.

Configuring the system with LDAP Server Settings

To setup LDAP to access the Active Directory (AD) and provide authentication when logging into the PDU via the Web Interface:

1. Go to User Settings (under the ADMIN Menu) > LDAP Configuration.
2. Select the LDAP Enable checkbox.
3. Use the drop-down menu to choose the Type of LDAP Server. Choose Microsoft Active Directory.
4. Enter an IP Address of the domain controller/Active Directory (AD) Server.
   i.e.: 192.168.1.101 (example)
5. Enter a Port.
   Note: For Microsoft, this is typically 389.
6. In the Base DN field, enter in the account to be used to access AD.
   i.e. CN=myuser, CN=Users, DC=EMEA, DC=mydomain, DC=com
7. Enter the password in the Bind Password and Confirm Password fields.
8. In the Search User DN field: DC=subdomain DC=mydomain DC=com 10
9. In the Login Name Attribute field, enter **sAMAccountName** (typically).
10. In the User Entry Object Class field, enter person.

With these LDAP settings configured, the Bind is complete.

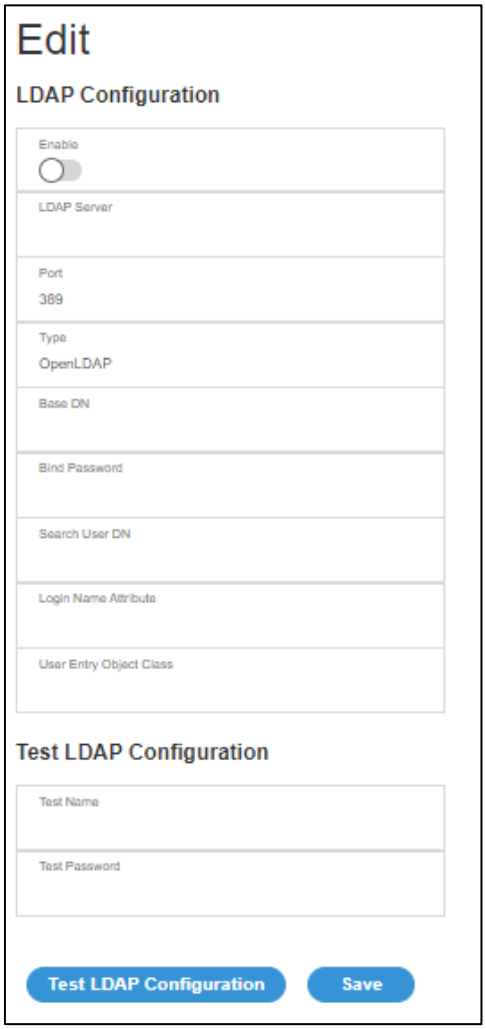


Figure 39: LDAP Configuration

Once 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 the Active Directory (AD).

1. Within the Active Directory, create a group for the users that you wish to be PDU administrators. *i.e. admins*

Note: There are no limits to the amounts of admins that the PDU imposes. However, there may be limits by the LDAP server.

2. Within the ENLOGIC PDU Web Interface, go to **User Settings** (under admin menu) > **Roles**. Enter the **Role Name** that was created in AD. *i.e. admins*
3. Enable role privileges as needed (pictured below).

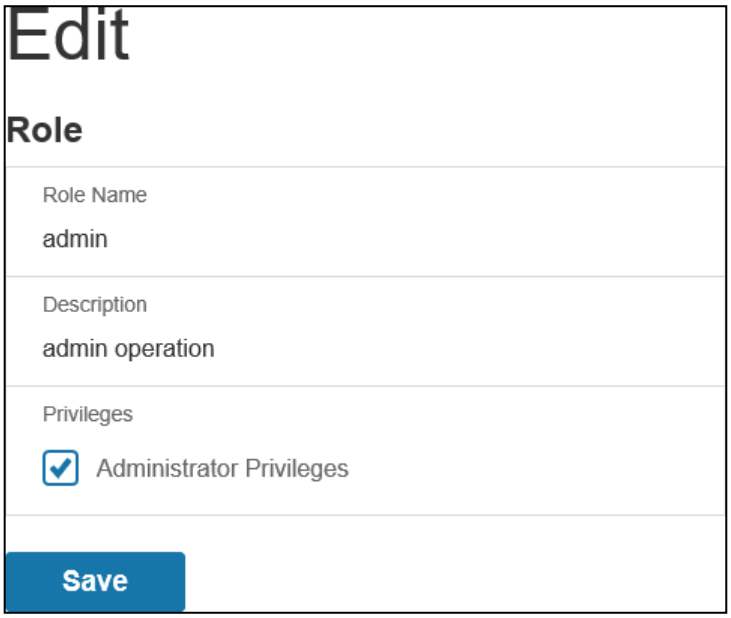


Figure 40: Enable Role Privileges

4. LDAP authentication is ready to use.
5. Click save to test and click **LDAP Configuration** again.
6. Type an Active Directory user name/password into the test box.
7. Click **Test LDAP Configuration**.

- If a box pops up with all green **SUCCEEDED** (no X's), the LDAP is successfully configured.

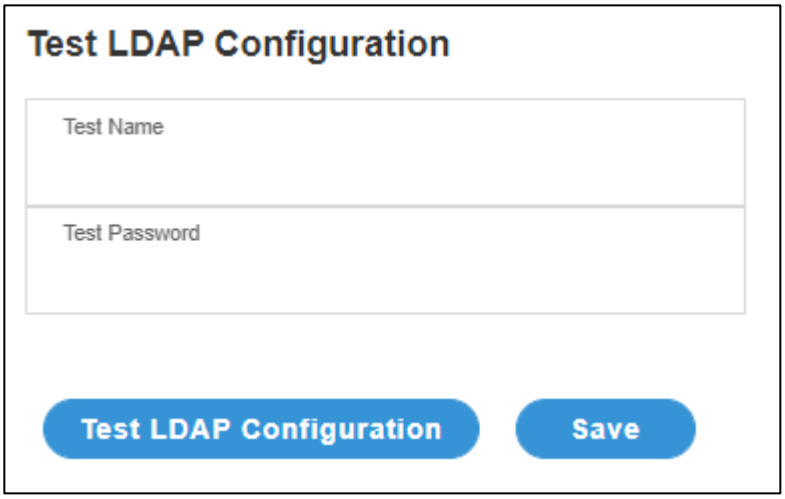


Figure 41: Test LDAP Configuration

Note: Be sure to log in without a domain name.

Simple Network Management Protocol (SNMP)

SNMP Management Configuration

Setup SNMP

1. Access the Web interface and login.
2. Under SNMP Managers, select SNMP General (or type SNMP in the search). The SNMP General page displays.

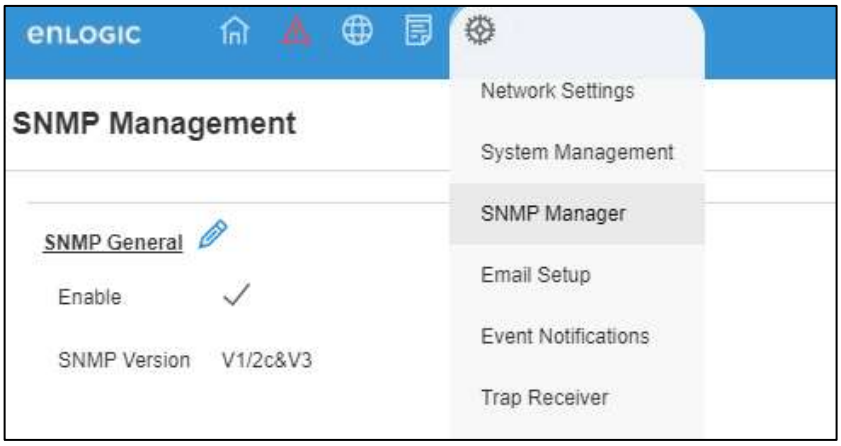


Figure 42: SNMP Management

3. The SNMP General includes SNMP Access and Version.

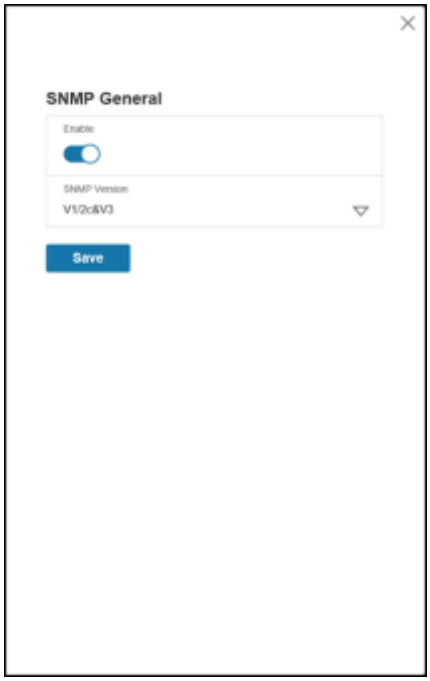


Figure 43: SNMP General

Setup SNMP Port

1. Access the Web interface and log in.
2. Under SNMP Managers, select **SNMP Port**. The SNMP Port page displays.
3. Set up SNMP Port and SNMP Trap Port.

