

# EdgeEMS General User Manual

## Platform Introduction



**Monarch Edge** Platform is a comprehensive monitoring and analysis platform designed for edge energy sites, aiming to provide users with a clear, unified, and visual view of site operations. The platform covers key business scenarios such as power generation, energy storage, energy consumption, and alarms, and through standardized interfaces and consistent interaction methods, helps users quickly grasp equipment status, operational trends, and abnormal situations, thereby improving the efficiency of daily operation and maintenance and the quality of management.

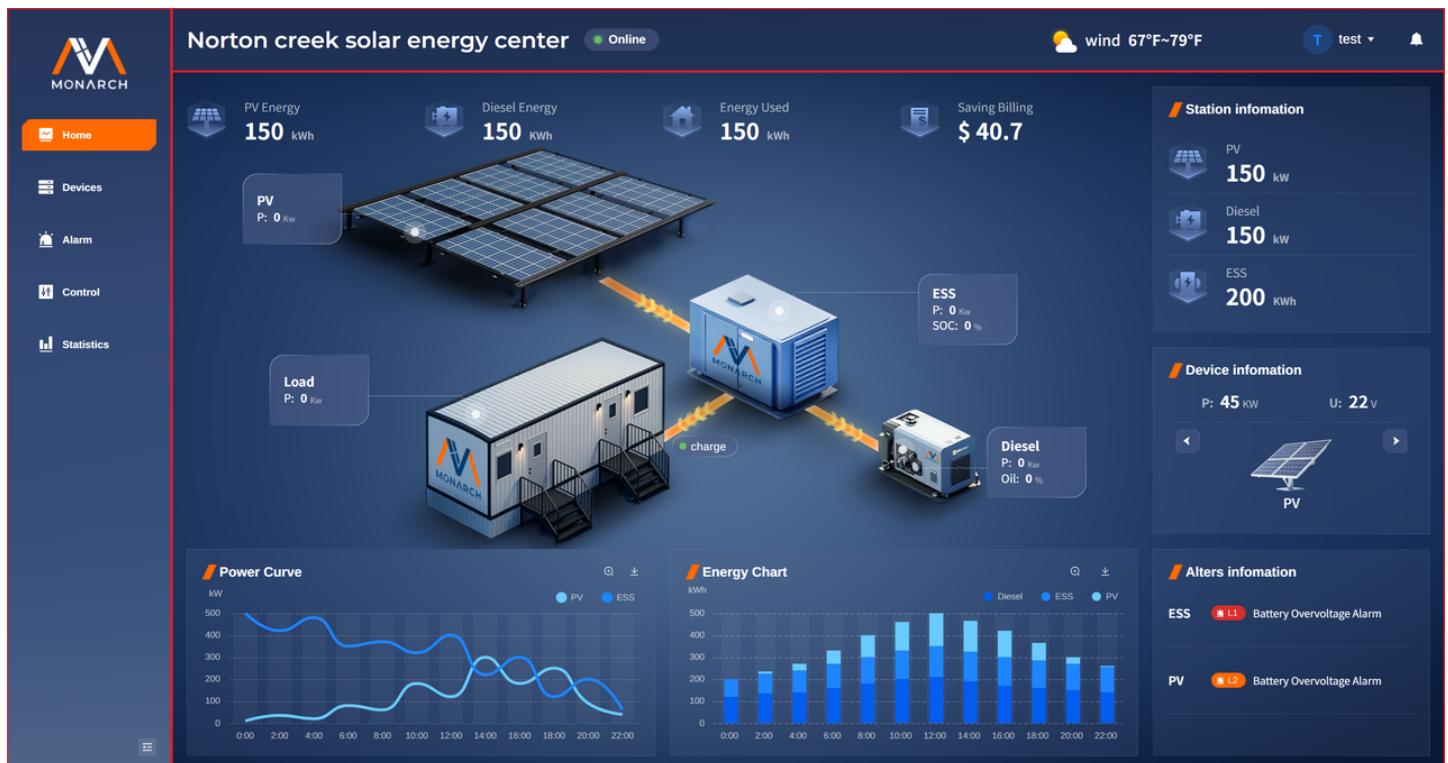
### The main capabilities of the platform include:

- Site Overview**: Centralized display of energy profiles, energy flow, power/energy trends, and summaries of sites and equipment, facilitating quick assessment of operational health.
- Device Monitoring**: Provides overview and value monitoring pages by device type (photovoltaic, energy storage, electricity meter, diesel generator, etc.), supporting real-time data and status viewing.
- Alarm Management**: Distinguish between current and historical alarms, support querying, filtering, and exporting, facilitating anomaly location and traceability.

- **Operation Statistics:** Provides statistical overview, curve analysis, and operation/action logs, supporting the review of operational data and trend analysis.
- **Unified Experience:** Consistent interactions such as table filtering, pagination, and update time prompts reduce learning costs.

