

Monarch Edge User Manual



Monarch Edge is a comprehensive monitoring and analytics platform for edge energy sites, designed to provide users with a clear, unified, and visual view of site operations. The platform covers key business scenarios such as generation, energy storage, energy usage, and alarms. With standardized interfaces and consistent interactions, the Monarch Edge improves daily O&M efficiency and management quality by helping users quickly understand device status, operational trends, and abnormal conditions.

The platform's main capabilities include:

- Site overview:** Centralized display of energy summary, energy flow, power/energy trends, and site/device highlights to quickly assess operational health.
- Device monitoring:** Overview and value-monitoring pages by device type (PV, storage, meters, diesel generators, etc.), supporting real-time data and status viewing.

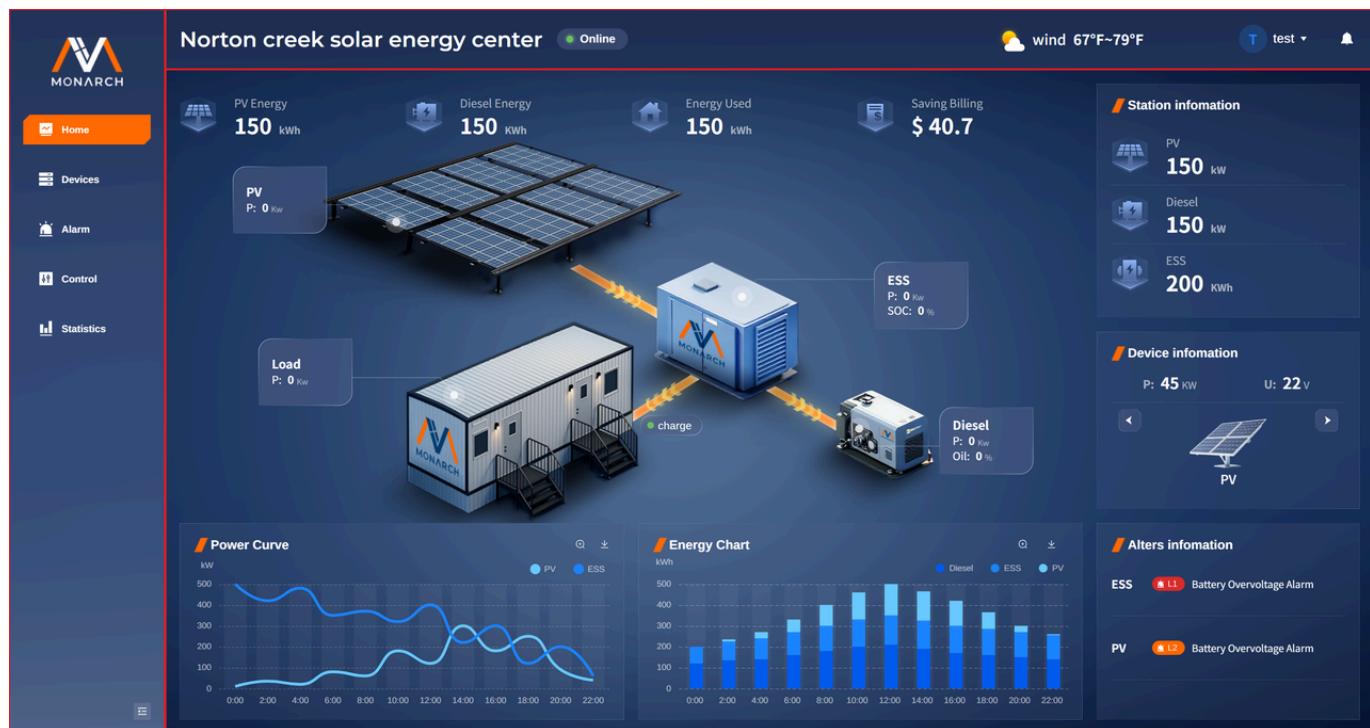
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- **Alarm management:** Separate current and historical alarms with query, filter, and export for troubleshooting and traceability.
- **Operation statistics:** Statistical overview, curve analysis, and run/operation logs to support data review and trend analysis.
- **Unified experience:** Consistent interactions such as table filters, pagination, and update-time hints to reduce learning cost.

Basics

UI Structure and Function Description



The main home page of the user interface is divided into three parts:

1. Left side: Sidebar menu

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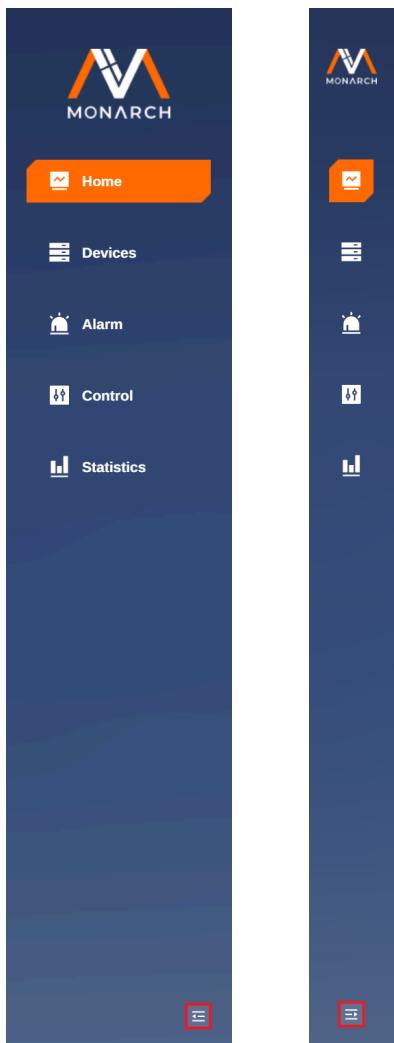
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- Users can click the modules they want to open. **Devices**, **Alarm**, **Control**, and **Statistic** have secondary menus. The menu corresponding to the current page is highlighted. The menu items are as follows:
 - **Home**
 - **Devices**
 - **PV**
 - **Battery**
 - **Diesel Generator**
 - **Meter1**
 - **Meter2**
 - **Alarm**
 - **Current Records**
 - **History Records**
 - **Control**
 - **Control Record**
 - **Statistics**
 - **Overview**
 - **Curves**
 - **Operation Log**
 - **Running Log**
- Users can resize the sidebar width via the zoom icon at the bottom-right of the sidebar.

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2. Upper-right: Top bar



- Users can view the global basic information in this module, which is presented from left to right as follows:
 - Platform Name
 - Current status of the site
 - Station weather conditions

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- The currently logged-in user can click to pop up an operation dialog box, which enables them to perform the logout operation
- Alert quantity notification. Click to jump to the current alert page.

3. Lower-right: Main content area

- Displays data for the current page.

