Energy Monitoring & Analysis System

Version 5.1

Contents

Introduction

The APsystems EMA, our robust wireless Energy Monitoring and Analysis software, enables comprehensive, web-based monitoring that analyzes and reports the performance of each module in your solar array. This real-time data can be accessed from any web-connected device, anywhere, anytime.

Unlike conventional "string" inverter monitoring, the APsystems EMA allows users to view each individual module and microinverter in the solar array, for more detailed performance data and improved troubleshooting. Networked with the advanced APsystems ECU, the APsystems EMA promptly detects any performance issues in your solar array, pinpointing the location and nature of the problem and providing precise guidance for necessary maintenance, all within our user-friendly graphic interface.

Features

• Monitor and allows analysis of each solar module and microinverter
• Allow remote access to the solar array
• Show performance issues and alerts the user to inverter events
• Communicate in real time

1. Log onto EMA Website

➢ Go to http://apsystems.com/
➢ Click the orange "EMA Login" in the upper right corner of the screen to enter the EMA login page ,

➢ Enter your "Login Account" and "Password" ,
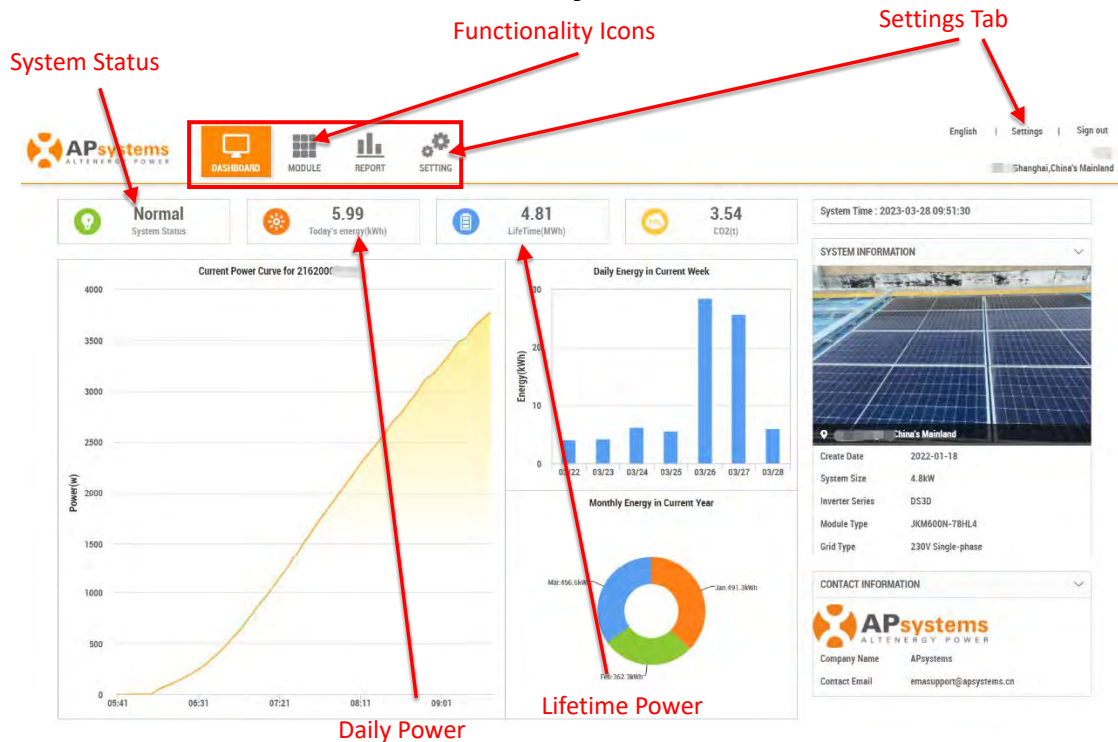➢ Press the "Login" button.
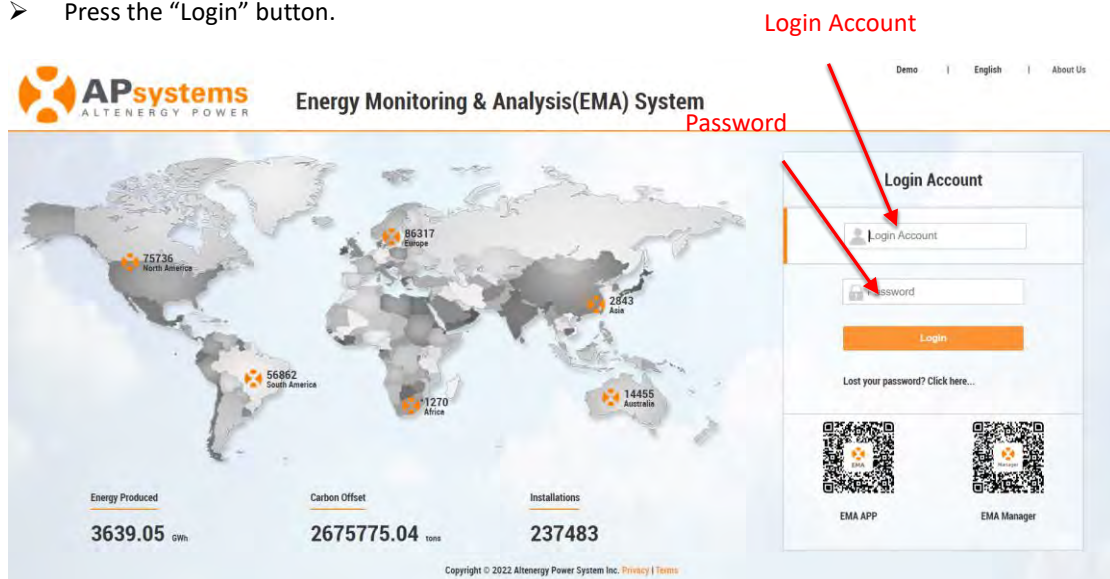
Note

■ The Password is case sensitive.

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2. Monitoring and Analysis

2.1 Introduction to Your System Dashboard

|	
Functionality Icons	Select area of the EMA site that you want to review: DASHBOARD, MODULE, REPORT, or SETTING.
System Status	Green (Normal) – The system is operating and reporting as expected. Grey (No Data) – There is a system malfunction that should be investigated. No Production data is being communicated to the EMA server. Check the ECU connection to see if you can isolate the problem. If not, contact your installer.
Settings Tab	Where you can change your personal information, including your password.
Daily Power	The amount of power generated during the current day.
Lifetime Power	The amount of power the system has generated during its lifetime.