This manual is intended for **Viewer (ordinary user)**.

## General User Interface Structure and Function Description



The home page of the entire User Interface is mainly divided into three parts:

- **Left: Sidebar Menu**
  - Users can click on the page of the functional module they want to jump to for navigation, where Devices, Alarm, Control, and Statistic all have secondary menus. The menu corresponding to the current page will be highlighted. The menu information is as follows:
    - **Home (Homepage)**
    - **Devices (设备)**
      - PV (Photovoltaic)
      - Battery (Battery/Energy Storage)
      - Diesel Generator (Diesel Generator)
      - Meter1 / Meter2 (Electric Meter)
    - **Alarm (告警)**

- Current Records (Current Alarms)
- History Records (Historical Alarms)

- **Control (Control)**

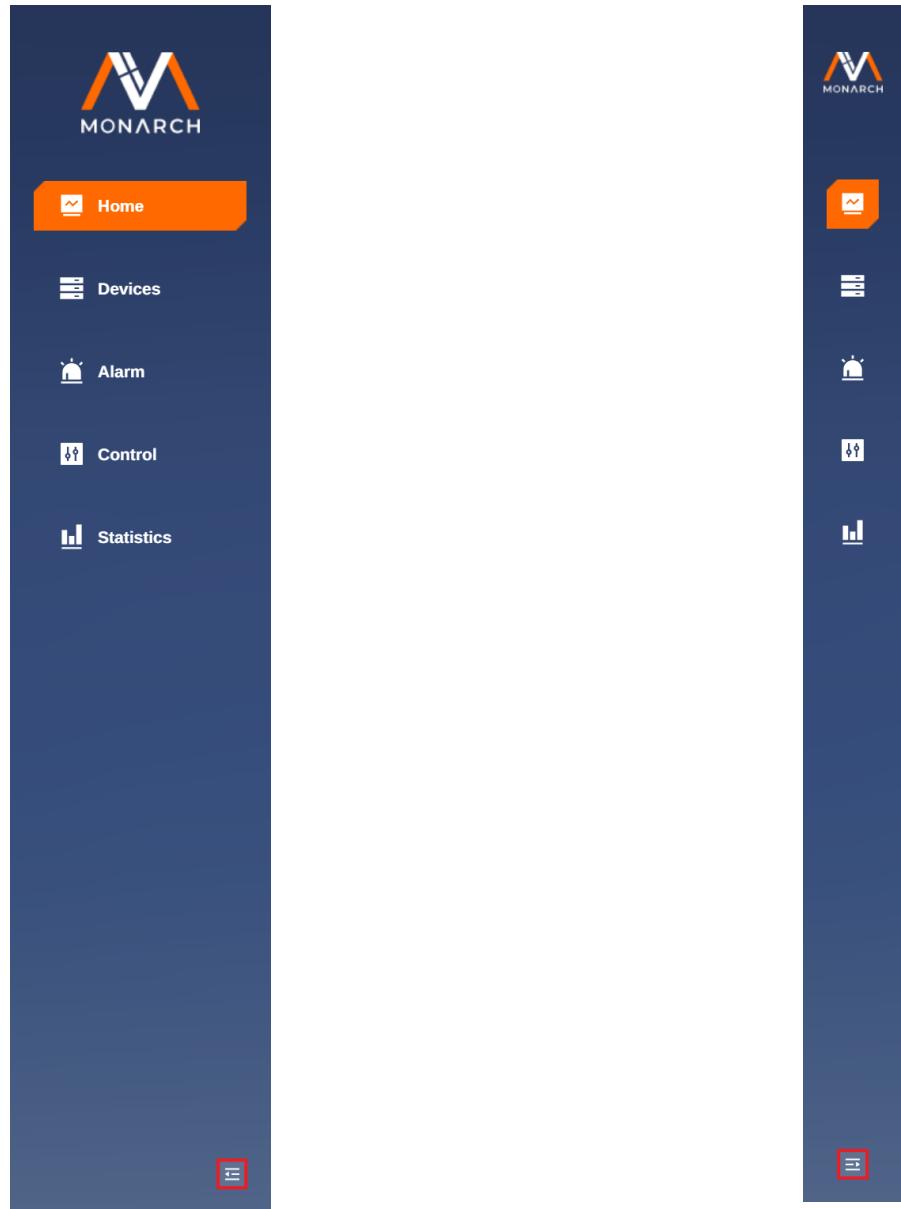
- Control Record (Control Record)

- **Statistics (Statistics)**

- Overview (概览)
  - Curves (曲线)
  - Operation Log (操作日志)
  - Running Log (Operation Log)



- Users can scale the width of the menu bar via the zoom icon button in the bottom right corner of the sidebar.