Channel Concepts

In an IoT system, terminal devices, data acquisition gateways, and cloud platforms need to communicate through various methods for data collection, remote control, and device status monitoring. To standardize device onboarding and data management, the platform draws on proven experience in Industrial IoT (IIoT) and power automation (SCADA) and introduces concepts such as **Channel**, **Channel Point**, **Protocol**, **Four Remote types (Telemetry/Signal/Control/Adjustment)**, and **Mapping**.

These concepts form the core logic for communication between devices and the cloud, and are key to understanding device onboarding, point configuration, data formats, and gateway behavior.

Channel

Definition

A channel is the **logical link** used to establish communication between a device (or gateway) and the platform, and it includes the complete configuration required for read/write operations. In simple terms, a channel defines:

- which protocol is used to communicate with the device;
- how to connect to the device;
- what parameters are used for read/write operations;
- how to keep the connection alive and retry on errors.

A channel is the foundation of device communication and a prerequisite for all point read/write operations.

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Configuration Items

Basic Information:

- `id` : Unique identifier of the channel
- `name` : Channel name
- `description` : Channel description
- `protocol` : Protocol used by the channel. Supported protocols include `modbus_tcp` , `modbus_rtu` , and `di_do`
- `enabled` : Whether the channel is enabled

Parameters(Dynamically change based on `protocol`):

- `modbus_tcp`
 - `host` : Host address (IP/domain)
 - `port` : Port (default 502). Range: 1-65535
 - `connect_timeout_ms` : Connection timeout (positive integer, milliseconds)
 - `read_timeout_ms` : Read timeout (positive integer, milliseconds)
- `modbus_rtu`
 - `device` : Serial device path (e.g., /dev/ttyS0, COM3)
 - `baud_rate` : Baud rate (typical values: 9600/19200/38400/115200)
 - `data_bits` : Data bits (commonly 8)
 - `stop_bits` : Stop bits (1 or 2)
 - `parity` : Parity (N=None, E=Even, O=Odd)
 - `connect_timeout_ms` : Connection timeout (positive integer, milliseconds)
 - `read_timeout_ms` : Read timeout (positive integer, milliseconds)
 - `retry_interval_ms` : Retry interval after read/write failure (positive integer, milliseconds)

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Running Status:

- `connected` : Whether the channel is connected (Connected/Disconnected)
- `running` : Running status (Running/Stop)
- `last_update` : Last update time
- `error_count` : Error count
- `last_error` : Last error message

Point Counts:

- `telemetry` : Telemetry point count
- `signal` : Signal point count
- `control` : Control point count
- `adjustment` : Adjustment point count

Role of Channels

The entire communication process depends on channels, including:

- how the platform or gateway establishes connections (serial / TCP / RTU / Ethernet);
- how data is read from devices;
- how data is written or commands are issued to devices;
- how communication status is monitored and exceptions are handled.

In plain terms: Channel = "link + protocol + parameters" required for device communication.

Four Remote Types

Definition

In industrial automation, power systems, and IoT device management, business data is typically organized and managed by the "four remote" categories. The four-remote model is a classic SCADA data

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model and is widely used in IIoT platforms, power automation, water, HVAC, energy management systems, and more. The classification clarifies the "nature and purpose of points," helping users understand what each point represents, what it can do, and how it is collected or issued.

Category

Telemetry

Telemetry refers to continuous, analog, and measurable real-time values reported by devices. It is generally represented by numeric values (integer or float).

Common Examples

- Temperature (C)
- Humidity (%RH)
- Voltage (V), Current (A)
- Power (kW), Power factor
- Pressure (kPa), Level (%)
- Flow, Wind speed, RPM
- Energy readings (electricity, gas, water, etc.)

Characteristics

- Mostly read operations;
- Values change in real time with device operation;
- Collection intervals typically need to be configured.

Usage in the platform Telemetry points are used for trend analysis, reporting, energy monitoring, and operational optimization.

Signal

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Signals are discrete status information such as device state, switch status, or enumeration values.

Typically there are only two states (0/1), though some may extend to a small number of enumerations.

Common Examples

- Running/Stopped
- Close/Open
- Started/Not started
- Alarm/Normal
- Fault/Normal
- Door Open/Closed
- Relay Energized/Released

Characteristics

- Mostly read operations;
- Used for monitoring device status;
- Change events can trigger alarms.

Usage in the platform Signal points are widely used in alarm management, event monitoring, and status recording.

Control

Control refers to action commands issued by the platform to change device operating status. This is a write operation.

Common Examples

- Start/stop equipment
- Open/close valves

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- Close/open breakers
- Start ventilation, drainage, heating equipment
- Reboot controllers
- Switch modes

Characteristics

- Requires permission control;
- Often requires secondary confirmation or safety checks;
- Mostly switch-type commands (0/1).

Usage in the platform Control is used for intelligent operations, remote management, and automated control strategy execution.

Adjustment

Adjustment is remote parameter tuning used to set device operating parameters. It is also a write operation, but unlike Control, Adjustment acts on internal "setpoints".

Common Examples

- Temperature setpoint
- Pressure upper/lower limits
- Frequency setpoint (Hz)
- Voltage/current protection thresholds
- Tariff parameters (meters)
- PID control parameters (P/I/D)

Characteristics

- Parameter-type writes rather than switch actions;

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- Greater impact on device performance;
- Typically requires range and type validation.

Usage in the platform Adjustment is often combined with automation strategies to regulate environments and improve energy efficiency.

Channel Points

Definition

A channel point is a real data point of a device under a specific protocol (actual register address or signal address). A point is the smallest unit for data acquisition and command delivery. For example, in Modbus:

- Voltage may be at address 40001
- Current may be at address 40002
- Device start/stop may be at 00001 (coil)

These registers or flags are channel points.

Point Classification

The platform classifies points according to the "four remote" standard in industrial automation:

Type	Name	Description
Telemetry	Telemetry	Read-only.Continuous/analog values (e.g., temperature,voltage)
Signal	Signal	Read-only.Discrete/switch values (e.g., on/off, alarm)
Control	Control	Write-only.Control commands issued by the platform (e.g., start/stop)
Adjustment	Adjustment	Write-only.Parameter setpoints issued by the platform (e.g., frequency or voltage setpoint)

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Note: For `di/do` channels, point types are only Signal and Control because the values are only 0 and 1.

Field Description

Each channel point typically includes:

- `point_id` : Unique point ID (positive integer)
- `signal_name` : Business signal name
- `value` : Current value of the point
- `scale/offset` : Scaling and offset for converting raw values to business values
- `unit` : Unit of the point
- `reverse` : Whether the value should be inverted (commonly for switch points)

Note: For Signal and Control points, the `scale`, `offset`, and `unit` fields are not required.