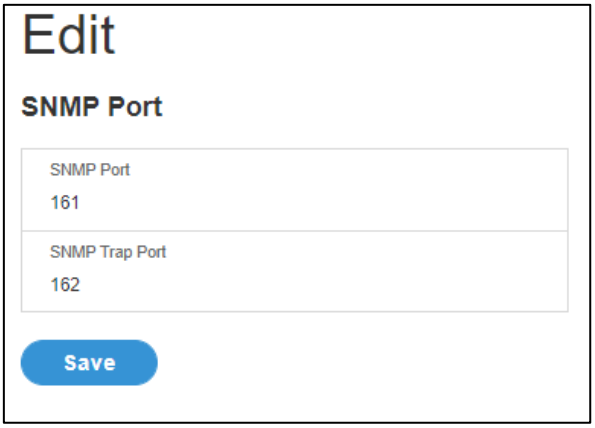


Figure 44: Setup SNMP Port and Trap Port

Configuring Users for SNMP V1/V2c

1. Access the Web interface and log in.
2. Under SNMP Manager, select **SNMP V1/V2c**.
3. In the SNMP V1/V2c panel, select the SNMP V1/V2c manager to configure. Select the **pencil** icon.

Figure 45: Define SNMP V1/V2c User

4. The Edit panel pop up displays.

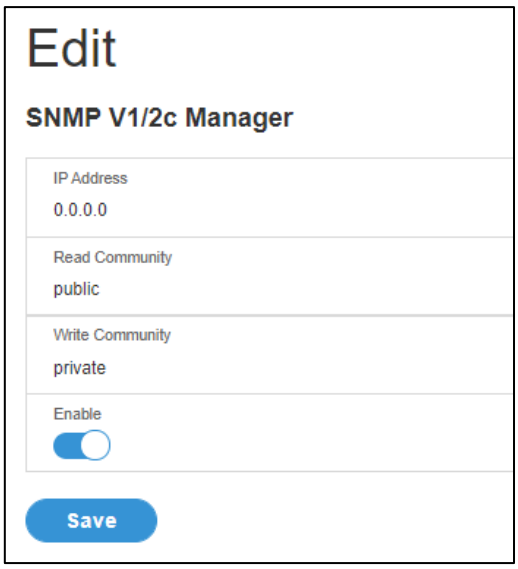


Figure 46: Edit V1/2c Manager

5. Set the following options:

   - IP Address: the IP address of the host for this SNMP V1/V2 manager. Only requests from this address will be acted upon.

Note: An IP address configured to 0.0.0.0 will act as a wildcard and all requests will be acted upon.

- Read Community: the read-only community string to allow an SNMP V1/V2c manager to read a SNMMP object.
- Write Community: the write-only community string to allow an SNMP V1/V2c manager to write an SNMMP object.

6. Click **Enable** and **Save**.

Configuring Users for SNMP v3

1. Access the Web interface and log in.
2. Under SNMP Managers, select **SNMP V3**.
3. In the SNMP V3 panel, select the **SNMP V3** manager to configure. Select the **pencil** icon in the last column.

Figure 47: SNMP V3 Manager

4. The Edit panel pop-up displaying the configurable options.

5. Configure the SNMP username
6. Choose a 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.

7. Enter a new unique password to be used for authentication
8. Select the desired authentication algorithm.
    - MD5
    - SHA
9. Enter a new unique key for privacy algorithm
10. Select the desired privacy algorithm
    - AES-128
    - AES-192
    - AES-256
11. Click **Enable** and **Save**.

Configuring SNMP Traps

The PDU keeps an internal log of all events. These events can be used to send SNMP traps to a third-party manager. To set up the PDU to send SNMP traps, follow the following procedure:

Configuring SNMP v1 Trap Settings

1. Go to Device Configuration > Network Services > SNMP
2. Click the Pencil next to SNMPV1 Trap Receiver you want to update.

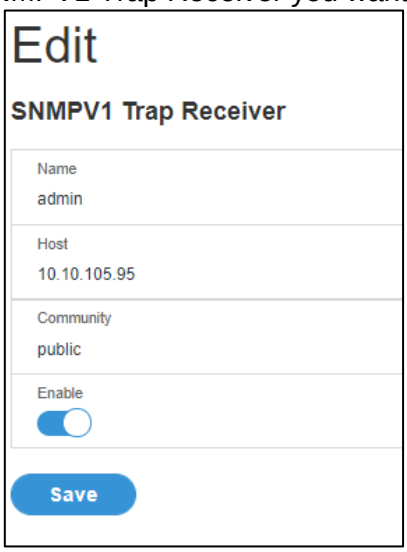


Figure 48: SNMPv2 Configuration Information

3. Enter the **Name**, **Host**, and a **community name** in the fields provided.
   a. The name is a user assigned name to help distinguish the different receivers.
   b. The host name is the IP Address to which the traps are sent by the SNMP system agent.
   c. Community is the password on the SNMP management stations.
4. Select Enable to enable the receiver.
5. Select **Save** to save and exit.

Configuring SNMP v3 Trap Settings

1. Go to Device Configuration > Network Services > SNMP
2. Click the Pencil next to SNMPV3 Trap Server you want to update.

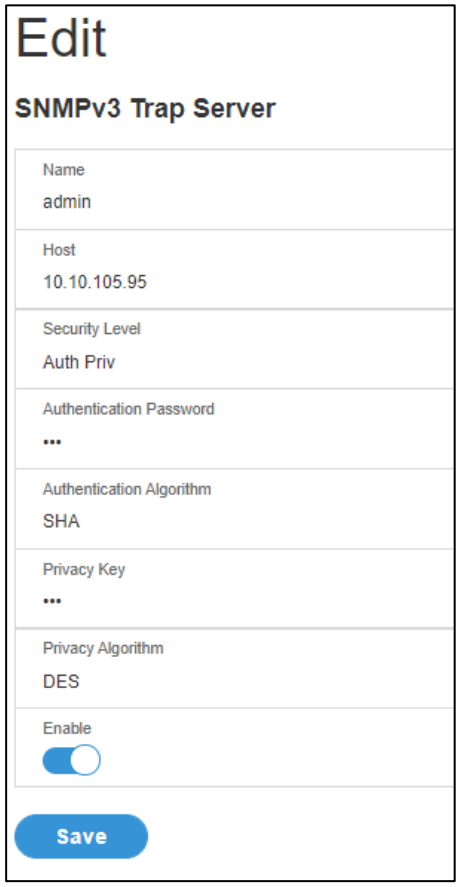


Figure 49: SNMPv3 Trap Server Information.

3. Enter the **Name**, **Host**, and a **community name** in the fields provided.
   a. The name is a user assigned name to help distinguish the different receivers.
   b. The host name is the IP Address to which the traps are sent by the SNMP system agent.
4. Choose a 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.
5. Enter the password from the SNMP Server to be used for authentication.
6. Select the desired authentication algorithm.

- MD5
- SHA

7. Enter the key from the SNMP Server for privacy algorithm
8. Select the desired privacy algorithm
    - AES-128
    - AES-192
    - AES-256
9. Select **Enable** to enable the receiver.
10. Select **Save** to sav
11. e and exit.