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2. Monitoring and Analysis

CO2 Equivalent

System Information
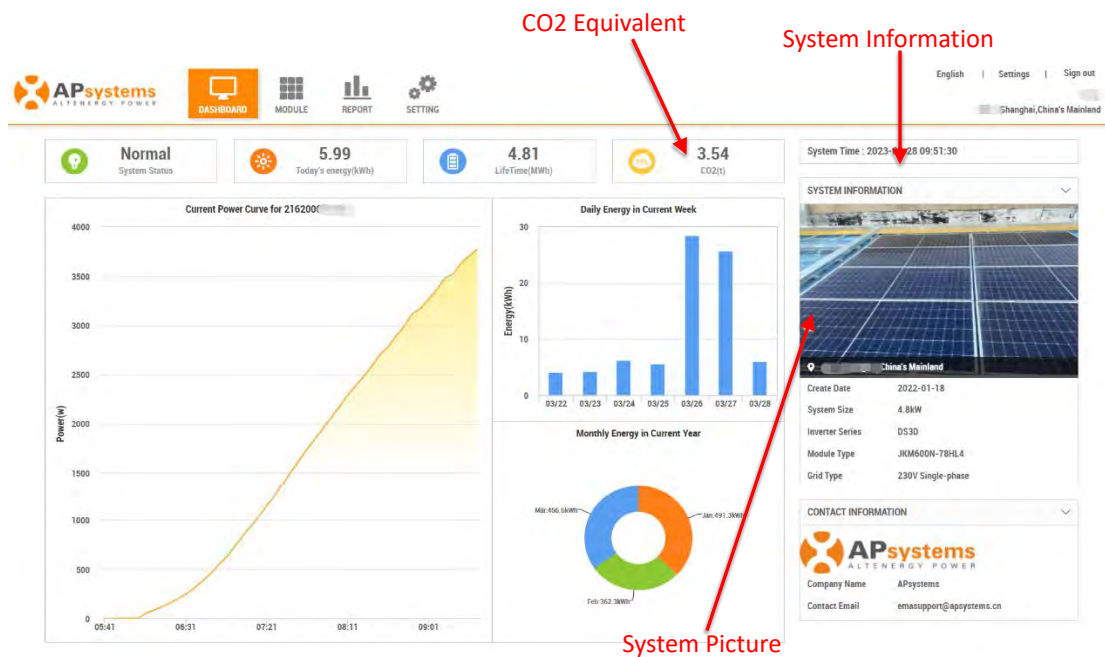
System Picture
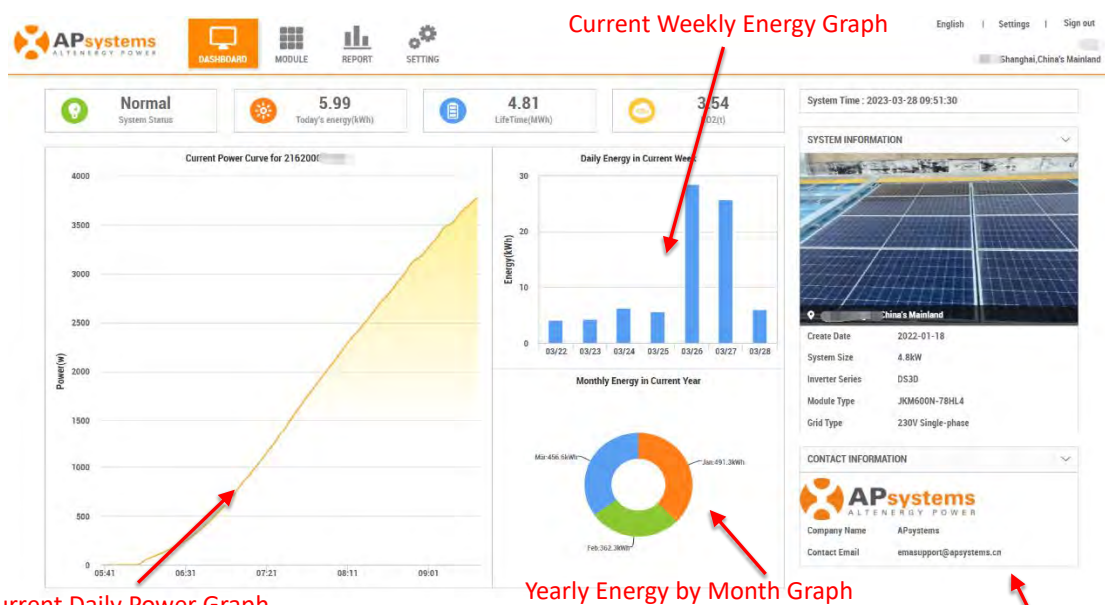
CO_2 Equivalent	The equivalent amount of CO_2 (expressed in tons) benefit the system has provided in its lifetime.
System Information	The current date and time for the system, and the date the original account was created.
System Picture	Display uploaded system photos. This area is automatically hidden when no photo is uploaded

Current Weekly Energy Graph

Current Daily Power Graph

Yearly Energy by Month Graph

Installer Contact Information

Installer Contact Information	Your installer's company name and email address.

2. Monitoring and Analysis

|	
Current Daily Power Graph	Graphic representation of the power being generated during the current day.
Current Weekly Power Graph	Graphic representation of the energy that has been generated each day during the current seven day period.
Yearly Energy by Month Graph	Graphic representation of the energy that has been generated each month during the last 12 month period.

🔔 Note

The dashboard of a system with a smart electricity meter installed is not the same as the dashboard of a simple PV system.
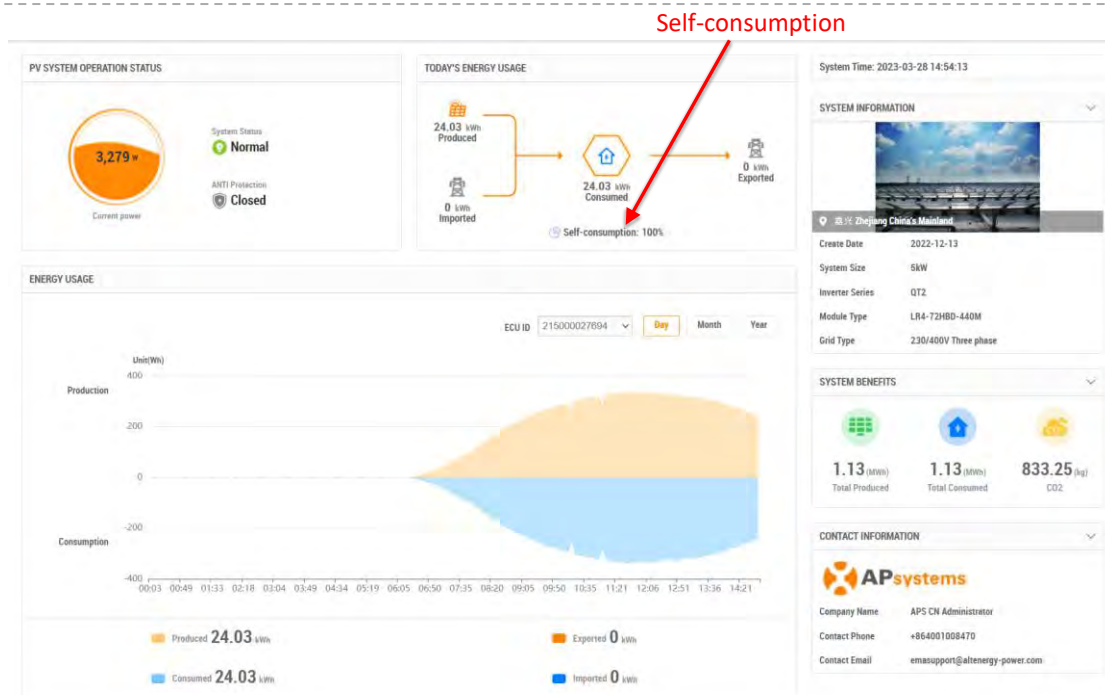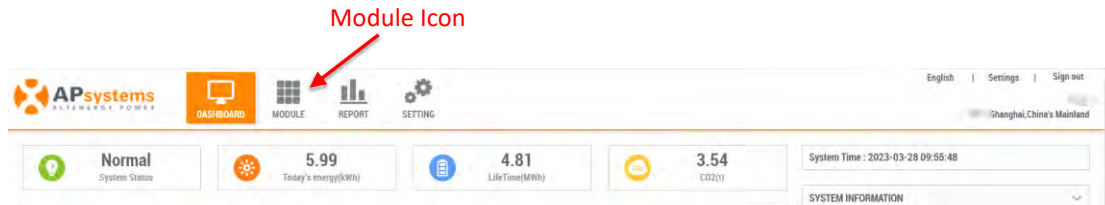