Channel Point Mapping

Definition

Because different device vendors use different register addresses and protocol structures, the platform maps "device actual points" to a unified data model. Channel mapping is used to:

- Convert raw point to a unifies format
- Convert protocol addresses to platform standard addresses
- Multi-register merge, scaling, unit conversion, and more

The platform converts device-level register data into a unified structure through mapping rules, providing standard input for historical data, alarms, and formula calculations.

Field Description

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Mappings differ by protocol:

modbus_rtu/modbus_tcp:

- `point_id` : Unique point ID (positive integer)
- `slave_id` : Slave ID in Modbus and similar protocols
- `data_type` : Data type such as int16, uint16, int32, uint32, float32, int64, uint64, float64, bool
- `byte_order` : Byte order such as AB, BA, ABCD, CDAB, etc
- `function_code` : Register function code for different functions
 - `01` : Read Coils, for read/write 1-bit outputs
 - `02` : Read Discrete Inputs, for read-only 1-bit inputs
 - `03` : Read Holding Registers, for read/write 16-bit register data (setpoints/parameters)
 - `04` : Read Input Registers, for read-only 16-bit register data (measurements)
 - `05` : Write Single Coil, for writing one 1-bit output
 - `06` : Write Single Holding Register, for writing one 16-bit register value
 - `15` : Write Multiple Coils, for writing multiple 1-bit outputs in batch
 - `16` : Write Multiple Holding Registers, for writing multiple 16-bit register values in batch
- `register_address` : Register address where data is stored, usually 1-65535
- `bit_position` : Bit position of the real value, used for switch points, range 1-15

di_do:

- `point_id` : Unique point ID (positive integer)
- `gpio_number` : The global GPIO line number in Linux, allowing users to reference an IO line by a single number; not the same as the physical pin/chip pin.

These items determine how the platform correctly parses raw device data into usable business data.

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Device Instance Concepts

In microgrid EMS, to standardize device onboarding and point management, the platform defines four core concepts: **product**, **instance**, **instance point**, and **point mapping (binding)**. A **product** specifies the standardized capabilities and point model for a device type. An **instance** is a concrete on-site device object created from a product. **Instance points** describe the instance's configuration, runtime states/telemetry, and supported operations, and are categorized by usage as **property / measurement / action**. **Point mapping (binding)** associates each instance point with a specific on-site channel point, and labels the binding with a **T/S/C/A** semantic type to ensure correct data ingestion/reporting and correct command/setpoint dispatch.

Product

Definition

A product is a standardized model for a device/system type in the platform, used to abstract the capabilities and data interfaces that this type should have in the EMS. A product does not represent a specific on-site device, but rather the common structure and standard interface of the same device type. It defines what the device looks like in the platform and what capabilities it has:

- What points it includes (property points, measurement points, action points)
- What each point represents (e.g., SOC, power, alarms, start/stop, power setpoints, etc.) A product is not a specific on-site device, but a "generic definition for similar devices." The platform provides the following products:
 - **battery_cell(cell)**
 - Definition: The smallest electrochemical unit of a battery system.
 - Role: Provides the most basic voltage/temperature data, the foundation for BMS monitoring and safety evaluation.
 - **battery_module (battery module)**

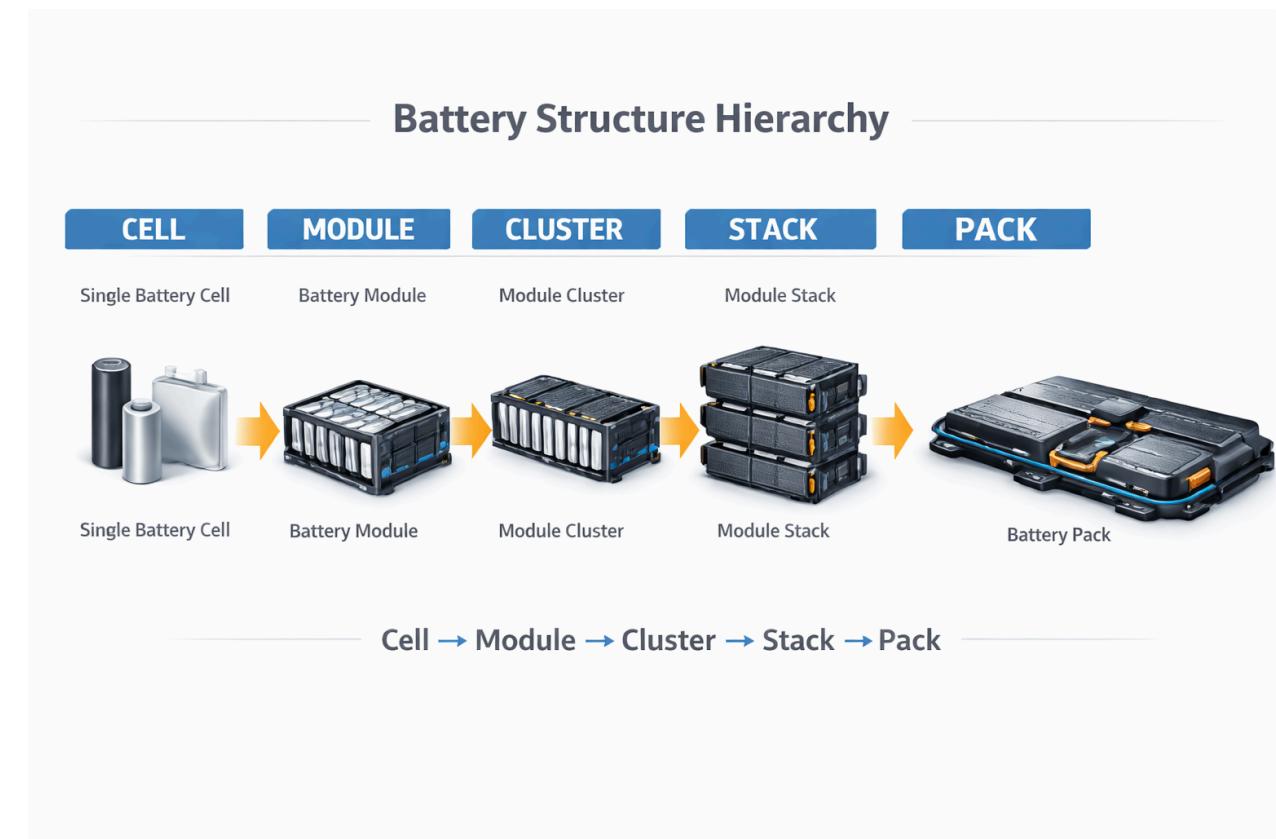
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- Definition: A structural and electrical unit composed of multiple cells.
- Role: Aggregates cell-level data, commonly used for module voltage, temperature distribution, balancing/protection management and display.
- **battery_cluster(battery cluster/battery bank)**
 - Definition: A higher-level aggregation composed of multiple battery modules (often corresponding to the scope of one cluster BMS).
 - Role: Provides cluster-level SOC/SOH, voltage/current, alarms, enabling EMS strategy and safety coordination.
- **battery_stack(battery stack/string)**
 - Definition: A system-level series/parallel unit composed of multiple battery clusters (often one battery stack in engineering practice).
 - Role: Provides system-level DC key metrics (total voltage/total current/total power) and stack-level alarms for coordination with PCS/DC conversion.
- **battery_pack(battery pack/battery system pack)**
 - Definition: A more asset/system-oriented abstraction for the battery side in EMS (often used to summarize the overall capability of a BESS battery system).
 - Role: Used for capacity, ratings, runtime statistics, alarm aggregation, reporting, and asset management; often serves as the top-level battery object for BESS.