- **Top right: Top bar**



There is a "Bell (Notice)" entry at the top right:

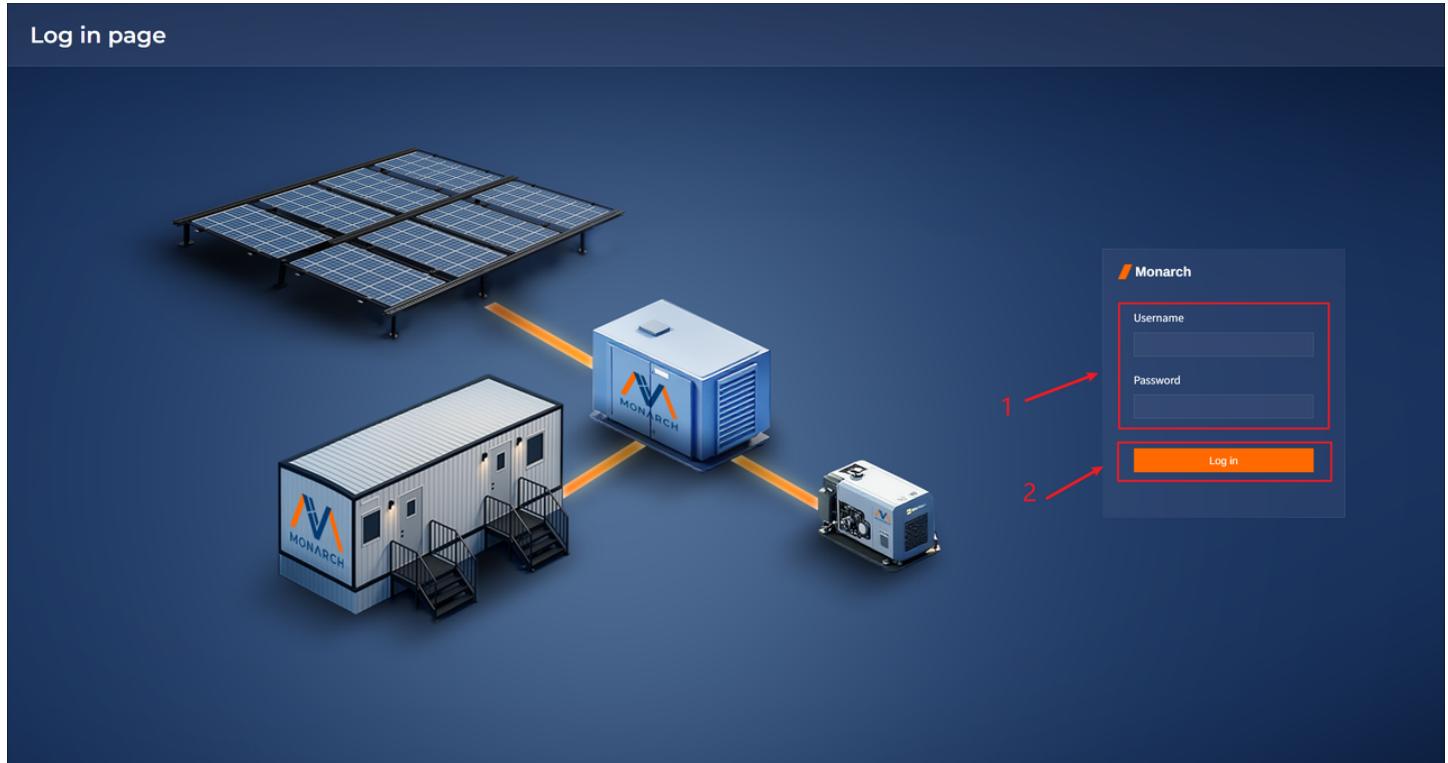
- When there is a red numbered superscript, it indicates "current number of alarms"
- Clicking will redirect to **Alarm > Current Records (Current Alarms)**