Self-consumption

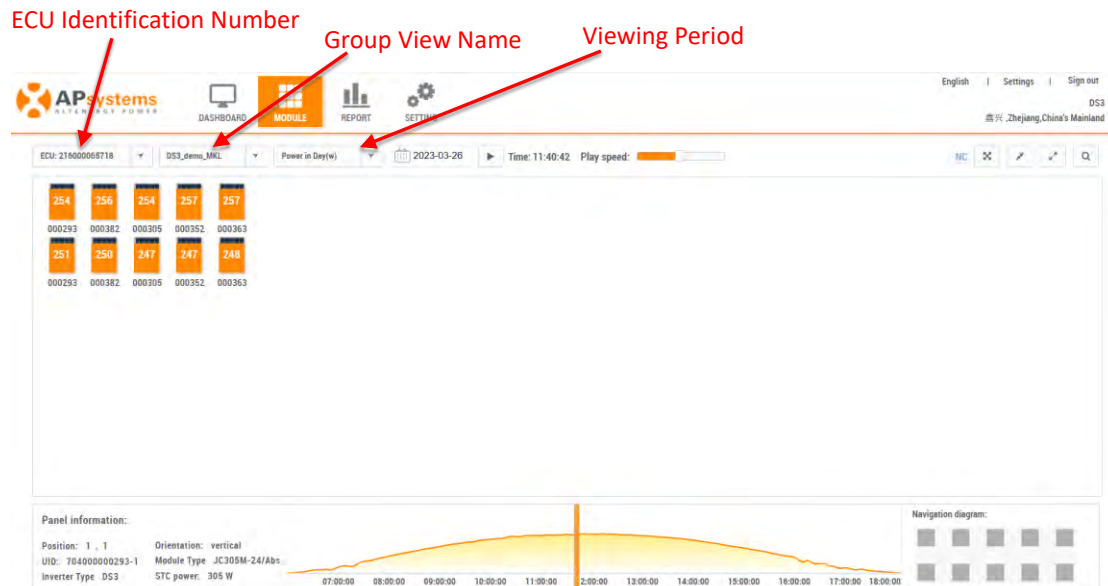|	
Self-consumption	Power generation and consumption ratio of the system on that day.

Continued …

2. Monitoring and Analysis

2.2   View Individual Module Performance

➢   Select the "MODULE" icon at the top of the page.

Module Icon

The Module Performance page is displayed.

ECU Identification Number

Group View Name

Viewing Period

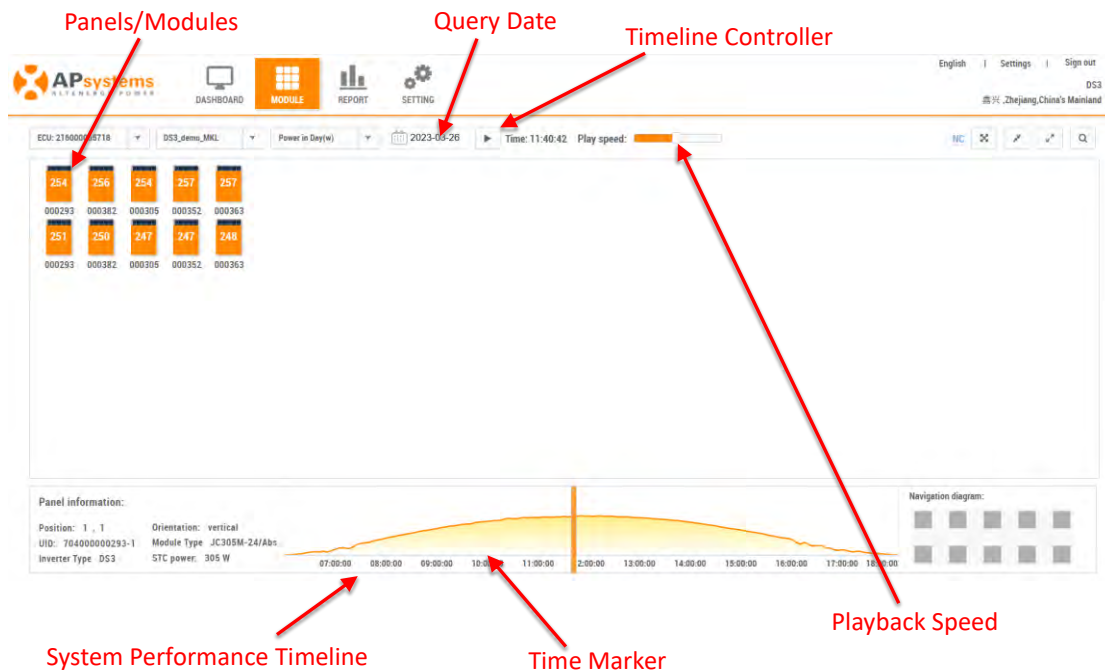| ECU Identification Number (UID)	The ECU number that is assigned to your system.
Group View Name	Select the number for the "group" you want to view. Depending on the complexity of the panel/module layout, your installer may have designed your system with multiple groups.
Viewing Period	Module performance can be viewed daily, or over the last 30 day period.

2. Monitoring and Analysis

Panels/Modules · Query Date · Timeline Controller · Playback Speed · System Performance Timeline · Time Marker

Panels/Modules	A graphic representation of how your array is laid out. The number in the center of each module represents the current power being generated by the panel (expressed as watts - DC). You can identify the inverter assignment of each panel by selecting (clicking on) the panel you want to identify.

🔔 Note

The power being generated by each panel will vary based on the amount of solar exposure.

|	
Query Date	You can select the date you want to view.
Timeline Controller	The timeline controller turns ON and OFF the System Performance Timeline at the bottom of the page.
Playback Speed	A slider control that allows you to determine the speed of the System Performance Timeline playback.
System Performance viewing period.	Graphic representation of the power being generated by the entire system during the current Timeline
Time Marker	Time indicator for timeline. Power is simultaneously displayed on the panels/modules. You can also drag the marker across the timeline to view a specific production time.