Local Display

Onboard Display and Network Controller

The Onboard Display provides information about the PDU and connected devices. The PDU has a three-button, graphical Network Controller panel (see Figure 22). Use the buttons to change the screen display and retrieve specific data.

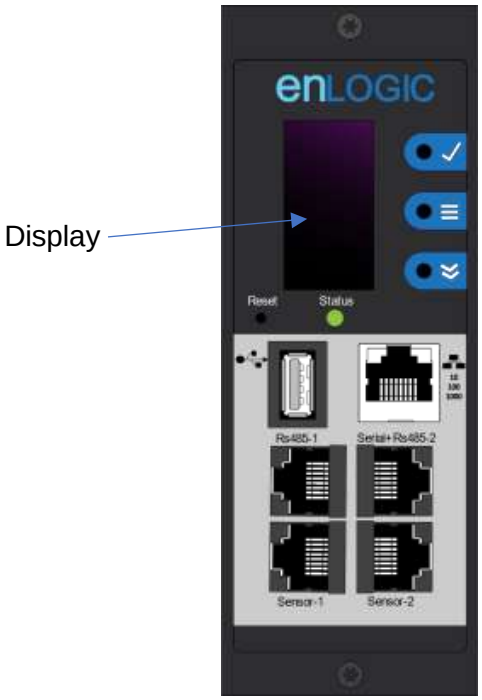


Figure 50: Network Controller

The Network Controller Display has three modes:

1. **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.
2. **Standby mode**: This happens when a PDU is idle (no buttons pushed) for 30 seconds while in Menu mode.
    - In Standby mode, the PDU scrolls through key power values (Frequency, Amps, Volts, Watts, and kVA) and IP addresses (for both IPv4 and IPv6).

3. **Power Save mode**: The PDU enters Power Save mode when it has been in Standby mode for an hour. To exit Power Save mode, press any button on the display.

Control Buttons

The table below summarizes how to use the control buttons on the Network Controller display.

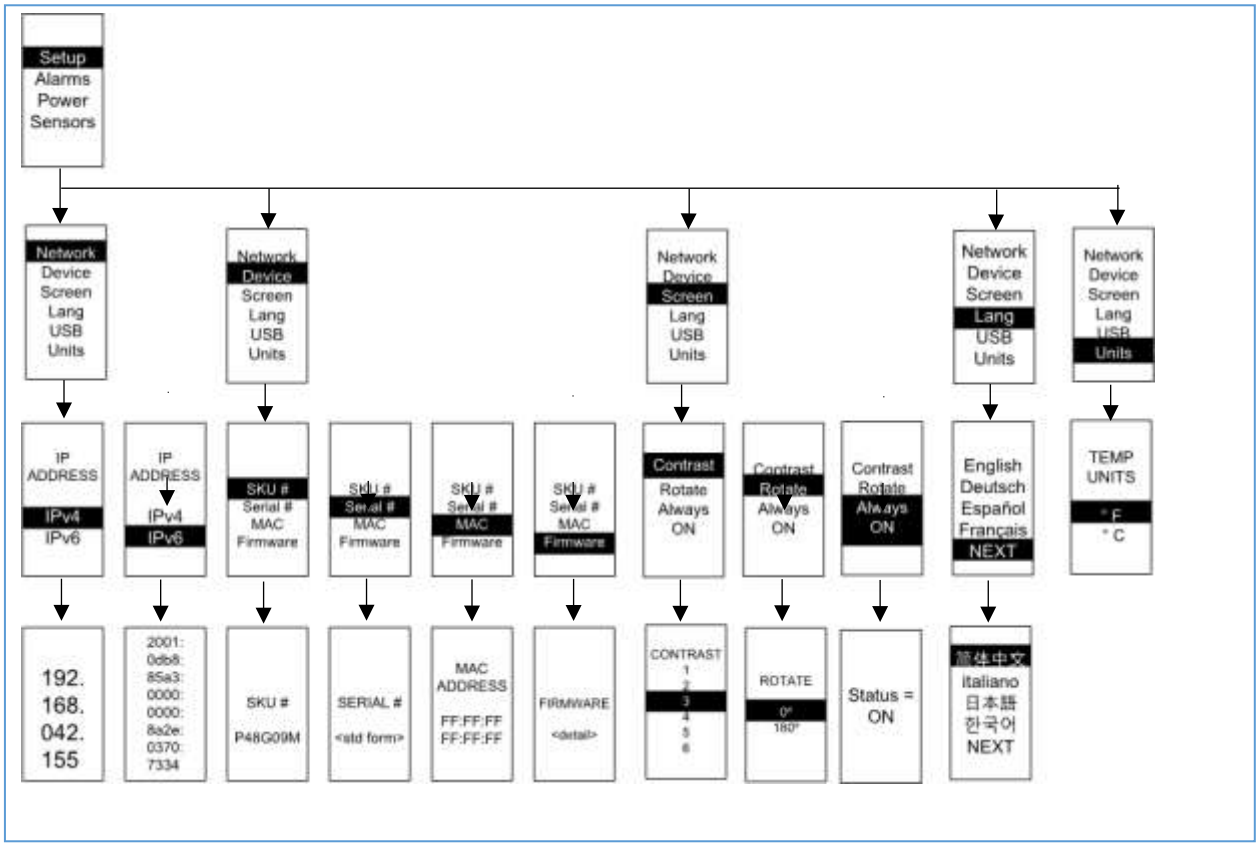
Button	When in Menu Mode	When in Screensaver Mode
Menu	Select from the four main menus.	Returns to the previous display screen before entering the screensaver mode.
Scroll	Scrolls down through the list of menu items. **NOTE:** A highlighted menu item is ready to be selected.	Returns to the previous display screen before entering the screensaver mode.
Select	Opens the selected menu.	Returns to the previous display screen before entering the screensaver mode.

Status LED

The LED will change colors depending on the state of the PDU.

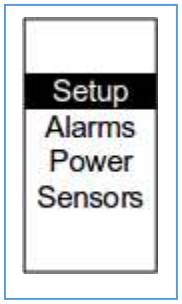
LED State	Description
Solid Green	Normal Operation
Solid Red	Critical or Warning Alarm
Flashing Orange	No network connection

Network Controller Menu Structure



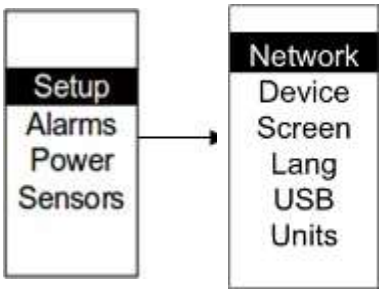
Main Menu Selections

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.