- **Bottom right: Main content area**

- Display the data on the current page

## Page Usage Instructions

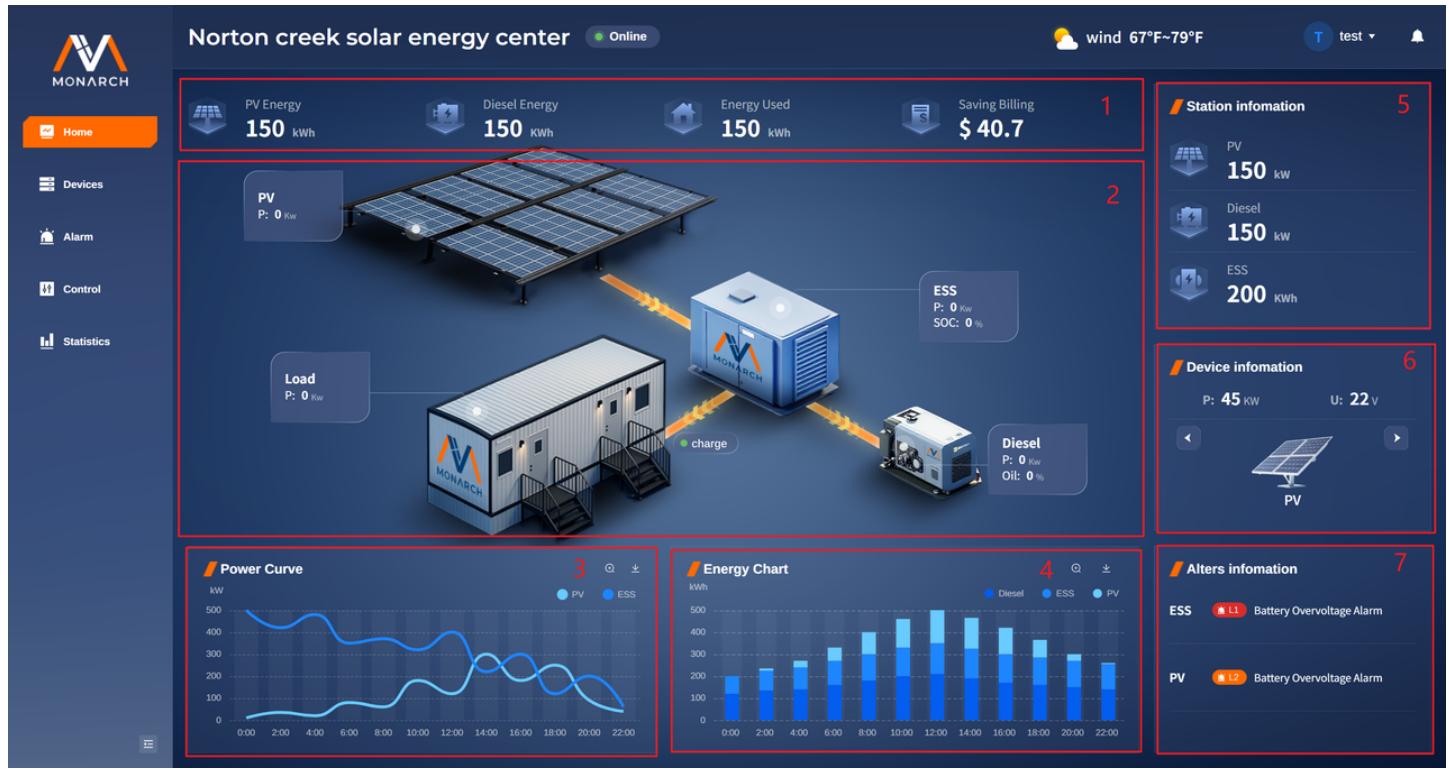
### 1. Login Page



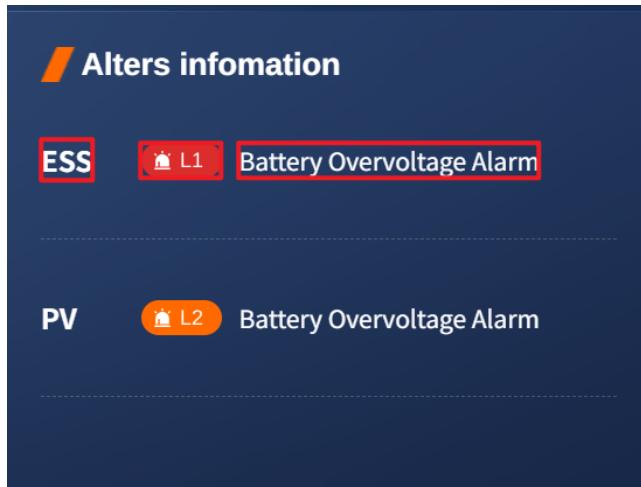
1. After opening the system, enter the Log in page
2. Input:
  - o **Username** : The user name of the user account
  - o **Password** : The password for the user account
3. Click **Log in** button to log in
4. After successful login, the Home page will be entered by default.

## 2. Home Page

The Home page mainly displays key data of the site and specific devices, and **refreshes the data in real time as the device status changes**.



- The first part is the energy overview card of the site, mainly containing statistical data on PV Energy, Diesel Energy, Energy Used, and Saving Billing.
- The second part is the topology diagram of the microgrid system, which shows the direction of energy flow (charging and discharging status of devices) and also displays the core data of each device:
  - PV: P (Current Power)
  - Load: P (Current Power)
  - ESS: P (Current Power), SOC (State of Charge)
  - Diesel: P (Current Power), Oil (Current Diesel Generator Oil Percentage Content)
- The third part is the power statistical curve, which conducts statistics on the power of PV and ESS.
- The fourth part is an energy bar chart, which conducts statistics on the energy status of Diesel, ESS, and PV.
- Part Five is the current site information statistics, which includes statistics on the current power of PV and Diesel, as well as statistics on the charging/discharging status of ESS.
- Part VI is the statistics of site equipment information, which separately counts the P (current power) and U (current voltage) of PV, ESS, and Diesel Generator. Users can switch between devices by clicking the left and right toggle buttons.