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2. Monitoring and Analysis
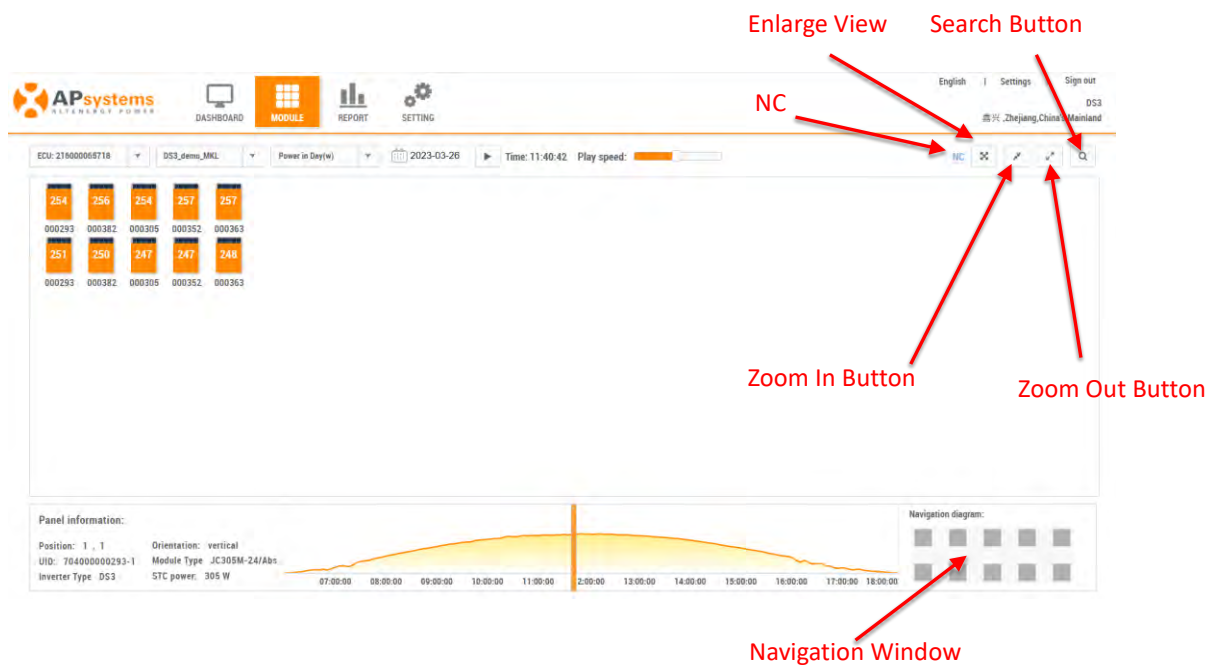
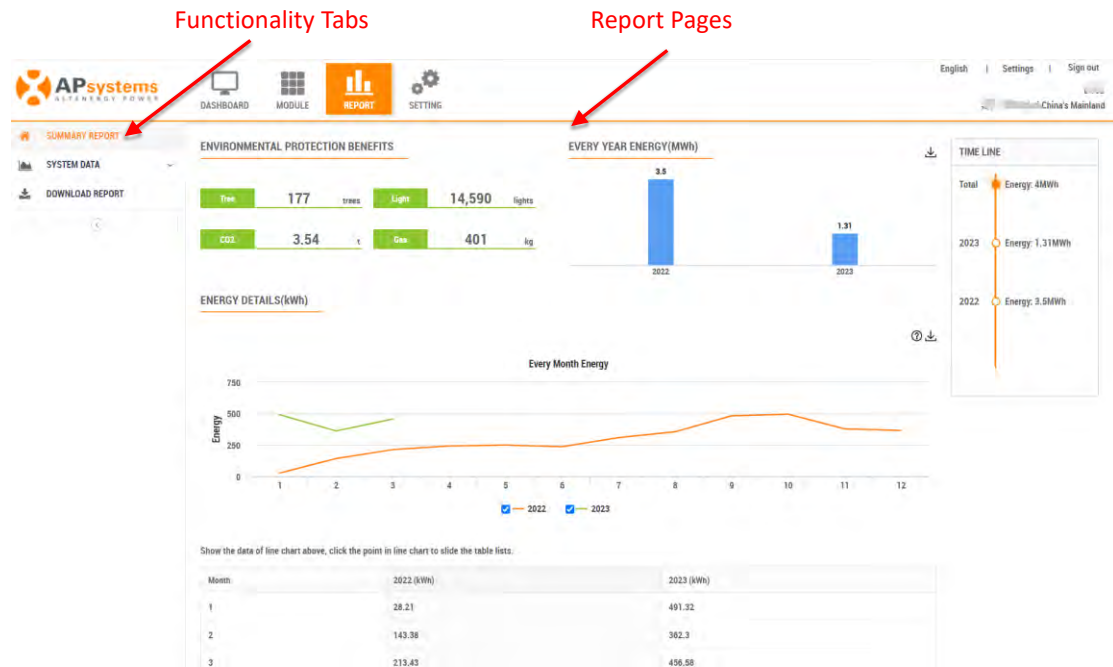|	
Search Button	Fuzzy search for inverters by UID number or search for inverters by location
Zoom Out Button	Panels/Modules become larger.
Zoom In Button	Panels/Modules become smaller.
Navigation Window	For large systems, it is possible to quickly locate the corresponding panels/modules positions.
Enlarge View	Enlarge the whole view, hide the panel/module information, the timeline and the navigation window below.
NC	Inverter device without communication.