The relationship among battery cell, battery module, battery cluster, battery stack and battery pack is shown in the figure.



- **dc_dc_converter(DC/DC converter)**

- Definition: DC-to-DC power conversion equipment (boost/buck/isolation, etc.).
- Role: Matches different DC bus voltage levels and supports energy regulation and protection coordination; commonly used in battery-side/DC bus power control loops.

- **pcs(power conversion system)**

- Definition: Core power conversion equipment in energy storage systems (DC-AC).
- Role: Executes charge/discharge power control, grid-connected/off-grid operation, reactive support, and power quality control; key target for EMS strategies and execution.

- **diesel_generator(diesel generator)**

- Definition: Controllable backup/emergency/peak-shaving power source.

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- Role: Provides stable power in off-grid or weak-grid scenarios; supports start/stop control, power regulation, operating status, and fault monitoring.
- **motor(motor)**
 - Definition: Motor-type load/device (as a drive device or key process device abstraction).
 - Role: Used to monitor operating status, power/current, etc.; some scenarios support start/stop or speed control (depending on site control and points).
- **load (load)**
 - Definition: Aggregated load or controllable load object on the consumption side (e.g., campus load, building load, production line load).
 - Role: Core input for EMS load forecasting, energy balance, peak shaving, and demand response; supports strategy linkage when extended as controllable load.
- **pv_string(PV string)**
 - Definition: A generation unit formed by series-connected modules.
 - Role: String-level voltage/current/power monitoring, helpful for locating shading, mismatch, and degradation issues (depending on access capability).
- **pv_optimizer(optimizer)**
 - Definition: Module/string-level power optimization and monitoring device.
 - Role: Improves generation efficiency and supports finer-grained monitoring and fault localization; typically associated with string/module data.
- **pv_combiner(combiner box)**
 - Definition: Device that combines multiple strings in parallel to a DC bus.
 - Role: Aggregates string circuits and provides branch current/switch/surge protection monitoring; key node between strings and inverters.

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- **pv_inverter(PV inverter)**

- Definition: Device that converts PV DC power to AC for grid connection/supply.
- Role: Output power control, grid operation management, reactive/power-quality support, and status/alarm monitoring; main controlled/monitored object on the PV side in EMS.

- **gateway(gateway)**

- Definition: Acquisition and protocol conversion node connecting site devices to the cloud/platform.
- Role: Hosts channels and protocols, performs data acquisition upload and command delivery; responsible for point mapping, caching, edge computing/forwarding (depending on implementation).

- **station(site/station)**

- Definition: Top-level organizational object for a microgrid/site (one project or one station).
- Role: Hosts the site device tree, topology, and aggregate metrics (site power/energy/alarms), and serves as the unified entry for permissions, reporting, dispatch strategies, and O&M.

Role

- Unify point collections and semantics for the same device type (standardization)
- Support bulk instantiation (multiple device instances for one product)
- Facilitate system integration, operations, and configuration reuse

Instance

Definition

An instance is the concrete object of a product model in a site project (Asset/Device Instance), corresponding to an actual device, system unit, or logical object (e.g., PCS_01, BESS_01, PCC_METER_01). An instance has a unique `instance_id` and binds to a `product_name`, inheriting the

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product's point system. An instance is not only a display "device item" but also the smallest business unit for status calculation, control issuance, and alarm positioning on the platform.

Field Description

- `instance_id` : Instance ID, a unique identifier
- `instance_name` : Instance name
- `product_name` : Name of the product the instance belongs to
- `properties` : Instance properties

Role

- Apply the "template (product)" to the "site object (instance)"
- Carry the product's configuration properties and runtime points (measurement/action)
- Map to site channels (four-remote) to enable data acquisition and control issuance

Instance Points

Definition

Instance points are the "data interfaces" of an instance in the platform, representing all information that can be configured, observed, and controlled. Instance points fall into three categories:

- **Property points**

Describe "static/semi-static configuration parameters" such as rated power, capacity, communication address, control strategy parameters, alarm thresholds, etc. Its function is:

- To serve as the source of instance configuration data
- To be used for strategy calculation, limit checks, display, and operations configuration
- Usually not for high-frequency changes (can be set manually or by strategy)

- **Measurement points**

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Represent "observable status/telemetry/signal" data such as voltage, current, power, SOC, switch status, alarm status, etc. Its function is:

- Real-time monitoring and visualization
- Input data for alarms, linkage, reporting, and optimization dispatch
- **Action points**

Represent points that can be issued for control/adjustment, such as start/stop, close/open, active/reactive setpoints, charge/discharge power setpoints, mode switching, etc. Its function is:

- EMS control-loop output (strategy/manual operation -> device)
- To support both Control and Adjustment commands

Field Description

- `point_id` : Unique identifier within the point category
- `name` : Point name
- `value` : Current point value
- `unit` : Point unit
- `description` : Point description

Role

- Unify semantics and data governance: Map different protocols and vendor raw points into consistent semantic points for upper-layer understanding and reuse.
- Base granularity for monitoring and alarms: Trends, threshold alarms, event linkage, and reporting all rely on points.
- Input/output for the control loop: Strategies read **measurement** points to determine state and write to **action** points to issue targets.

Instance Point Routing

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Definition

Instance point mapping binds platform "instance points" to on-site "channel points/addresses." It answers the following key questions for each instance point: **Which channel and point on-site does it map to?**

Which of the four remote types does it belong to?

- For **measurement** points, the channel point type can only be **Telemetry** or **Signal**.
- For **action** points, the channel point type can only be **Control** or **Adjustment**.
- **Property** points are intrinsic attributes and have no routing info.

Field Description

- `point_id` : ID of the instance point
- `name` : Name of the point
- `channel_id` : ID of the channel used by the route
- `channel_type` : Four-remote type of the channel point
- `channel_point_id` : Channel point ID used by the route

Role

- Data uplink (acquisition): Channel data is routed to the corresponding measurement points.
- Command downlink (control): Values written to action points are routed to the corresponding channel points and sent to devices.
- Decouple business and protocol: Business logic focuses on point semantics; communication focuses on addresses; mapping connects them to allow protocol/gateway/point-table changes.