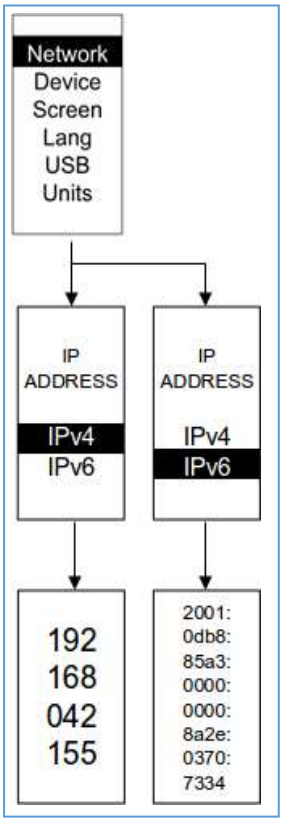
Setup Menu

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



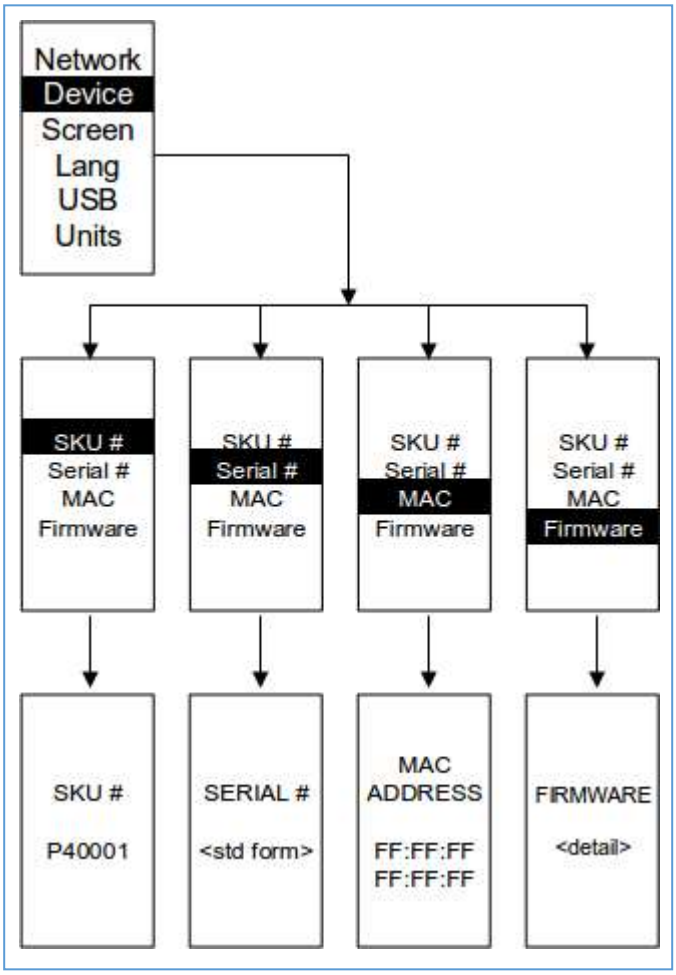
Network Submenu

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 men



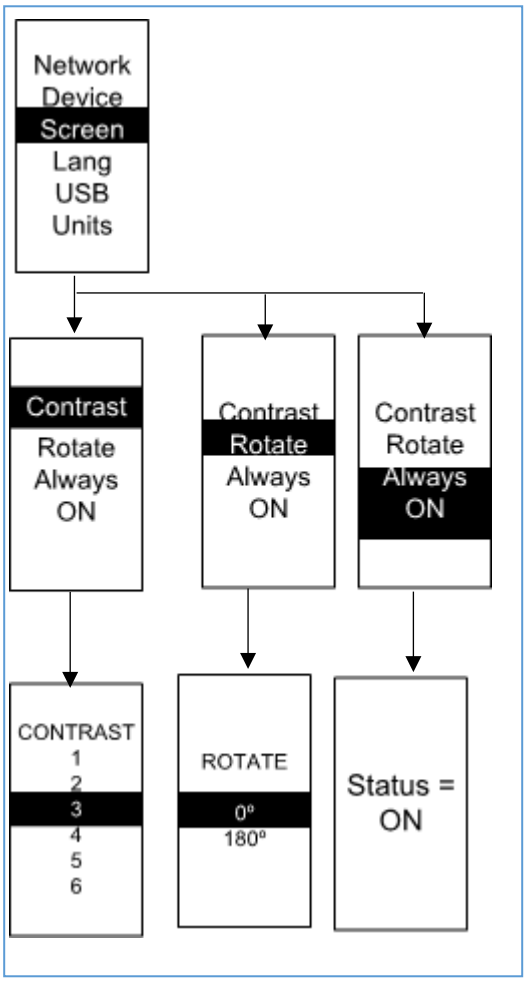
Device Submenu

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

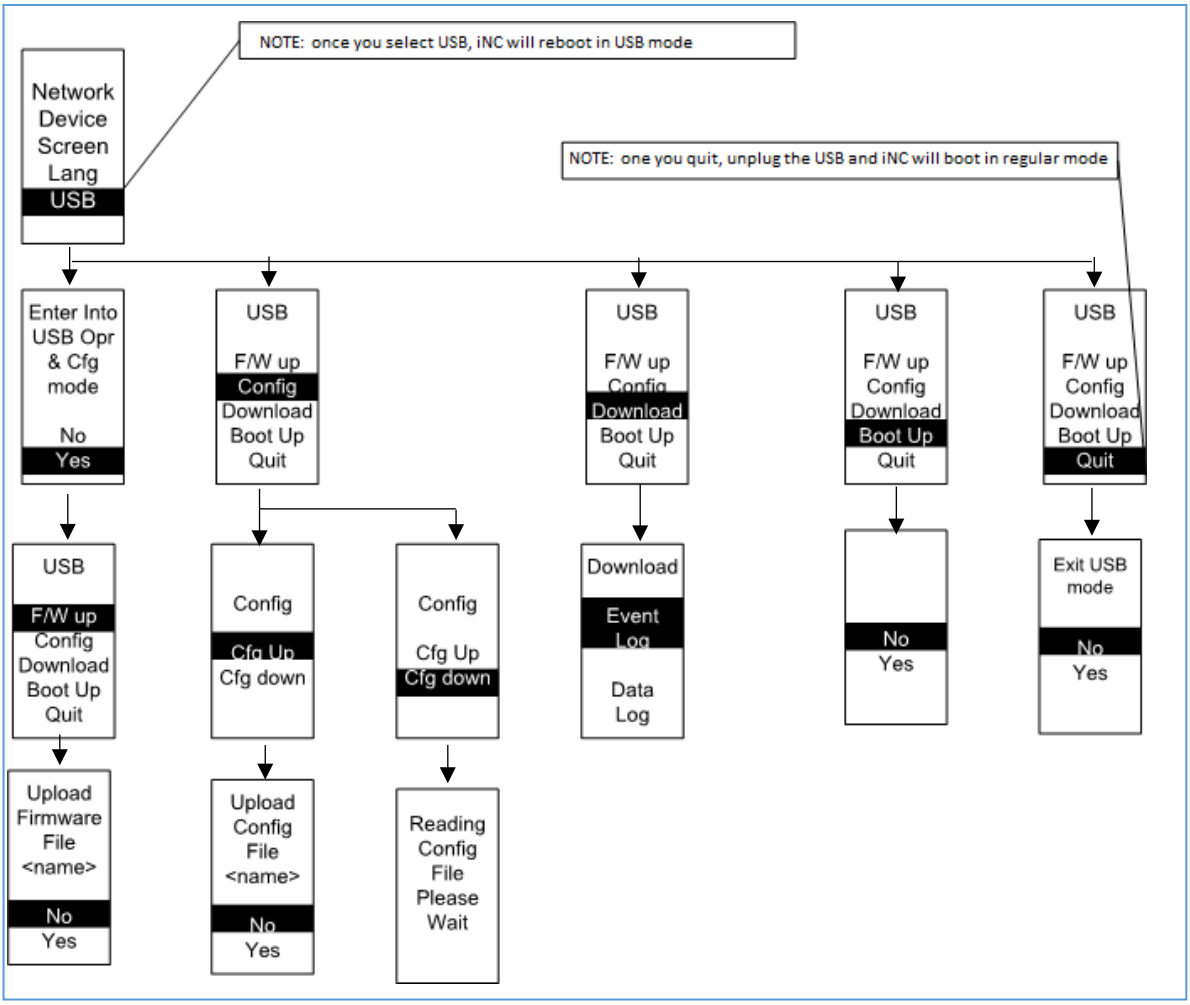
The Language submenu allows you to select the language you need to use. On the Setup menu, scroll down to highlight Lang. Press **Select** to display the screens to select the submenu. After you select the values, press **Select** to set the values as displayed on the screen. Press **Menu** to return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

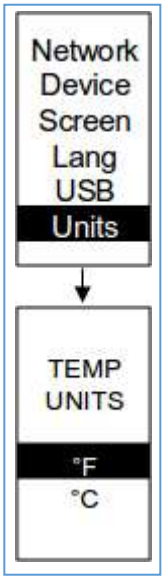
Note: If you are in USB mode and you want to exit USB mode, you must remove the USB drive before existing USB mode. Otherwise, the PDU will reboot and re-enter USB mode.



Units Submenu

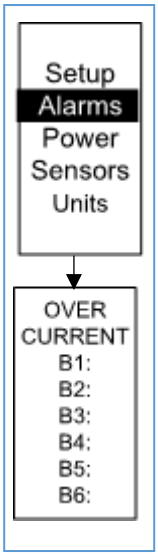
The Units submenu displays the temperature units. On the Setup menu, scroll down to highlight Units. Press **Select** to enter the Units Submenu. After you select the values, press **Select** to set the values as displayed on the screen. Press **Menu** to return to the previous menu.