2.3 View System Reports
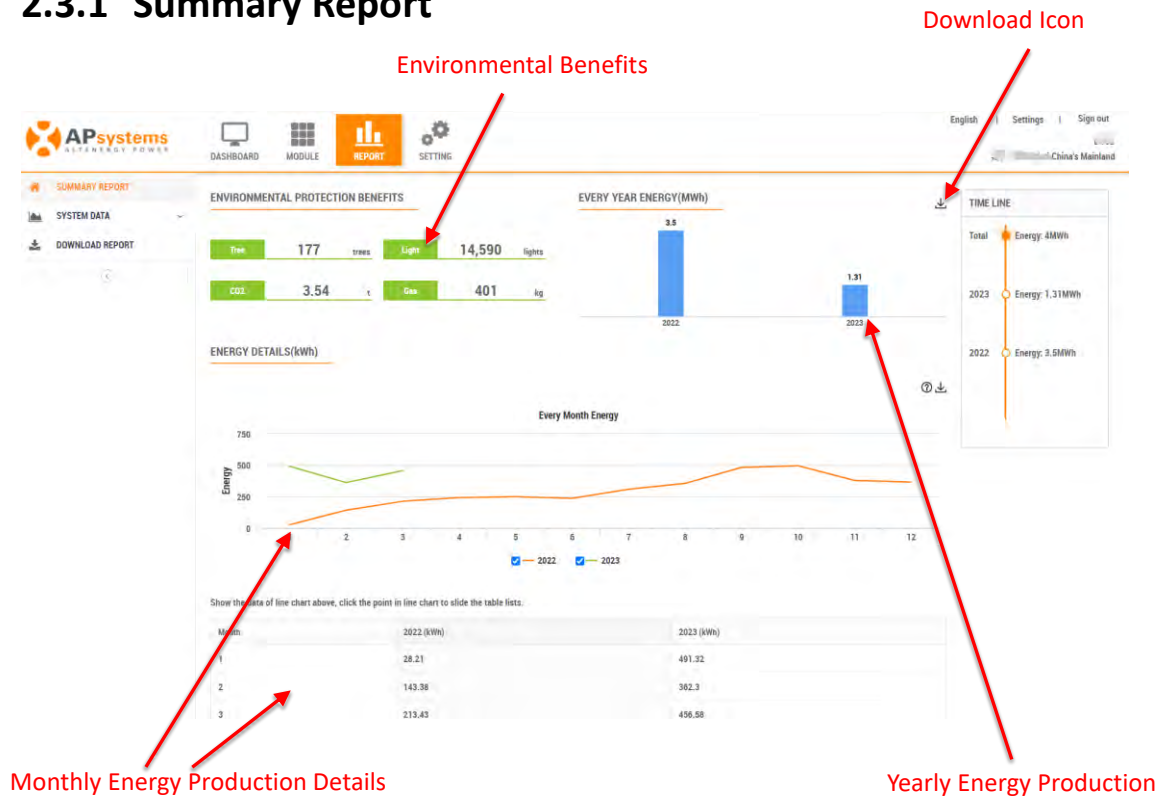
➢ Select the "REPORT" icon at the top of the page.

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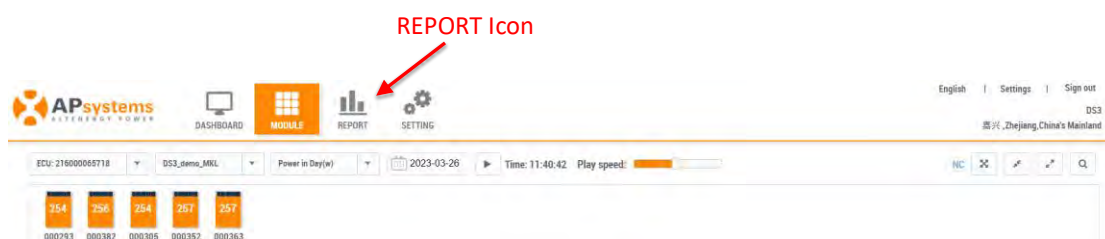
2. Monitoring and Analysis

The Summary Report page is displayed.

Functionality Tabs   Report Pages

2.3.1 Summary Report

Environmental Benefits

Download Icon

Monthly Energy Production Details

Yearly Energy Production

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2. Monitoring and Analysis

Environmental Benefits	Represents environmental equivalent benefits.
Monthly Energy Production Details	Both graphic and table views of monthly production details for 12 month period
Yearly Energy Production	Graphic representation of yearly power production.
Download Icon	Download the reported data.

🔔 Note

The "Summary Report" of a system with a smart electricity meter installed, includes "Energy Usage" and "PV Summary". The "PV Summary" statistical report is the same as the "Summary Report" statistical report for users of pure photovoltaic systems. The statistics report on the "Energy Usage" page is shown in the figure below.

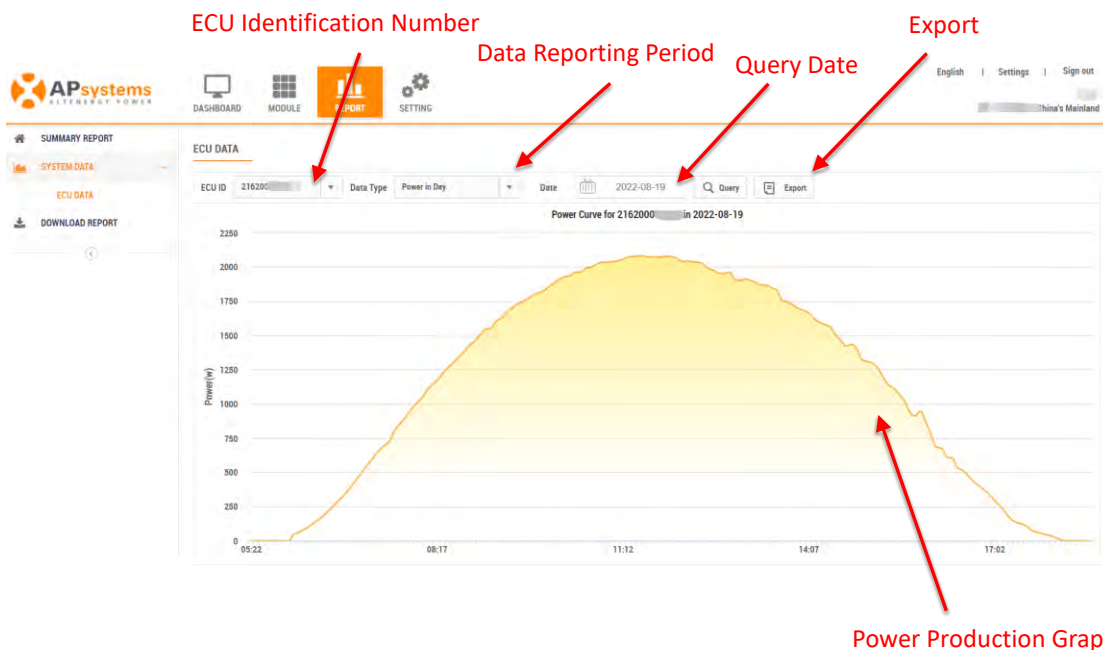**Energy Usage**
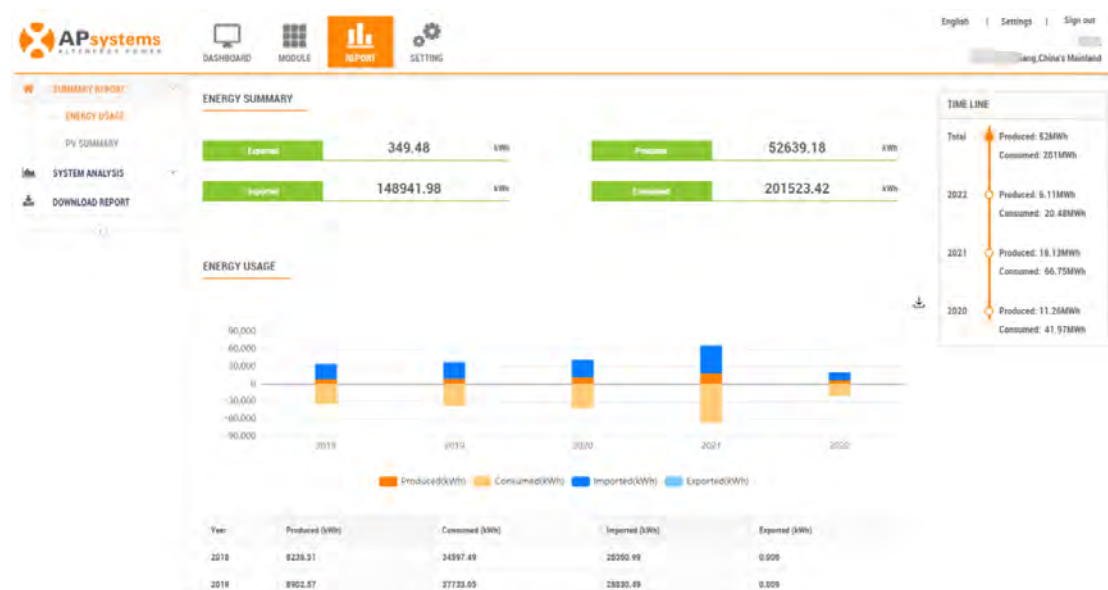
2.3.2 System Data

ECU level data can be viewed.
- Select the "SYSTEM DATA" icon on the left side of the page,
- Select the "ECU DATA" icon,

2. Monitoring and Analysis

System Data Icon

The ECU data page is displayed.