Rule Concepts

In EMS systems, devices such as batteries, PCS, PV, and diesel generators must cooperate under constantly changing operating conditions. The system must make judgments based on real-time measurements and promptly issue control commands or adjust operating parameters (such as power setpoints, start/stop, mode switching) to achieve safe, stable, and economical operation. To standardize

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strategy configuration and visual management, the platform introduces concepts such as **Rule** and **Rule Flow**.

Rule

Definition

A rule is the basic unit used in EMS to express an "operating strategy." It describes the control logic the system should take under specific conditions. It takes real-time data (measurements/status/computed results) as inputs, determines the current scenario through conditions, and outputs corresponding control actions or parameter adjustments.

Role

- Strategy solidification and automated execution: Configure human experience/dispatch strategies into logic that the system can execute automatically for unattended operation.
- Operational objectives: Automatically choose appropriate control measures under different conditions to meet safety, stability, economy, and efficiency goals.
- Unified management and reuse: Rules can be centrally managed (enable/disable, priority, etc.) and reused across different sites or projects.

Rule Chain

Definition

A rule chain is the visual execution flow inside a rule. It uses "nodes + links" to describe the full execution path of a rule from start to finish. It breaks a rule into steps (such as start, condition, action, end) and uses branching to express different paths under different conditions.

Role

- Clearly express complex logic: Present multi-condition, multi-branch, multi-action strategies as flowcharts, reducing understanding and configuration costs.

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- Traceable and diagnosable: During runtime, the actual execution path and key node data can be located to quickly identify why a decision was made.
- Easy to maintain and iterate: Quickly adjust steps and branches with a graphical structure, with versioning and import/export reuse.

Glossary

- **Viewer:** Read-only user, mainly views data and records
- **Channel:** Logical channel for acquisition/communication (e.g., a Modbus channel)
- **Point:** Specific measurement/signal point (e.g., a voltage/current line)
- **Telemetry:** Continuous values (usually a number + unit)
- **Signal:** Status values (usually 0/1 or status codes)
- **Control:** Action command issued by the platform to change device operating state
- **Adjustment:** Parameter setpoints issued by the platform for remote tuning
- **SoC:** battery capacity percentage
- **SoH:** State of Health, expressed as a percentage
- **Update Time:** The most recent refresh/push time of page data

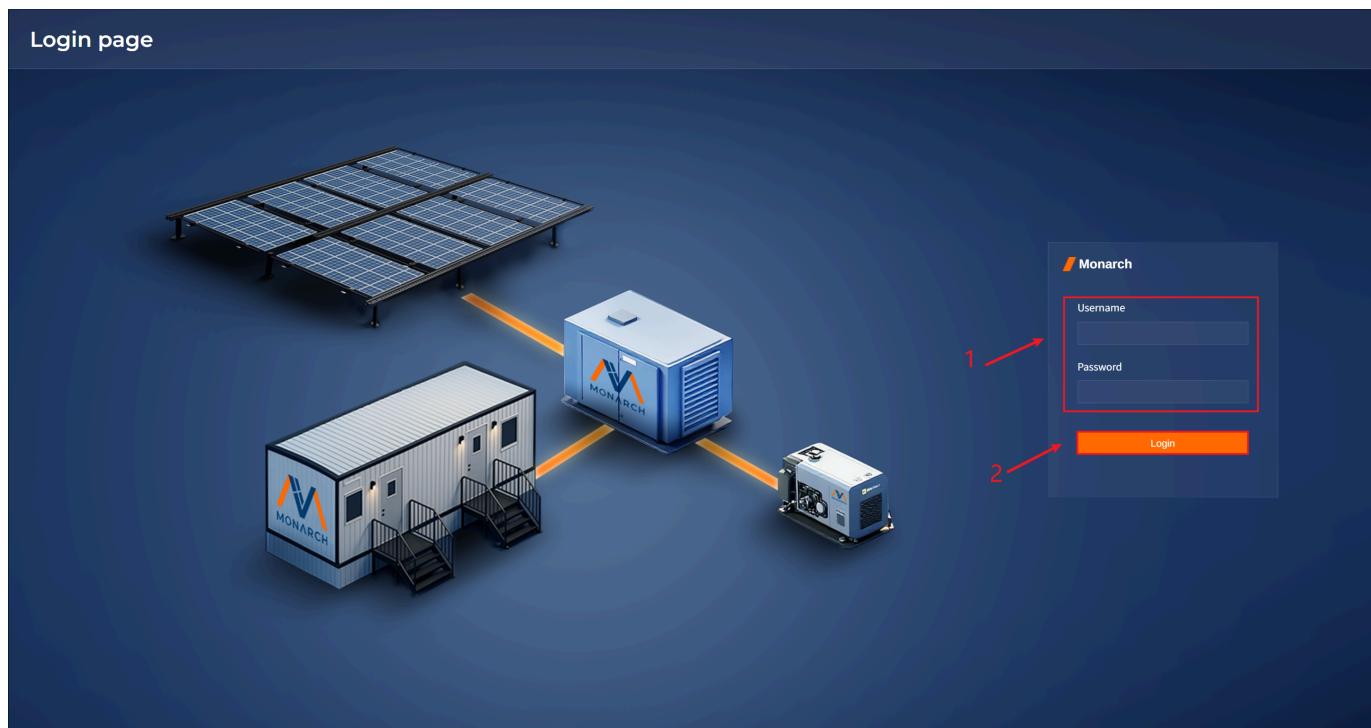
Core Features

Login Page

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1. Open the system and enter the login page.

2. Enter:

- **Username** : The username of the user account
- **Password** : The password of the user account