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



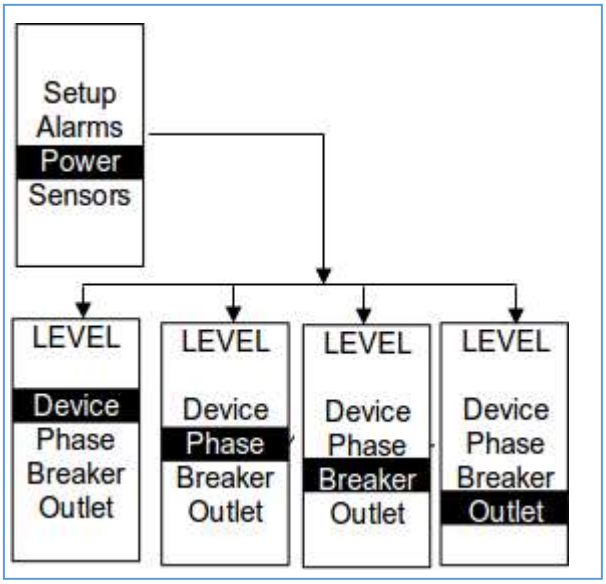
Alarms Menu

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.



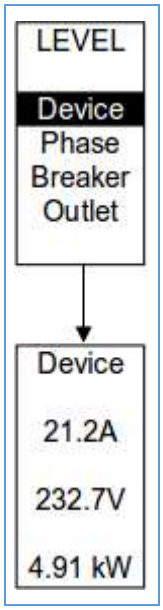
Power Menu

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.



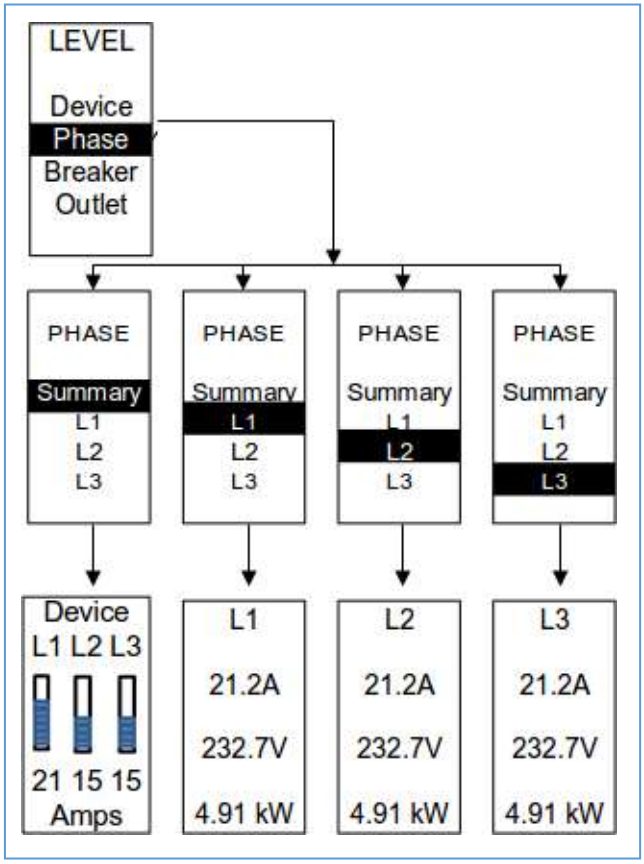
Device Submenu

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.



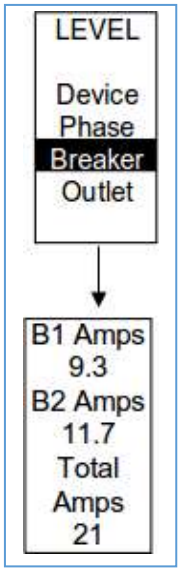
Phase Submenu

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.



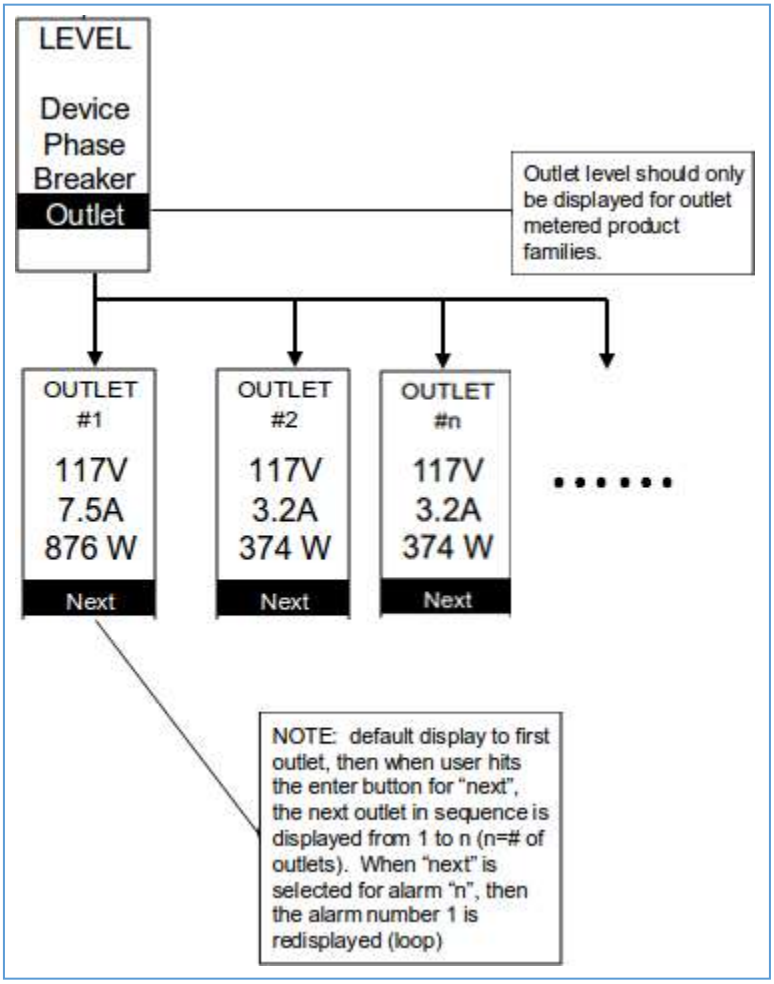
Breaker Submenu

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

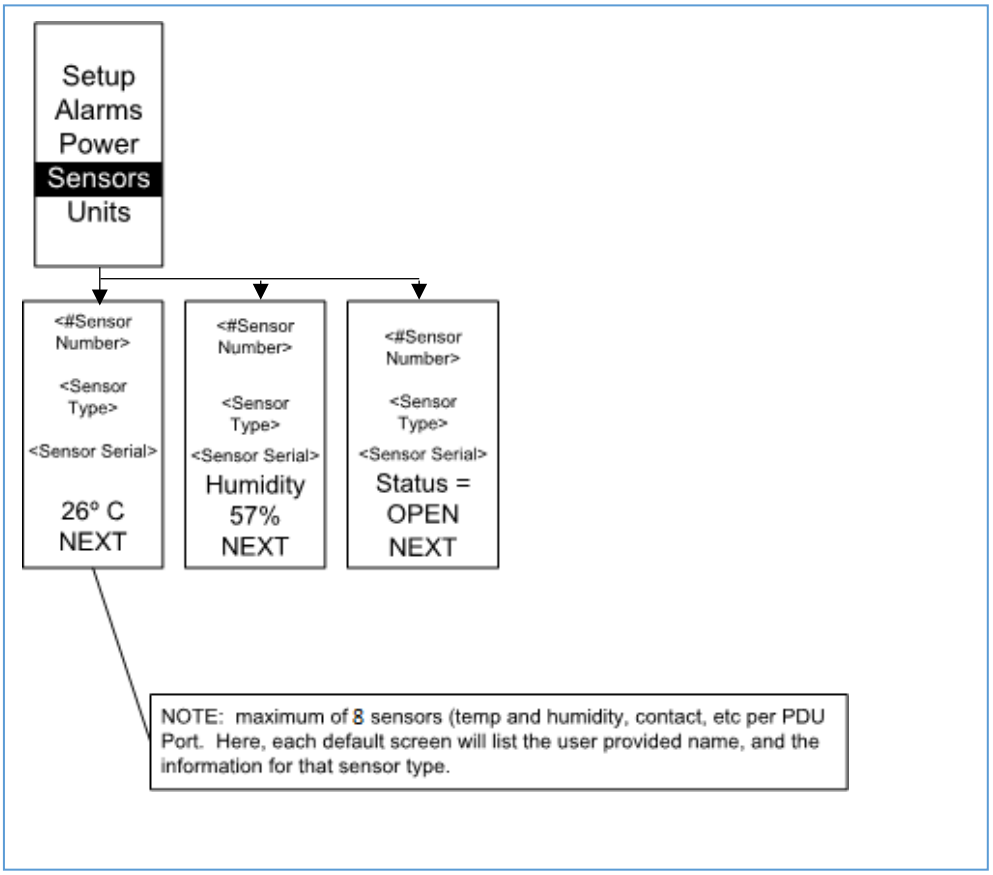
The Outlet submenu is to display voltage, current and power from outlet number 1 to number n. On the Power menu, scroll down to highlight Outlet. Press **Select** to display values for the first outlet. To go to the next outlet, **Select** next. Press **Menu** to return to the previous menu.