- The seventh section is the site alarm information, which displays the current alarm information, arranged from left to right as follows:
  - Alarm device
  - Alarm level (sorted by urgency: L1 > L2 > L3)



一级告警



二级告警



三级告警

- Alarm Information

### 3. Devices Page

Norton creek solar energy center Online

Overview Value Monitoring

PV Power 0 kW	PV Voltage 0 V	PV Current 0 A	Today's Energy ~ kWh
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MONARCH

- Home
- Devices
- PV
- Battery
- Diesel Generator
- Meter1
- Meter2
- Alarm
- Control
- Statistics

wind 67°F~79°F test ■

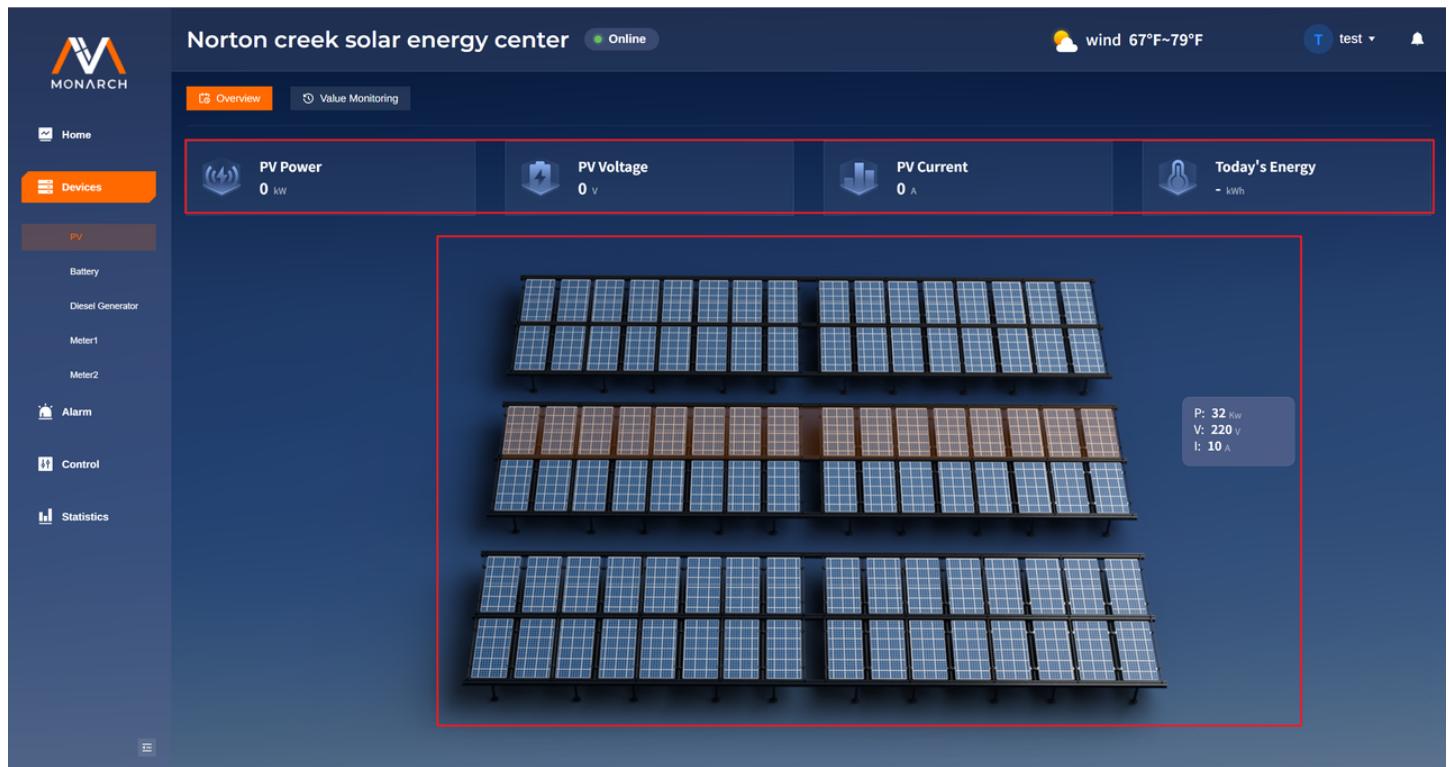
`Devices` contains multiple device types, including: `PV`, `Battery`, `Diesel Generator`, `Meter1/Meter2`.

Each device's page usually contains:

- **Overview (概览)** : Device Key Indicator Card/Overview Display
- **Value Monitoring (值监控)**: A tabular display of real-time points, showing relevant data of Telemetry and Signal in channels bound to real devices.