3. Click **Log in** to sign in

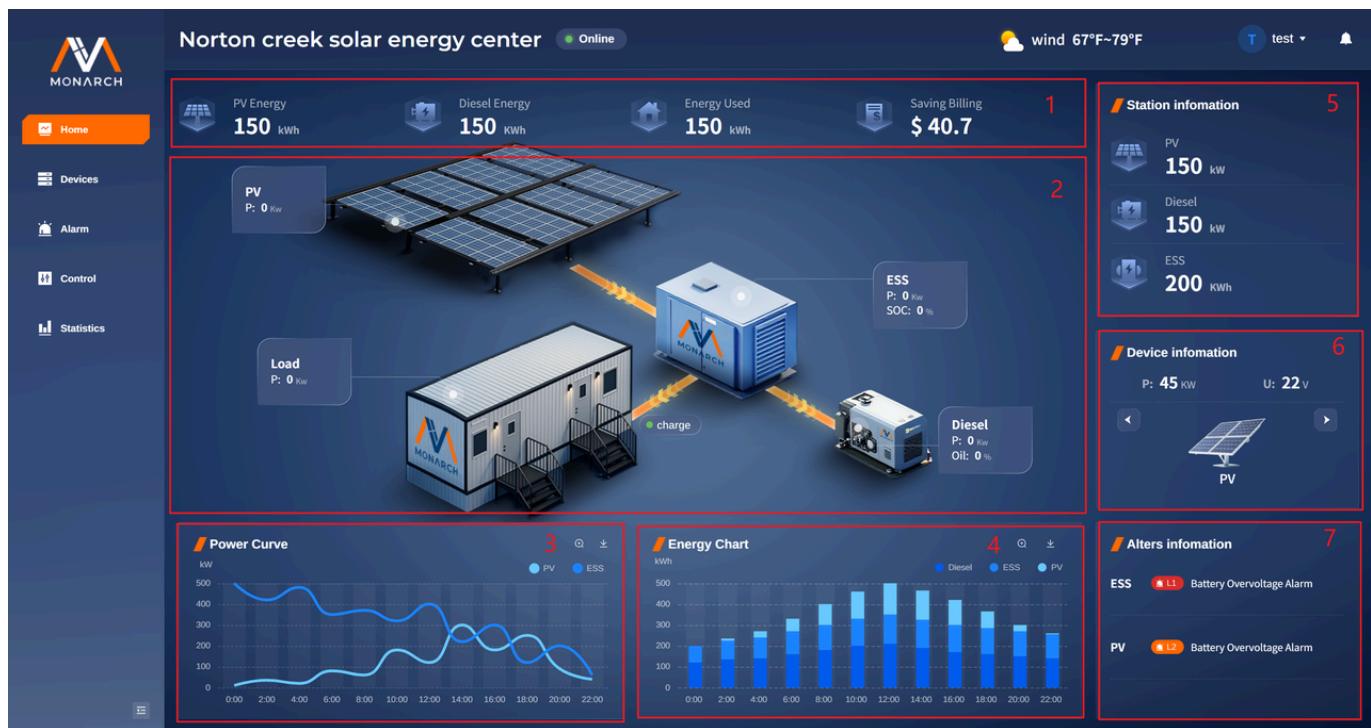
4. After a successful login, the system will open the **Home** page by default

Home Page

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

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- The first section contains the site's energy overview cards, mainly showing statistics for **PV Energy**, **Diesel Energy**, **Energy Used**, and **Saving Billing**.
- The second section is the microgrid topology diagram. It shows the direction of energy flow (device charge/discharge) and the key data of each device:
 - PV:** P (real-time power, unit: kW)
 - Load:** P (real-time power, unit: kW)
 - ESS:** P (real-time power, unit: kW), SOC (battery state of charge, unit: %)
 - Diesel:** P (real-time power, unit: kW), Oil (real-time diesel fuel percentage, unit: %)
- The third section is the power statistics curves for **PV** and **ESS**.
- The fourth section is the energy bar chart for **Diesel**, **ESS**, and **PV**.
- The fifth section is current site information statistics, covering current power for **PV** and **Diesel**, and the ESS's stored energy.

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6. The sixth section is site device information statistics, showing **P (real-time power,unit: kW)** and **U (real-time voltage,unit: V)** for **PV, ESS, and Diesel Generator**. Users can switch devices using the left/right arrow buttons.

7. The seventh section contains site alarm information, showing active alarms with the following information (left-to-right)::

- Alarm device
- Alarm level (sorted by urgency: **L1>L2>L3**)

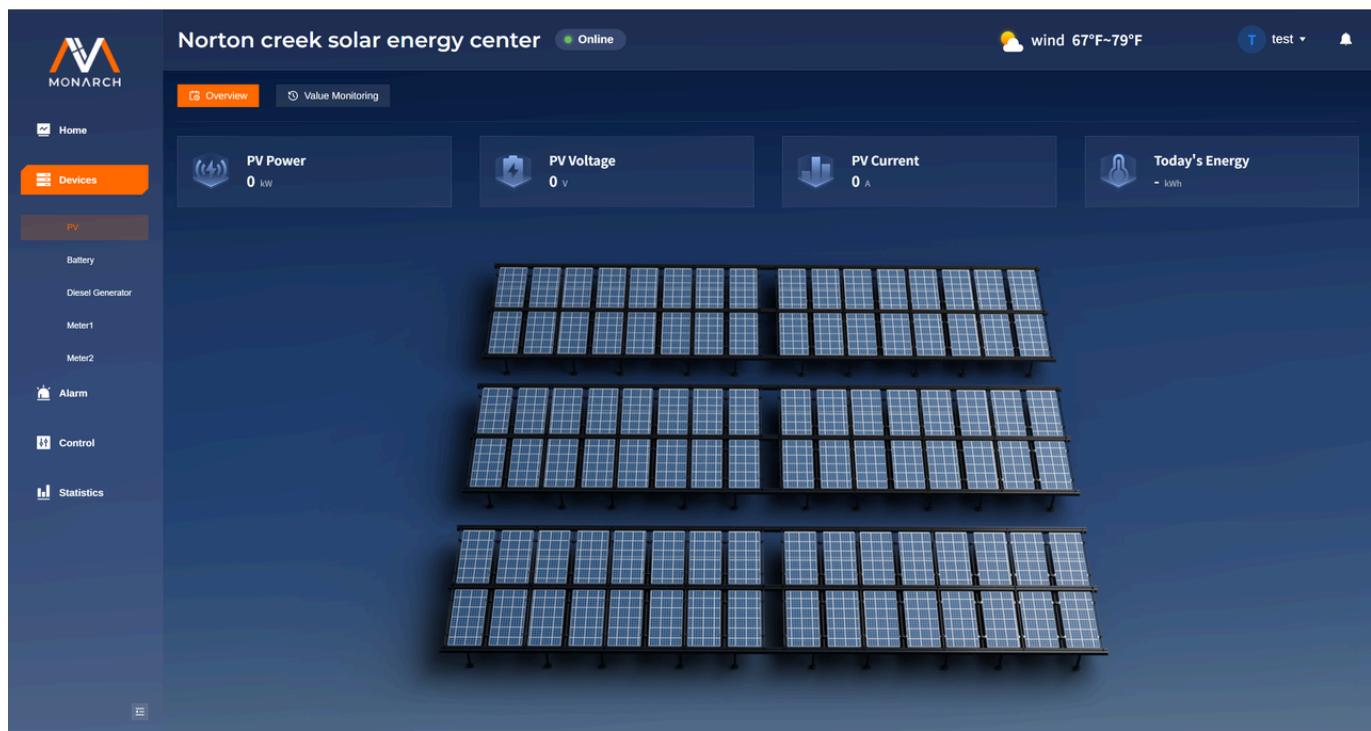


- Alarm information

Devices Page

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Devices includes multiple device types, such as **PV**, **Battery**, **Diesel Generator**, **Meter1**, and **Meter2**.