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.

Sensors 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 8 sensors are configured per PD

Daisy Chain Configuration

Daisy-Chain Overview

In daisy chain mode, up to (4) PDUs of the same SKU number can be connected via one IP address. This allows users to gather information and data on all daisy-chained PDUs from the master PDU. The daisy chain functionality reduces network cost for PDUs. For example, a standard network switch used in a data center may contain 24 ports. Without using the daisy chain function, each port would supply network connection to one PDU. However, if using the daisy chain features, a typical network switch with 24 ports can supply network connections for up to 96 PDUs.

Daisy-Chain Setup

1. After the initial PDU is configured (parent), connect an Ethernet cord from the **PDU Out** port on the configured PDU to the **PDU In/Serial port** on the second PDU in the daisy chain line.
2. Repeat step 2, connecting PDUs from the **PDU Out** port to the **PDU In/Serial** port for up to 4 PDUs.
3. Go to the Web interface (or management software) to manage and control the PDUs in the daisy chain.

RNA (Redundant Network Access) Functionality

RNA allows secure access of PDU data and statistics on two separate, private networks. RNA must be used with a redundant power delivery design including two rack PDUs for each IT rack. PDUs used in RNA applications must be the same SKU/Part Number. A maximum of (2) PDU can be used in the RNA convention. See the below figure for a connection diagram when deploying RNA.

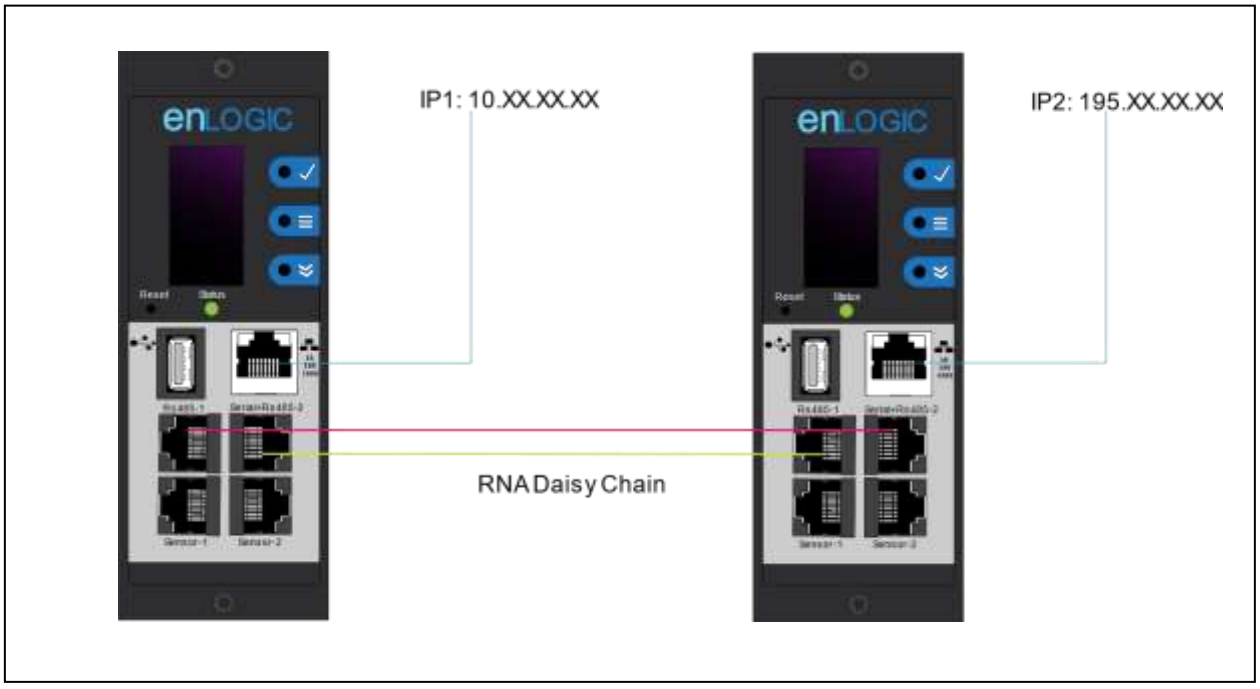


Figure 51: Connection Diagram RNA Daisy Chain

How it works:

- Using RNA, the main and expansion unit maintain two separate private networks that do not overlap.
- RNA works using a redundant power delivery design (two rack PDUs for each IT rack).
- Each PDU is separately connected to the expansion and main unit's private communications network.
- The two PDUs relate to a data communications bus to allow PDUs to share user- defined information.

  Each PDU acts like a main PDU to report PDU data to both networks.

RNA Setup

To set up RNA mode on two PDUs, the user must (1) configure the PDUs for RNA Mode (using CLI) and then (2) connect the LAN Network cords and Ethernet cords between PDUs.

To Configure RNA Mode in the CLI

1. Log in to the CLI and enter the command ‘dev daisy rna.’
2. The following message will appear:
   - Reboot Required for change to take effort.
   - System Reboot now, Are you sure? (Y/N).
3. Enter **Y** to confirm reboot.
4. After reboot, the PDU will be setup to RNA Mode.
5. Repeat this process for the second PDU.

To Connect the PDUs for RNA Setup

After the PDUs are configured for RNA:

1. Connect an Ethernet cable from the Landlord LAN Network to the Ethernet port of the first PDU. This will have limited access/permissions.
2. Connect an Ethernet cable from the Tenant LAN Network to the Ethernet port of the second PDU. This will have full access to both PDUs.
3. Connect an Ethernet cable from the **PDU In/Serial** port on first PDU to the **PDU Out** port on the second PDU.
4. Connect another Ethernet cable from the **PDU Out** port on the first PDU to the **PDU In/Serial** port on the second PDU.
5. In RNA mode, the default account username is ‘landlord’ and password is ‘12345678’. This account is configured for proper access and control in RNA mode.
6. To enable this account, login to the CLI with admin credentials.
7. Enter the command ‘**dev daisy rna init**’.
8. The following message will appear to confirm the landlord account is enabled: SUCCESS.
9. RNA is now configured and enabled.

Configuring Temperature Scale

To configure the temperature scale (Celsius or Fahrenheit) of the temperature sensors:

1. Go to **User Accounts.**

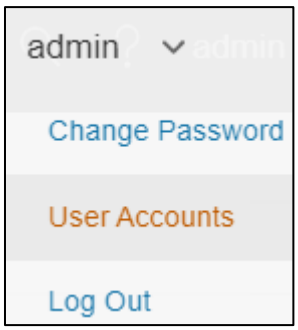


Figure 52: User Settings

2. The button at the top of the screen can be used to select Celsius or Fahrenheit.

Figure 53: Celcius Setting

Figure 54: Fahrenheit Setting

Configuring Environmental Sensors

To configure the sensor location, alarms, notifications, and details, open the WEB Interface:

3. Open the **Settings**.
4. View the Threshold section on the Settings page. Select **Threshold** to configure sensors.
5. Go to **External Sensors**.
6. Select **Edit** button to configure the desired sensors.
7. In the **Edit** dialog box, type value of up critical, up warning, low warning, and low critical.