## 3.1 PV

### 3.1.1 PV > Overview



- Four indicator cards with PV at the top: `PV Power`, `PV Voltage`, `PV Current`, `Today's Energy`
- The middle is the PV background indication area, **hovering the mouse** over the row area will display the data of that string of PV panels:
  - P: Power of the selected string of photovoltaic panels
  - V: Voltage of the selected string of photovoltaic panels
  - I: Current of the selected string of photovoltaic panels

### PV > Value Monitoring

Name	Value	Unit
grid_line_voltage_vab	-	V
grid_line_voltage_vbc	-	V
grid_line_voltage_vca	-	V
grid_phase_voltage_va	-	V
grid_phase_voltage_vb	-	V
grid_phase_voltage_vc	-	V
grid_phase_angle_ab	-	Degree
grid_phase_angle_bc	-	Degree
grid_phase_angle_ca	-	Degree
grid_frequency	-	Hz
grid_current_ia	-	A
grid_current_ib	-	A
grid_current_ic	-	A
grid_earth_current	-	A
grid_unbalance_current	-	A
grid_a_active_power	-	kW
grid_b_active_power	-	kW
grid_c_active_power	-	kW
grid_total_active_power	-	kW

Name	Status
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- The top shows **Update Time**, which is the time when the latest data was obtained.
- Below are two tables:
  - The table on the left is the Telemetry table for the channel, containing **Name**, **Value**, **Unit** information.
  - The table on the right is the Signal table for the channel, including **Name**, **Status** information.

## 3.2 Battery

### 3.2.1 Battery > Overview

The screenshot shows the Norton creek solar energy center dashboard. On the left, a sidebar lists various monitoring categories: Home, Devices (selected), PV, Battery (selected), Diesel Generator, Meter1, Meter2, Alarm, Control, Statistics, and Setting. The main area features a large image of a blue MONARCH battery unit with the brand logo. To the right, a card-based interface displays real-time battery metrics. A red box highlights the top row of cards: Charge Discharge Status (0), SoC (0 %), and SoH (0 %). Below this are three more cards: Voltage (0 V), Current (0 A), and Power (0 kW). Another row contains Max Cell Voltage (0 V), Min Cell Voltage (0 V), and Avg Cell Voltage (0 V). The bottom row includes Cell Voltage Difference (0 V) and Avg Cell Temperature (0 °C).

Charge Discharge Status 0	SoC 0 %	SoH 0 %
Voltage 0 V	Current 0 A	Power 0 kW
Max Cell Voltage 0 V	Min Cell Voltage 0 V	Avg Cell Voltage 0 V
Cell Voltage Difference 0 V	Avg Cell Temperature 0 °C	

This page displays key battery indicators in the form of a card list:

- Charge/Discharge Status
- SoC (State of Charge Percentage)
- SoH (State of Health)
- Voltage / Current / Power
- Max/Min/Avg Cell Voltage、Cell Voltage Difference、Avg Cell Temperature

### 3.2.2 Battery > Value Monitoring

Name	Value	Unit
BamsVoltage	-	V
BamsCurrent	-	
BamsPower	-	Kw
BamsSoc	-	%
BamsSoh	-	%
BamsPermitChgPower	-	Kw
BamsPermitDsgPower	-	Kw
BamsPermitChgCurrent	-	A
BamsPermitDsgCurrent	-	A
BamsBcuSocDiff	-	%
BamsBcuMinSoc	-	%
BamsBcuMinSocNo	-	
BamsBcuMaxSoc	-	%
BamsBcuMaxSocNo	-	
BamsMaxCellVol	-	V
BamsMaxCellVBcuBmuNo	-	
BamsMaxCellIVNo	-	
BamsMinCellVol	-	V

Name	Status
BaFaultCode0_Bit0	
BaFaultCode0_Bit1	
BaFaultCode0_Bit2	
BaFaultCode0_Bit3	
BaFaultCode0_Bit4	
BaFaultCode0_Bit5	
BaFaultCode0_Bit6	
BaFaultCode0_Bit7	
BaFaultCode1_Bit0	
BaFaultCode1_Bit1	
BaFaultCode1_Bit2	
BaFaultCode1_Bit3	
BaFaultCode1_Bit4	
BaFaultCode1_Bit5	
BaFaultCode1_Bit6	
BaFaultCode1_Bit7	
BaFaultCode2_Bit0	
BaFaultCode2_Bit1	

This page contains Tab:

- Battery (Battery)
- PCS (Power Conversion System)

Each tab is in the form of "Update Time + Left and Right Tables", similar to the Value Monitoring page of the same pv.