ECU Identification Number
Data Reporting Period
Query Date
Export
Power Production Graph

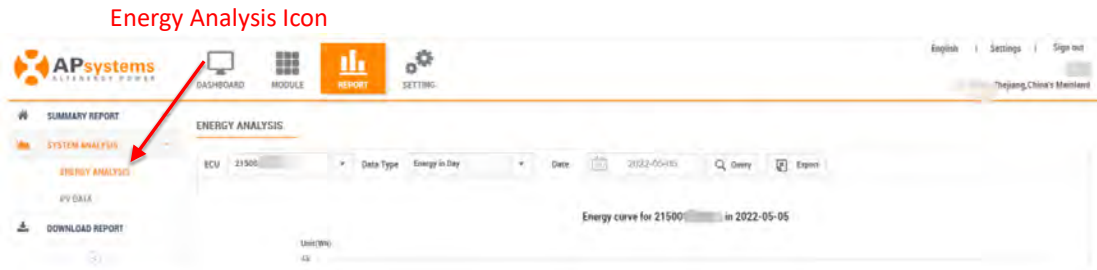|	
ECU Identification Number (UID)	The ECU number that is assigned to your system.
Data Reporting Period	Pulldown for selecting reporting period and specific data type.
Query Date	You can select the date you want to view.
Power Production Graph	Graphic representation of the selected reporting period and data type.

🔔 Note

The "Energy Analysis" report of a system with a smart electricity meter installed, includes "Energy Analysis" and "PV Data". The "PV Data" statistical report is the same as the "ECU Data" statistical report for users of pure photovoltaic systems. The statistics report on the "Energy Analysis" page is shown in the figure below.

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2. Monitoring and Analysis

➢ Select the "SYSTEM DATA",
➢ Select the "ENERGY ANALYSIS",

Energy Analysis Icon

The Energy Analysis page is displayed.

ECU Identification Number

Data Reporting Period   Query Date
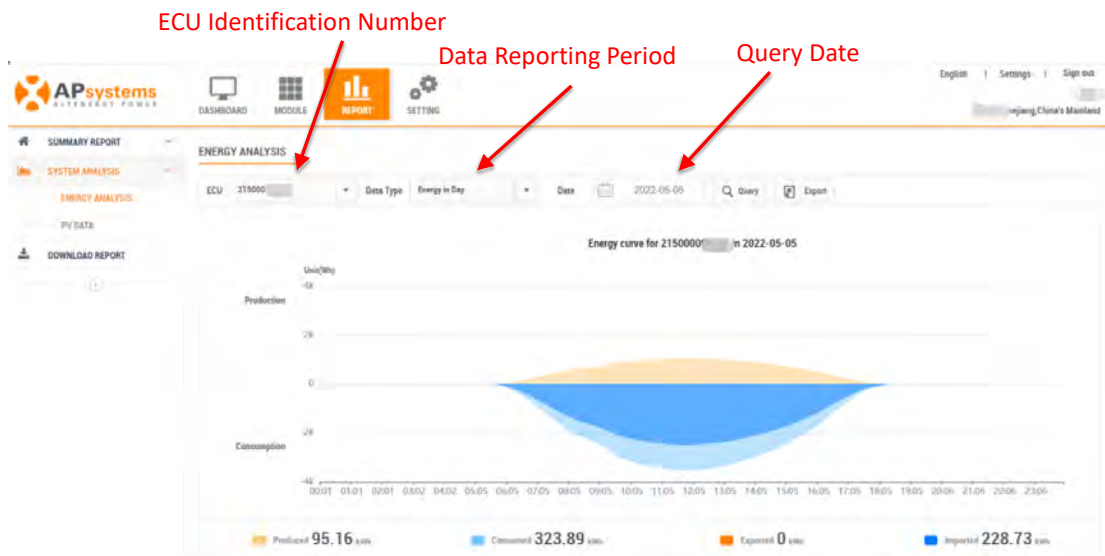
2.3.3 Download Report

➢ Select the "DOWNLOAD REPORT" icon on the left side of the page.

Download Report Icon

Energy Monitoring & Analysis System(V5.1)

2. Monitoring and Analysis

The Download Report page is displayed

ECU Identification Number

Data Reporting Period

Query Date

Data Table

ECU Identification Number (UID)	The ECU number that is assigned to your system.
Data Reporting Period	Pulldown for selecting reporting period and specific data type.
Query Date	You can select the date you want to view.
Data Table	Table view for the selected reporting period and data type.

🔔 Note

The "Download Report" of a system with a smart electricity meter installed has one more "Energy Analysis" report than the pure photovoltaic system. The "Energy Analysis" page is shown in the figure below.

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3. System Management

➢ Select the "Setting" Icon at the top of the page.
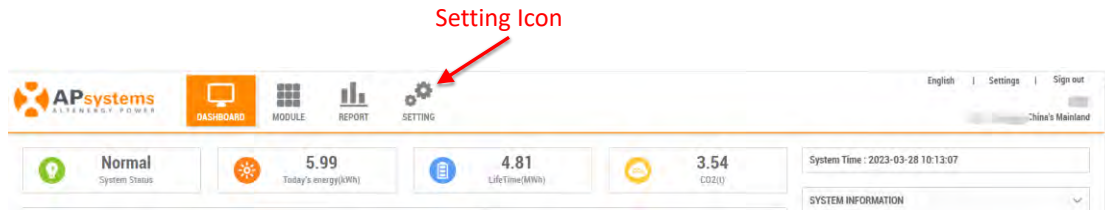
Setting Icon

The Settings page is displayed.