   Select **Save** to exit the sensor setup.

Security

Security is typically top of mind for IT managers when implementing any networked device. The below section is not meant to be comprehensive but rather informative to the areas of security with regards to the Enlogic EDGE PDU and their associated accessories.

Remove Extra Users

The default setting of the PDU has three users on the system, admin, manager and user. It is recommended that the unused manager accounts and the user accounts are deleted.

Upload Certificate

Certificates ensure that in a secure connection, the user is authorized to access the device. It is recommended that X.509 SSL certificate is uploaded the to the PDU and that the certificate has a key strength of 2048 RSA. This area can be accessed from **Settings → Network settings**

Figure 55: SSL Certificate Load Screen

Use SNMPv3c

The Enlogic EDGE PDU comes with support for both SNMPv2c and SNMPv3. For a higher security deployment, it is recommended to disable SNMPv2c. Another recommendation is to configure all SNMPv3 user and traps receiver with an “Auth Priv” security level, authentication algorithm of SHA and a privacy algorithm of AES256.

Disabling unused interfaces

The default setting is to have FTP and SSH enabled. If these interfaces are not in use, it is recommended to disable these interfaces.

Review Session management and password policies

The PDU gives the customer the flexibility to change session management settings and password policies. It is recommended to review the password policy setting of the PDU and

update them according to match your corporation's guidelines.

Enable notifications

Many of the event notifications on the PDU are disabled by default. It is recommended these events are enabled for the appropriate interfaces.

Firmware Update Procedure

The firmware upgrade procedure verifies the image by validating the signature of the images. If the signature does not match, the firmware upgrade procedure will ignore the image and remain on the current version. Updating the firmware does not affect the configuration or outlet state of the intelligent PDU.

USB Method

1. Save the Firmware file ('*.FW') to a USB drive.
2. Insert the USB drive into the USB port of the Network Controller.
3. Enter USB mode on the PDU: Press **Select**. Go to **Setup**>**USB**>**Yes**. Select **Yes** to confirm entering USB mode.
4. Select **F/W Up**>**Yes** to upload the new Firmware.
5. The OLED will show the Firmware update progress.
6. When the update is complete, remove the USB.
7. From the USB Menu, select **Quit** to exit USB mode. Select Yes to confirm exit.
8. The PDU will automatically reboot.
9. To confirm that the Firmware was uploaded successfully, go to Setup>Device>Firmware**.**

Web Interface Method

1. Open the User interface in a web browser by entering the PDU IP address.
2. Login to with Administration credentials.
   Go to Settings > System Management > Actions > Update Firmware**.**
3. In the Firmware Update dialog box, browse to (***.FW)** firmware file.

Figure 56: Upload Firmware

NOTE: the firmware file name must be retained AS IS.

4. Select Upload. The system will update the newest firmware to the Intelligent Network Controller.
5. When the upload is finished, the system will reboot automatically.

FTPs Method

To access a PDU using a FTPs program, FTPs must be enabled through the PDU Web Interface or CLI. In the Web Interface, go to Network Settings >SSH/**FTPs Configuration**. Select the check box to enable FTPs Access. In the CLI, login as an administrator and use the command net tcpip FTPs open

1. Login to a FTPs program with a role with administration privileges.
2. Transfer the updated *FW file to the root directory. Close the FTPs.
3. Connect to the PDU via SSH using a program such as HyperTerm or PuTTY.
4. Login using a role with administration privileges.
5. Enter the command **sys upd all**.
6. It will show the message: System will enter upgrade mode after reboot, System Reboot now, Are you sure? (Y/N).
7. Enter Y.
8. When the upload is finished, the system will reboot automatically.

System Reset or Password Recovery

Use Reset Button on Controller

Press and hold the Reset Button for 8 seconds to recover from an Intelligent Network Controller communication failure. This will cause a reset of the iNC controller and the entire configuration will be retained.

Press and hold the Reset Button for at least 20 seconds to reset the PDU to the default factory settings. This will cause a reset of the iNC controller and all configuration to be erased, including the username and passwords. It does not change the Energy (kWh) value and does not affect the outlet state.

Command Line Interface (CLI)

The Command Line Interface (CLI) is an alternate method used to manage and control the 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

Connecting to the CLI requires a terminal emulation program such as HyperTerminal or PuTTY

Supported Commands

The PDU CLI command set for managing and monitoring the PDU includes the following commands:

- **?** command: PDU help query
- sys command: PDU system configure and setting
- net command: PDU net application configure and setting
- usr command: PDU user operation
- dev command: PDU device setting

- pwr command: PDU power setting

NOTE: Command variables are represented in command input syntax surrounded by angle braces (< >). Optional parameters are represented in command input syntax surrounded by straight brackets ([ ]). For data of type array, the 'x' character as index of array in command input syntax means all indexes. You must be logged into the PDU before commands can be sent. See Appendix A for a list of all CLI commands.

Connecting to the CLI through the serial interface

An option to communicating through the serial interface is to use the specialized YOST Serial Data Cable Enlogic Part Number: MA017. This cable Remaps Enlogic EDGE Serial Interface to a YOST interface.

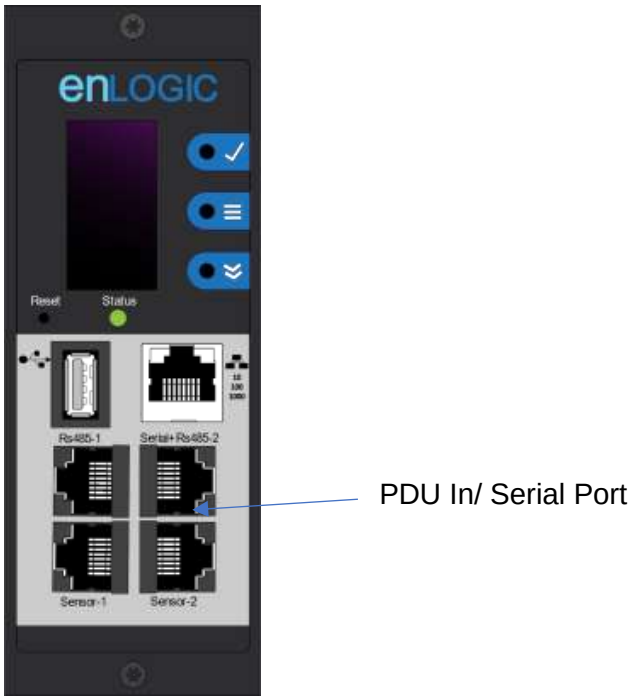


Figure 57: Connect MA017 to the PDU In/Serial port

To connect the PDU to a computer (via Serial Interface):

Connect the MA017 YOST Remap cable in between a standard patch cord and the network port of the computer.

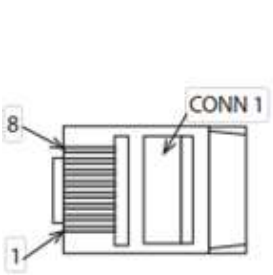
Logging in with HyperTerminal

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

Serial Cable Pinout to Create Your Own Cable

Optionally if you prefer to make your own RJ45-to-DB9 Serial cable, the connections are wired as shown:



CONN 1		CONN 2
Pin	Description	Pin
1		1
2	RS232 RX	2
3	RS232 TX	3
4		4
5	Ground	5
6		6
7		7
8		8
		9

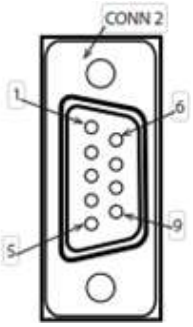


Figure 58: Serial Cable Pinout

Logging in with SSH via PuTTY

1. Ensure SSH has been enabled: On GUI, go to Device Configuration > Network Service > SSH. Select the **Enable SSH Access** checkbox. Select **OK**.
2. Open an SSH client (PuTTY).
3. Enter the IP address in the Host Name field. Select the connection type: SSH
   - For SSH, enter 22 in the Port field.
4. Select **Open**.
5. Enter your Username. Press **Enter**.
6. Enter your password. Press **Enter**.
7. You are now logged into the SSH. Refer to the CLI Commands table below for available commands.