### 3.2.3 Battery > Battery Management

Voltage		
#124 max	120 V	#124 Min
#1	3.6 V	
#2	3.6 V	
#3	3.6 V	
#4	3.6 V	
#5	3.6 V	
#6	3.6 V	
#7	3.6 V	
#8	3.6 V	
#9	3.6 V	
#10	3.6 V	
#11	3.6 V	
#12	3.6 V	
#13	3.6 V	
#14	3.6 V	
#15	3.6 V	
#16	3.6 V	
#17	3.6 V	
#18	3.6 V	

Temperature			
#124 max	96 °F	#124 Min	96 °F
#1	96 °F	#2	96 °F
#3	96 °F	#4	96 °F
#5	96 °F	#6	96 °F
#7	96 °F	#8	96 °F
#9	96 °F	#10	96 °F
#11	96 °F	#12	96 °F
#13	96 °F	#14	96 °F
#15	96 °F	#16	96 °F
#17	96 °F	#18	96 °F

This page mainly monitors the voltage and temperature of all battery cells.

- Left: Displays the voltage status of all Cells
    - Above the module, the maximum Cell voltage and the minimum Cell voltage are respectively displayed.
    - Below the module, the voltage values of #1~#N (Battery Cell) are listed in the form of cards
  - Right side: Displays the documentation status of all Cells
    - Above the module, the maximum Cell temperature and minimum Cell temperature are respectively displayed.
    - Below the module, the temperature values of #1~#N (Battery Cell) are listed in card form
- 

## Diesel Generator

### 3.2.4 Diesel Generator > Overview



Top Indicator Card:

- Power (功率)
- Oil (Current Oil Content)
- Voltage (Voltage)
- Coolant Temp (Coolant Temperature)

### 3.2.5 Diesel Generator > Value Monitoring

The screenshot shows the 'Value Monitoring' section for the 'Diesel Generator' device. The interface includes a left sidebar with navigation links like Home, Devices, PV, Battery, Diesel Generator (selected), Meter1, Meter2, Alarm, Control, and Statistics. The main content area has tabs for Overview and Value Monitoring (selected). A weather widget at the top right shows wind conditions. The central table lists various monitoring parameters with their names, current values, units, and status.

Name	Value	Unit	Name	Status
grid_line_voltage_vab	-	V		
grid_line_voltage_vbc	-	V		
grid_line_voltage_vca	-	V		
grid_phase_voltage_va	-	V		
grid_phase_voltage_vb	-	V		
grid_phase_voltage_vc	-	V		
grid_phase_angle_ab	-	Degree		
grid_phase_angle_bc	-	Degree		
grid_phase_angle_ca	-	Degree		
grid_frequency	-	Hz		
grid_current_ia	-	A		
grid_current_ib	-	A		
grid_current_ic	-	A		
grid_earth_current	-	A		
grid_unbalance_current	-	A		
grid_a_active_power	-	kW		
grid_b_active_power	-	kW		
grid_c_active_power	-	kW		
grid_total_active_power	-	kW		

The structure is the same as that of the Value Monitoring page of PV.

### 3.3 Meter1 / Meter2

Meter1 and Meter2 directly display Value Monitoring information, and their structure is the same as that of the PV Value Monitoring page.

The screenshot shows the 'Value Monitoring' section for the 'Meter1' device. The interface includes a left sidebar with navigation links like Home, Devices, PV, Battery, Diesel Generator, Meter1 (selected), Meter2, Alarm, Control, and Statistics. The main content area has tabs for Overview and Value Monitoring (selected). A weather widget at the top right shows wind conditions. The central table lists various monitoring parameters with their names, current values, units, and status.

Name	Value	Unit	Name	Status
grid_line_voltage_vab	-	V		
grid_line_voltage_vbc	-	V		
grid_line_voltage_vca	-	V		
grid_phase_voltage_va	-	V		
grid_phase_voltage_vb	-	V		
grid_phase_voltage_vc	-	V		
grid_phase_angle_ab	-	Degree		
grid_phase_angle_bc	-	Degree		
grid_phase_angle_ca	-	Degree		
grid_frequency	-	Hz		
grid_current_ia	-	A		
grid_current_ib	-	A		
grid_current_ic	-	A		
grid_earth_current	-	A		
grid_unbalance_current	-	A		
grid_a_active_power	-	kW		
grid_b_active_power	-	kW		
grid_c_active_power	-	kW		
grid_total_active_power	-	kW		
grid_reverse_power	-	kW		

The screenshot shows a monitoring interface for the Norton creek solar energy center. The top navigation bar includes the Monarch logo, the site name "Norton creek solar energy center", an "Online" status indicator, weather information (wind 67°F~79°F), and a test mode button. On the left, a sidebar lists navigation options: Home, Devices (selected), PV, Battery, Diesel Generator, Meter1, Meter2 (selected), Alarm, Control, and Statistics. The main content area displays two tables of data. The first table has columns for Name, Value, and Unit, listing items like grid\_line\_voltage\_vab (Value: -, Unit: V), grid\_phase\_angle\_ab (Value: -, Unit: Degree), and grid\_frequency (Value: -, Unit: Hz). The second table has columns for Name and Status, listing items like grid\_current\_ia (Status: A), grid\_current\_ib (Status: A), and grid\_total\_active\_power (Status: kW).