Functionality Tabs
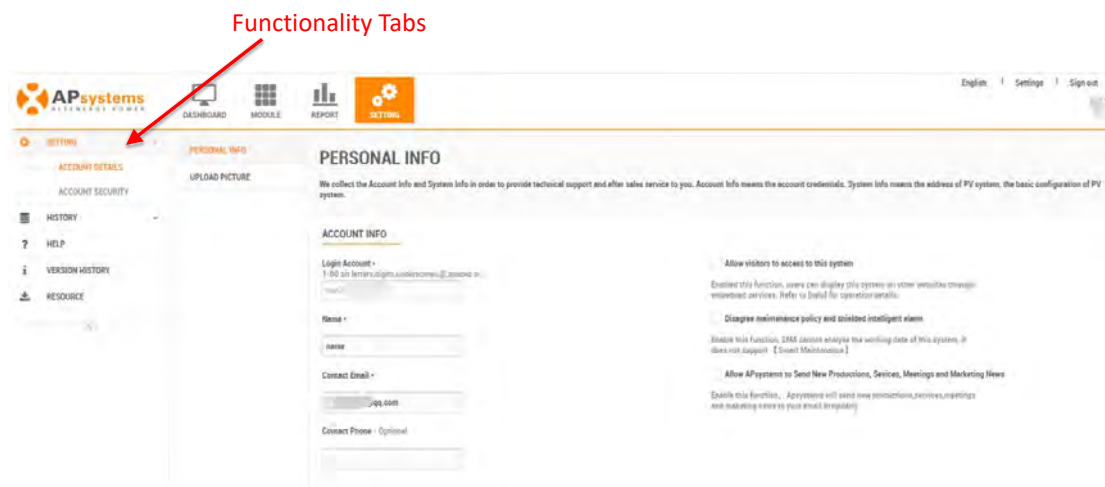
3.1 Setting

3.1.1 Account Details
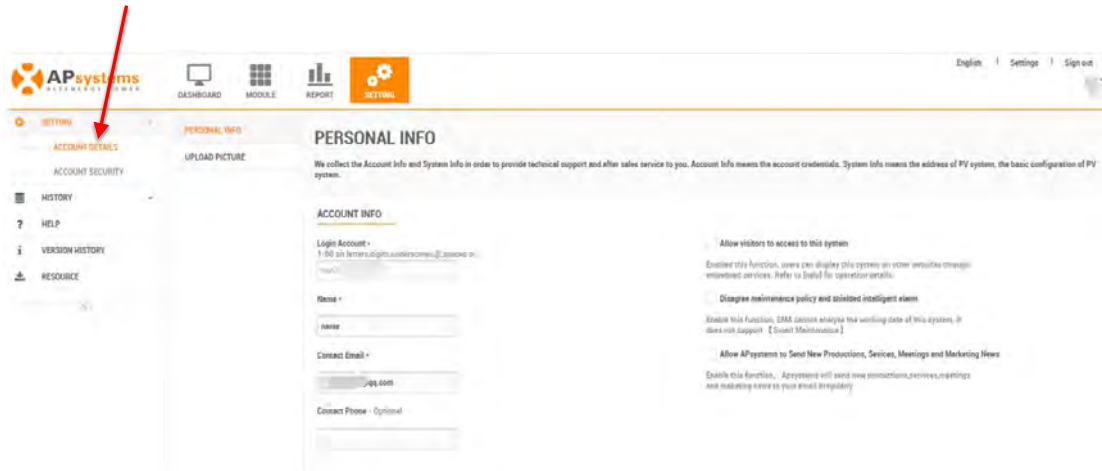
1) **Personal Info**

➢ Select the "Account Details" Icon on the left side of the page.

The "Personal Info" page is displayed.

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3. System Management

Note

Edit any of your personal information (except for your Username). Contact your installer if you need your username changed.

2) Upload Picture

➢ Select the "Upload Picture" Icon on the left side of the page.

Upload Picture

The Upload Picture page is displayed.

Continued …

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3. System Management

System Picture
Drawing Picture
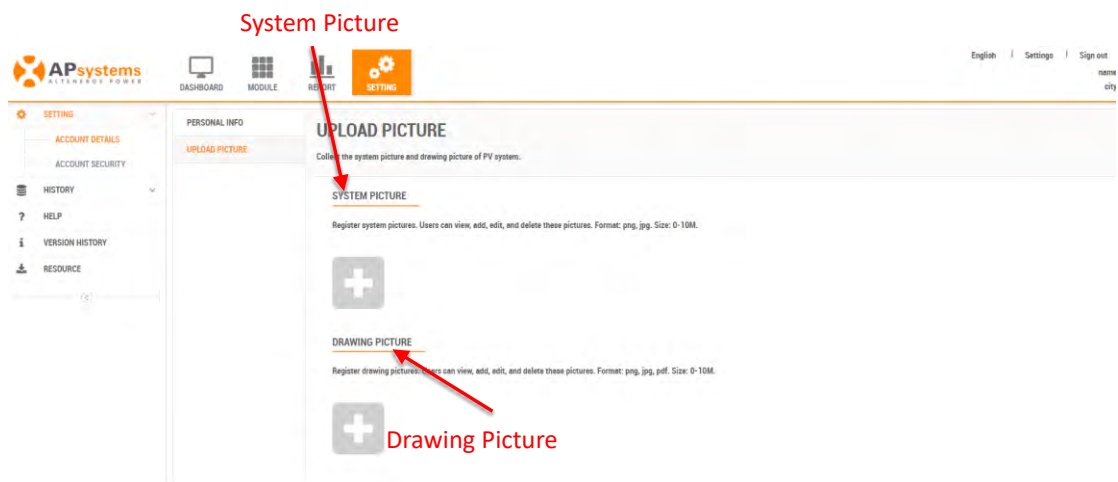
System Picture	Upload system photos. And the photos will be displayed on the dashboard.
Drawing Picture	Upload design drawings for the system. And the uploaded drawings are displayed on the module page.

3.1.2 Account Security

1) Reset Password

➢ Select the "Account Security" Icon on the left side of the page.

The "Reset Password" page is displayed.

Reset Password

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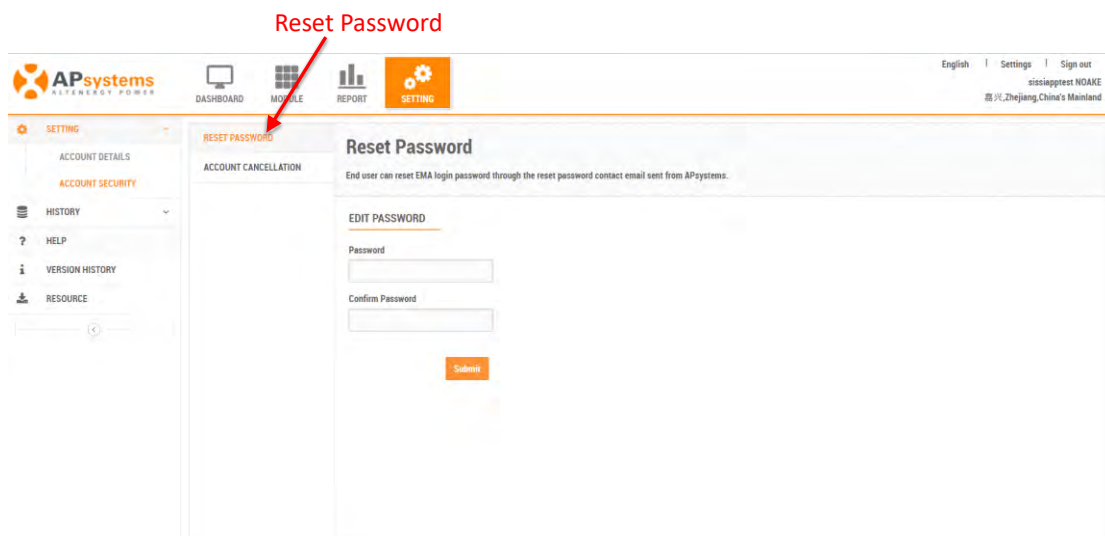
3. System Management

2) Account Cancellation

➢ Select the "Account Cancellation" Icon on the left side of the page.

The "Account Cancellation" page is displayed.
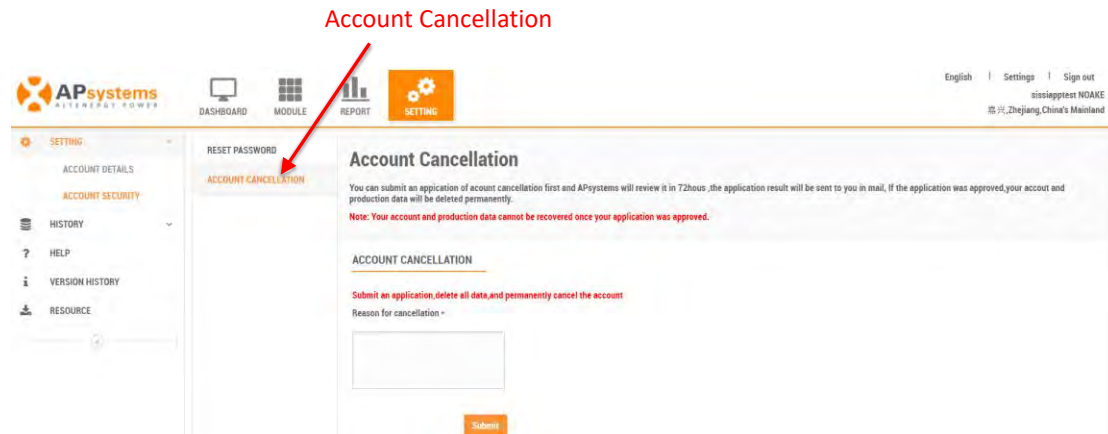
3.2   History