NOTE: SSH connection is not available when serial connection is enabled.

CLI Commands

Help Commands

Command	Description	Example
enlogic >?	List all available PDU CLI commands.	enlogic>? **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.

System Commands

Command	Description	Example
sys date [year-month-day]	Query or set system's date.	enlogic>sys date 2013-09-19 SUCCESS enlogic>sys date SUCCESS Date: 2013-09-19 Time: 03:49:46
sys time [hour:min:sec]	Query or set system's time.	enlogic>sys time enlogic- >sys time 14:35:34
sys ntp <IP Address>	Synchronize system date and time, with ntp server you set.	enlogic>sys ntp 69.25.96.13 **NOTE:** IP Address must be a valid ntp, server address otherwise, executes, failed

Command	Description	Example
sys ver	Query system's version information including firmware, bootloader, and Web.	enlogic>sys ver SUCCESS Firmware version: 0.41 Bootloader version: 2.10 LANGUAGE version: 3.01 WEB version: 6.30
sys def	Recover PDU to default configuration.	enlogic>sys def SUCCESS Recover Press any key to cancel
sys rst	Reset system.	enlogic->sys rst Reboot required for change to take effort. System Reboot now, Are you sure? (Y/N):Y
sys upd all	Update system's firmware with existing pdu bin file.	enlogic>sys upd lan SUCCESS system will enter upgrade mode after reboot System Reboot now, Are you sure? (Y/N):Y **NOTE 1:** There must be a valid file named Enlogic.bin existing under directory/fw. **NOTE 2:** If in daisy chain configuration, master will also upgrade its all slave's firmware.

sys upd boot	Update system's bootloader.	enlogic>sys upd boot SUCCESS system will enter upgrade mode after reboot System Reboot now, Are you sure? (Y/N):Y **NOTE 1:** There must be a valid file named boot.bin existing under directory/fw. **NOTE 2:** If in daisy chain configuration, master will also upgrade its all slave's bootloader.
sys upd conf	Update system's configuration.	enlogic- >sys upd conf SUCCESS system will enter upgrade mode after reboot System Reboot now, Are you sure? (Y/N):Y **NOTE:** There must be a valid file named conf.ini existing under directory/fw.
sys log del event	Delete event log file.	enlogic>sys log del event, SUCCESS
sys log edit data [on <interval> | off]	Configure data log collection parameters	enlogic>sys log edit data on 1 SUCCESS ENLOGIC- >sys log edit data off SUCCESS
sys log del data	Delete data log file.	enlogic>sys log del data, SUCCESS

Network Commands

Command	Description	Example
net ssh [on/off]	Query or on/off SSH.	enlogic>net ssh SUCCESS, SSH Port: 22 SSH Server is running enlogic>net ssh on SUCCESS enlogic>net ssh off SUCCESS
net ftps [on/off]	Query or on/off FTPs.	Net ftps SUCCESS FTPS Port: 21 Service is running Is Ftps
net http [on/off]	Query or on/off net http.	enlogic>net http SUCCESS, HTTP Port: 80 HTTPS Port: 443 WEB Protocol: HTTP enlogic >net http off E801 WEB protocol is changed, Please reboot to validate System Reboot now, Are you sure? (Y/N):Y
net mac	Query MAC address.	enlogic >net mac SUCCESS MAC Addr: C8-45-44-66-2B-26

net tcpip	Query network's IP information.	enlogic >net tcpip SUCCESS IPv4 Addr: 192.168.30.39
net tcpip <dhcp>	Set network to dhcp mode.	enlogic >net tcpip dhcp SUCCESS Network is reconfigured, Please reboot to validate System Reboot now, Are you sure? (Y/N): Y
net tcpip <static ip, mask, gateway>	Set static IP, mask and gateway.	enlogic >net tcpip static 192.168.30.39 255.255.255.0 192.168.30.1 SUCCESS Network is reconfigured, Please reboot to validate System Reboot now, Are you sure? (Y/N): Y

User Commands

Command	Description	Example
User List	List all users account existing.	enlogic>usr list SUCCESS Usr Role - - - - - - - - - - - - - - admin admin user user

User unlock<username>	Unlock specified user.	enlogic >usr unlock user SUCCESS enlogic- >usr unlock admin SUCCESS **NOTE:** 1. Account would be locked temporarily if login failure excess "Maximum number of failed logins". Use this command to unlock it.

Device Commands

Command	Description	Example
dev usb [on|off]	Query or on/off USB.	enlogic>dev usb enlogic- >dev usb off enlogic- >dev usb on
dev daisy [rna|qna]	Query or set daisy chain mode.	enlogic>dev daisy SUCCESS daisy chain unit number: 1 daisy chain address list: 000 Daisy Mode: RNA enlogic- >dev daisy qna SUCCESS System Reboot now, Are you sure? (Y/N): N
dev daisy <rna|qna> init	Initialize daisychain.	enlogic>dev daisy qna init SUCESS System Reboot now, Are you sure? (Y/N):N

dev hid <PDUID> <hot | cold> <lock | unlock>	Remote locking and unlocking the cabinet.	enlogic - >dev hid 1 cold unlock SUCCESS
dev outlet <PDUID> status	Query all outlets' status with specified PDUID.	Enlogic >Dev outlet 1 status SUCCESS Relay Outlet Status Outlet#1: Close Outlet#2: Close Outlet#3: Close Outlet#4: Close Outlet#5: Close Outlet#6: Close Outlet#7: Close Outlet#8: Close Outlet#9: Close Outlet#10: Close Outlet#11: Close Outlet#12: Close **NOTE 1:** For M pdu, this command is in valid. **NOTE 2:** PDUID index from 1; if in daisy chain, the master's PDUID is 1, others is ,2,3,
dev outlet <PDUID> <outlet index> [on|off]	Query or set specified PDUID and outlet-index's outlet status.	enlogic> dev outlet 1 1 off SUCCESS **NOTE:** For Monitored PDUs, this command is invalid.

dev sensor	List all sensors equipped.	enlogic> dev sensor SUCCESS Sensor count 4 Name Type, SN Value T1,TEMP 012345678 27.5 T3,TEMP 012345678 27.2 T2,TEMP 012345678 27.3 RH HUMI 012345678 44
dev ver <slipaddr>	Query sensor/power/delay's firmware version.	enlogic> dev ver 1 enlogic- > dev ver 15 enlogic- > dev ver 35 **NOTE:** relay: start from 1 power: start from 15 sensor: start from 35

Power Commands

Command	Description	Example
pwr unit [idx]	Query device information,	enlogic > pwr unit SKU: ES6325
	Query specified index unit's electric information.	Serial: , , , , , FuncType: PDU Monitored Rating :220-240V, 16A, 3.5-3.8kVA, 50/60Hz Mac :C8:45:44:66:2B:26 Tcpip :192:168:30:38 enlogic- >pwr unit 1 SUCCESS PDU UNIT 1 power Feature voltage: 0V current : 0.0A active power: 0W apparent power: 0W power factor: 0.00 energy: 0.000kWh
pwr phase <idx>	Query specified phase's electric information.	enlogic > pwr phase 1 SUCCESS PDU PHASE 1 power Feature voltage: 0V
		current : 0.0A active power: 0W apparent power: 0W

		power factor: 0.00 energy: 0.000kWh
pwr cb <idx>	Query specified circuit breaker's Electric information.	enlogic > pwr cb 1 SUCCESS PDU CB 1 power Feature voltage: 0V current : 0.0A active power: 0W apparent power: 0W power factor: 0.00 energy: 0.000kWh
pwr outlet <idx>	Query specified outlet's electric information.	enlogic > pwr outlet 1 SUCCESS PDU OUTLET 1 power Feature voltage: 0V current : 0.0A active power: 0W apparent power: 0W **NOTE:** For Monitored PDUs, this command is invalid.