Each device page typically includes:

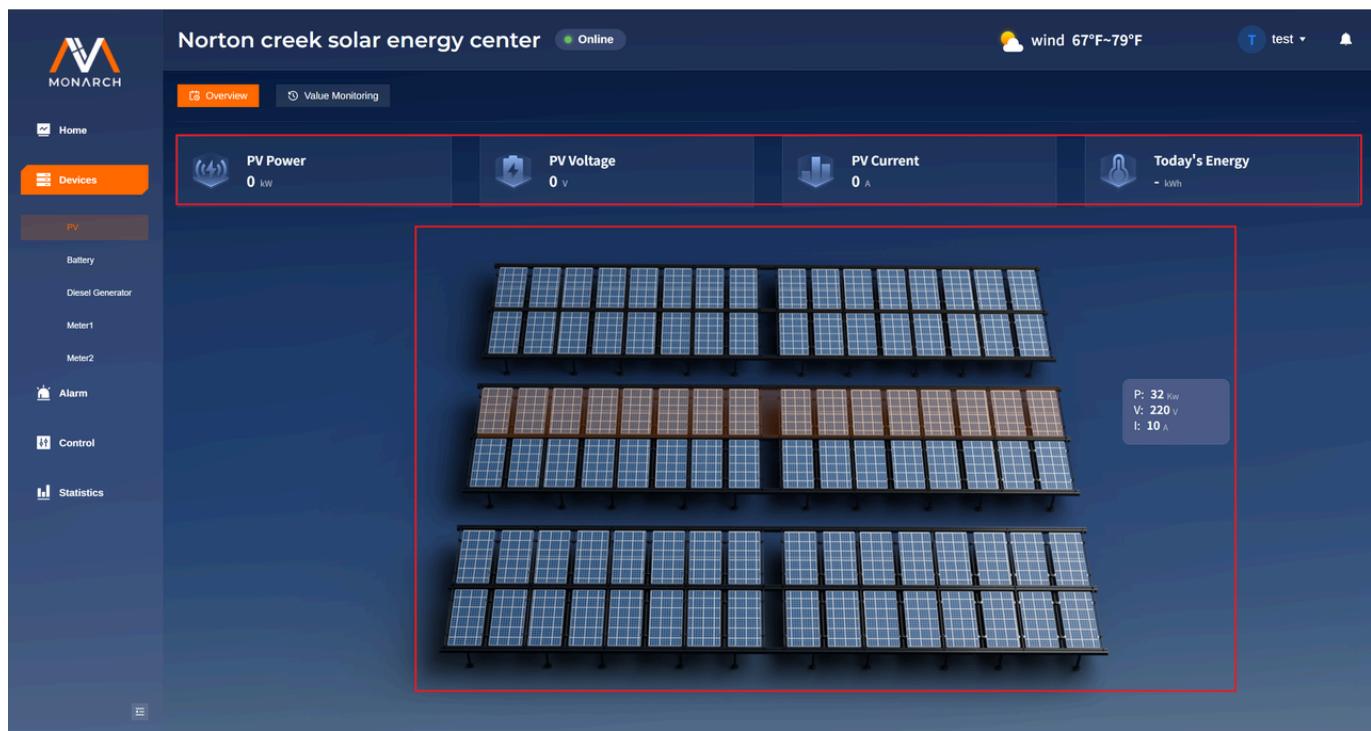
- **Overview:** Card-based display of key device indicators.
- **Value Monitoring:** Real-time point tables showing Telemetry and Signal data from channels bound to real devices.

PV

Overview

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- The top shows four PV indicator cards:
 - PV Power:** Current PV power
 - PV Voltage:** Current PV voltage
 - PV Current:** Current PV current
 - Today's Energy:** PV energy generated today
- The middle area shows a PV background diagram. Hovering over a string shows data for that PV string:
 - P:** Power of the selected PV string
 - V:** Voltage of the selected PV string
 - I:** Current of the selected PV string

Value Monitoring

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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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Update Time:

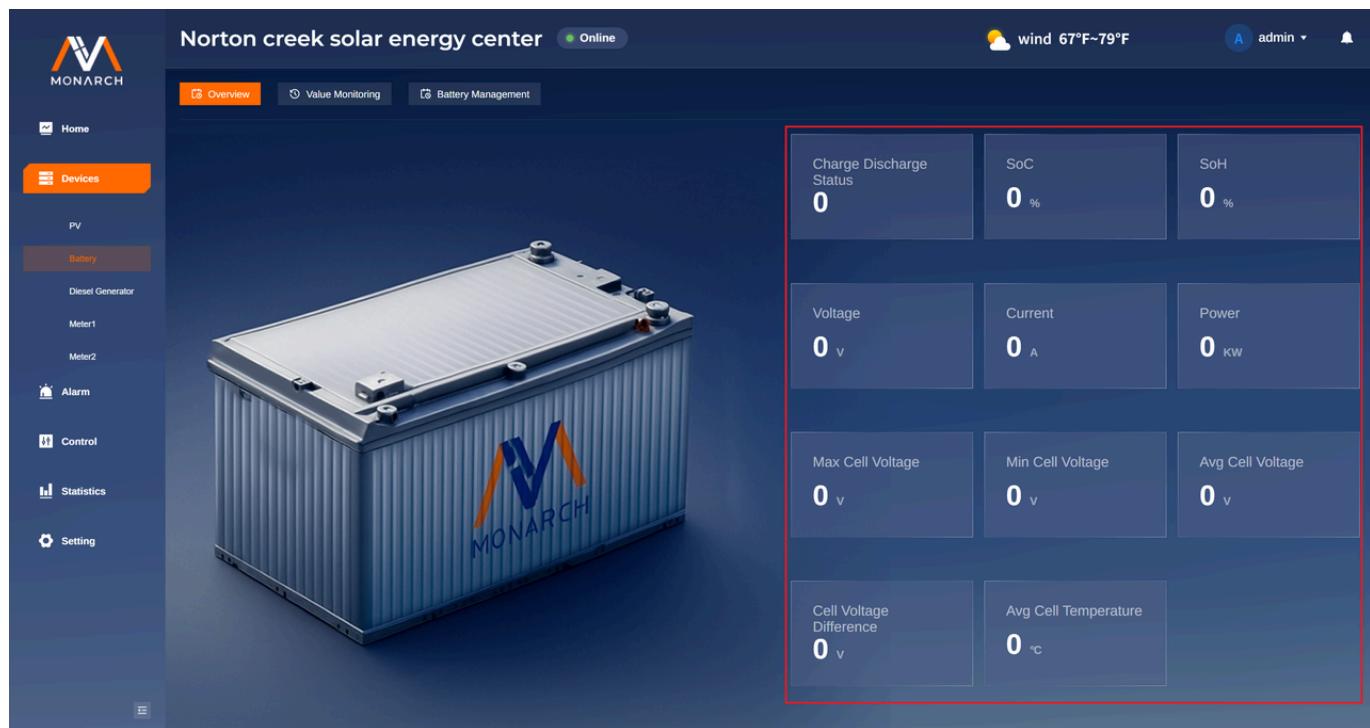
- The top right of this section displays Update Time, which is the latest data acquisition time.
- Below are two tables:
 - The left table is the channel **Telemetry** table, including **Name**, **Value**, and **Unit**.
 - The right table is the channel **Signal** table, including **Name** and **Status**.