3.2.1 ECU History

➢ Select the "ECU History" Icon on the left side of the page.
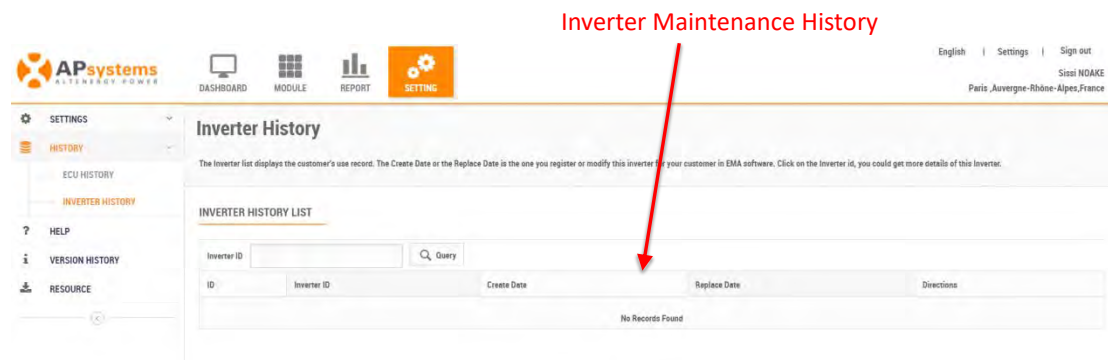

The ECU History page is displayed.

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ECU Maintenance History
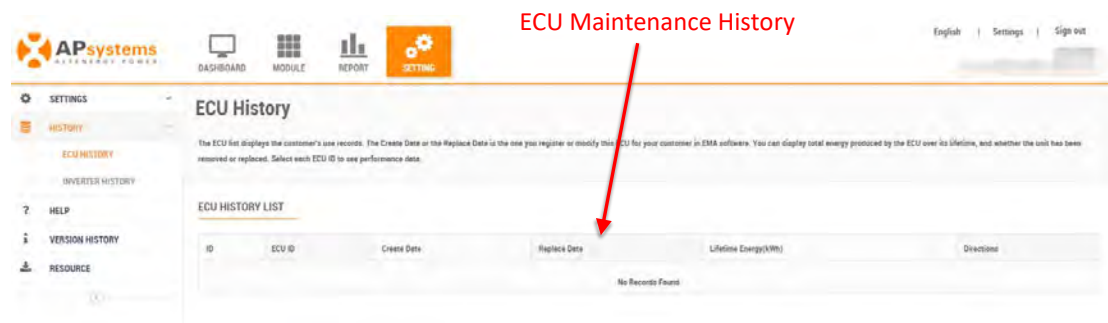
3.2.2 Inverter History

➢ Select the "Inverter History" Icon on the left side of the page.
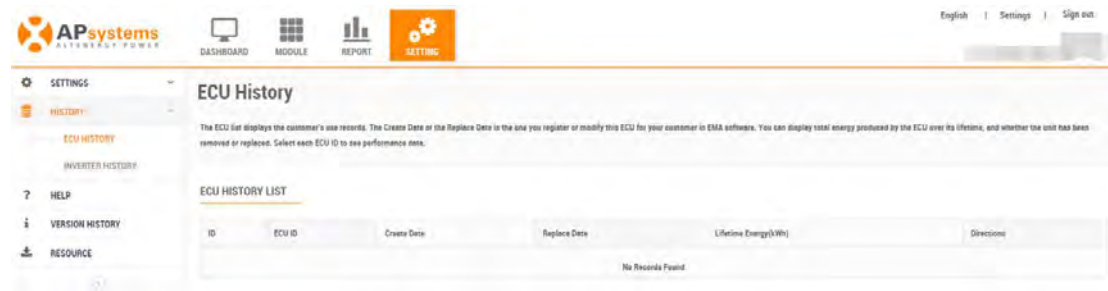
The Inverter History page is displayed.

Inverter Maintenance History

3.3 Help

➢ Select the "Help" Icon on the left side of the page.

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3. System Management

The Help page is displayed.

Help
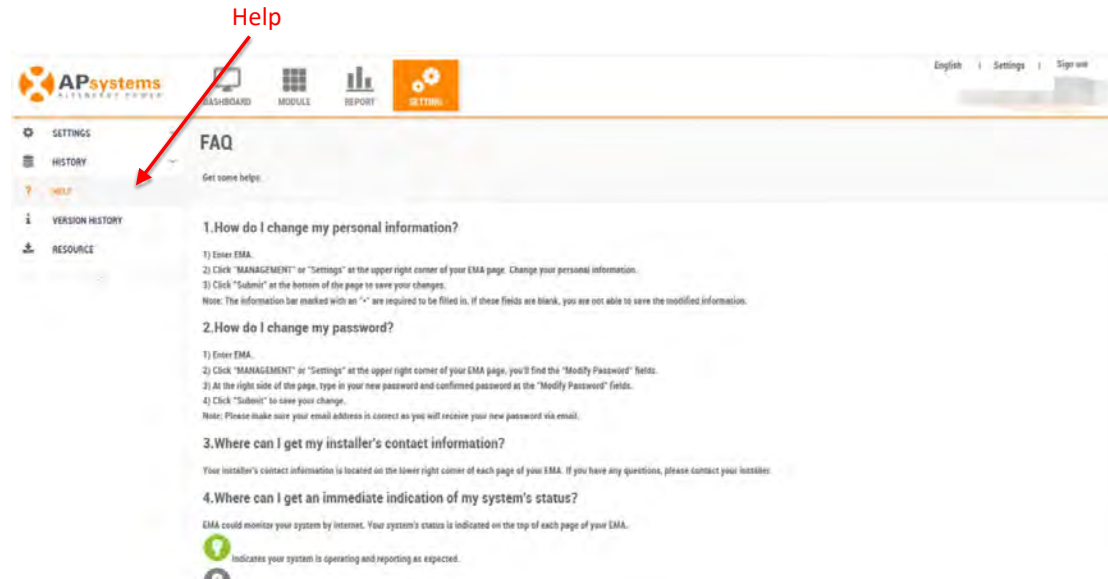
3.4 Version History

➢ Select the "Version History" Icon on the left side of the page.

The Version History page is displayed.

Version History
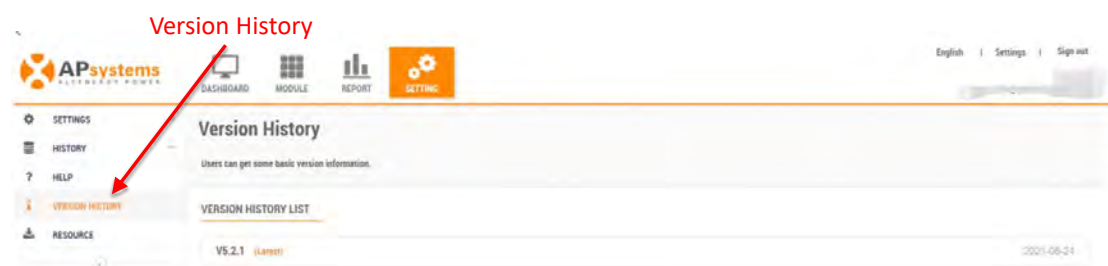
3.5 Resource

➢ Select the "Resource" Icon on the left side of the page.

The Resource page is displayed.

Continued …

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3. System Management

Resource

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