## 4. Alarm Page

The Alarm page is divided into:

- Current Records (Current Alarms)
- History Records (Historical Alarms)

Alarm Level (Level) is represented by L1/L2/L3 (the smaller the number, the more urgent it usually is).

### 4.1 Current Records

#### Table Field Introduction:

- Name: Rule/Alert Name
- Channel ID: Channel ID
- Level: Alarm Level Icon
- Start Time: Trigger Time

#### Filtering operation:

Users can select the alarm level in the selection box in the upper right corner to filter the current alarm records.

## 4.2 History Records

### Table Field Introduction:

- Name: Rule/Alert Name
- Channel ID: Channel ID
- Level: Alarm Level Icon
- Start Time: Alarm Trigger Time
- End Time: Alarm handling end time

### Filtering operation:

Users can filter by the following criteria:

- Warning Level: L1/L2/L3
- Start Time: Start Time
- End Time: End Time

When the user clicks the **Search** button, they can search based on the filtered conditions; when they click the **Reload** button, all filtered conditions will be reset and a search will be performed.

### Export list information:

Users can export an Excel file of historical alarms by clicking the **Export** button, and its header is as follows:

## 5. Control

Viewers typically only have the permission to "view control records" and do not have the permission to issue controls.

### 5.1 Control Record

## Table Field Introduction:

- Name: Rule/Alert Name
- Channel ID: Channel ID
- Level: Alarm Level Icon
- Start Time: Trigger Time

## Filtering operation:

Users can select the alarm level in the selection box in the upper right corner to filter the current alarm records.

## 6. Statistics

There are 4 tabs at the top of <Statistics>:

- Overview (概览)
- Curves (曲线)
- Operation Log (操作日志)
- Running Log (Operation Log)

[Screenshot placeholder: Four tabs of Statistics (Overview/Curves/Operation Log/Running Log)]

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### 5.5.1 Overview (概览)

#### Page Content

This page is mainly presented in charts and usually includes:

- Energy Consumption (Energy Consumption Overview Card)
- Energy Distribution (Ring Chart)
- Power Trend (Line Chart)
- Energy Chart (Energy Bar Chart)

#### Common Operations

- **Switch time range :** Click the time button on the right
  - 6 Hour / 1 Day / 1 Week / 1 Month

- **View Chart Hints**
  - Move the mouse over the chart to see the value at a certain time point (tooltip)

[Screenshot placeholder: Statistics Overview (Time button + Chart area)]

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## 5.5.2 Curves (曲线)

The Curves page, similar to the Overview, also mainly consists of charts and has the same operation method:

- Select filter condition
- Switch time range (6h/1d/1w/1m)
- View chart tips and trend changes

[Screenshot placeholder: Statistics Curves (Filter + Time Button + Chart)]

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## 5.5.3 Operation Log (Operation Log)

### Page Content

Table columns typically include:

- User
- Role (Role)
- Action (Movement)
- Device (Object/Equipment)
- Result (结果)
- Time (时间)
- IP Address (IP)

Supports pagination.

[Screenshot placeholder: Operation Log (Table + Pagination)]

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## 5.5.4 Running Log (Operation Log)

### Page Content

This page displays system operation information in the form of "log text stream":

The top usually has an Export button.

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## Frequently Asked Questions (FAQ) and Troubleshooting

### 1. The page has no data all the time, and the device Update Time does not update

Please conduct self-check in order:

1. Refresh the page (F5)
2. Switch to another menu and then switch back
3. Check if the top can normally jump to the alarm page (verify that the basic routing is normal)
4. Ask the administrator to check:
  - Is the backend service functioning properly?
  - Is the WebSocket push source normal?
  - Whether the device/channel is online

It is recommended that you provide the administrator with:

- Page where the issue occurred (e.g., Devices > PV > Value Monitoring)
- the time point at that time
- Is it that all devices have no data, or is it a certain category that has no data?

### 2. After logging in, it redirects back to the login page

Possible causes:

- Account expired/Password incorrect
- Token refresh failed

Suggestion:

- Log in again once
- If it still fails, please contact the administrator to reset the account

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## Glossary

- **Viewer:** Read-only user, mainly views data and records
- **Channel (Channel)** : Logical channel for acquisition/communication (e.g., Modbus channel)

- **Point (Measurement Point)**: Specific measurement point/signal (e.g., a certain voltage/current)
  - **Telemetry (Telemetry)** : Continuous quantity (usually numerical value + unit)
  - **Signal (Remote Signal)**: Status Quantity (usually 0/1 or Status Code)
  - **SoC**: State of Charge, percentage of battery charge
  - **SoH**: State of Health, Health Degree
  - **Update Time**: The time when the data on the current page was last refreshed/pushed
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## Version Record

- **v1.0**