Battery

Overview

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This page displays key battery indicators in a card list:

- **Status:** Battery charge/discharge status
- **SoC:** Battery state of charge
- **SoH:** Battery health
- **Voltage:** Current battery voltage
- **Current:** Current battery current
- **Power:** Current battery power
- **Max/Min/Avg Cell Voltage:** Max/min/average cell voltage
- **Cell Voltage Difference:** Maximum cell voltage difference
- **Avg Cell Temperature:** Average cell temperature

Value Monitoring

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The screenshot shows a monitoring interface for the Norton creek solar energy center. At the top, there are tabs for Overview, Value Monitoring, and Battery Management, with 'Battery' currently selected. Below these are two tables: one for battery parameters and one for fault codes.

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	-	
BamsMaxCellVNo	-	
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 includes tabs:

- **Battery:** Battery system (aggregated view at pack level or above)

PCS: Power conversion system (bidirectional DC/AC conversion and grid interface control)

Each tab uses the "**Update Time + left/right tables**" layout, the same as the **PV Value Monitoring** page.

Battery Management

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This page mainly monitors **Voltage** and **Temperature** for all **Battery Cells**.

- Left: Shows voltage for all cells
 - The module header identifies which cells have the **maximum cell voltage** and **minimum cell voltage**.
 - The module body lists **#1~#N** (Battery Cell) voltages as cards.
- Right: Shows temperature for all cells
 - The module header identifies which cells have the **maximum cell temperature** and **minimum cell temperature**.
 - The module body lists **#1~#N** (Battery Cell) temperatures as cards.

Diesel Generator

Overview

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Top indicator cards:

- **Power:** Real-time Power,kW
- **Oil:** Real-time fuel percentage,%
- **Voltage:** Real-time voltage,V
- **Coolant Temp:** Real-time coolant temperature,°C

Value Monitoring

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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
Meter1	Online

Layout is the same as the **PV Value Monitoring** page.

Meter1

Meter1 directly displays **Value Monitoring** information, with the same layout as the **PV** **Value Monitoring** page.

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The screenshot shows a monitoring interface for the Norton creek solar energy center. The left sidebar includes links for Home, Devices (selected), PV, Battery, Diesel Generator, Meter1 (selected), Meter2, Alarm, Control, and Statistics. The main area displays two tables: one for 'Value Monitoring' and another for 'Status'. The 'Value Monitoring' table lists various electrical parameters such as grid_line_voltage_vab, grid_phase_voltage_va, and grid_frequency, along with their corresponding values and units (e.g., V, Degree, Hz). The 'Status' table has columns for Name and Status.

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
grid_reverse_power	-	kW

Meter2

Meter2 directly displays **Value Monitoring** information, with the same layout as the **PV Value Monitoring** page.

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The screenshot shows a monitoring interface for the Norton creek solar energy center. On the left, a sidebar lists navigation options: Home, Devices (selected), PV, Battery, Diesel Generator, Meter1, Meter2 (selected), Alarm, Control, and Statistics. The main area displays two tables. The first table, titled 'Real-time Data' (Update Time: 10 minutes ago), lists various grid parameters with their values and units. The second table, titled 'Status' (Update Time: 10 minutes ago), lists system components and their status. At the top right, there is a weather forecast showing wind at 67°F~79°F.

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
grid_reverse_power	-	kW

Name	Status
Meter1	Normal
Meter2	Normal
PV	Normal
Battery	Normal
Diesel Generator	Normal
Grid	Normal
Transformer	Normal
Switchgear	Normal
Control System	Normal
Communication	Normal
Power Quality	Normal
Protection	Normal
Relay	Normal
Transformer	Normal
Switchgear	Normal
Control System	Normal
Communication	Normal
Power Quality	Normal
Protection	Normal
Relay	Normal

Alarm Page

Alarm is the alarm record page. Users can view current and historical alarm information from this module.

Current Records

Table fields:

- Name** : Rule/Alarm name
- Channel ID** : Channel ID
- Level** : Alarm level icon
- Start Time** : Time the alarm was triggered

Filter:

Users can select the alarm level from the dropdown in the upper-right corner to filter current alarm records.

History Records

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Table fields:

- **Name** : Rule/Alarm name
- **Channel ID** : Channel ID
- **Alarm Level** : Alarm level icon
- **Start Time** : Alarm trigger time
- **End Time** : Alarm handling end time

Filter:

Users can filter by the following conditions:

- **Alarm Level** : L1/L2/L3
- **Start Time** : Start time
- **End Time** : End time

Click **Search** to search by the selected conditions. Click **Reload** to reset all filters and search again.

Export:

Click **Export** to export historical alarms to an Excel file.

Control

Viewers typically only have permission to view control records and cannot issue control commands.

Control Record**Table fields:**

- **Name** : Rule/Alarm name
- **Channel ID** : Channel ID
- **Level** : Alarm level icon

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- **Start Time** : Trigger time

Filter:

Users can select the alarm level from the dropdown in the upper-right corner to filter the current alarm records.

Statistics

Statistics has 4 tabs at the top:

- **Overview**
- **Curves**
- **Operation Log**
- **Running Log** [Screenshot placeholder: Statistics tabs (Overview/Curves/Operation Log/Running Log)]

Overview

This page is chart-based and typically includes:

- Energy Consumption (energy overview cards)
- Energy Distribution (donut chart)
- Power Trend (line chart)
- Energy Chart (bar chart) Common actions
- Switch time range: Click the time buttons on the right
 - 6 Hour / 1 Day / 1 Week / 1 Month
- View chart tips
 - Hover over a chart to see values at a specific time point (tooltip) [Screenshot placeholder: Statistics Overview (time buttons + chart area)]

Curves

The Curves page is similar to Overview and also chart-based, with the same interactions:

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- Select filter conditions
- Switch time range (6h/1d/1w/1m)
- View chart tips and trend changes [Screenshot placeholder: Statistics Curves (filters + time buttons + charts)]

Operation Log

Table columns typically include:

- User
- Role
- Action
- Device
- Result
- Time
- IP Address Pagination is supported. [Screenshot placeholder: Operation Log (table + pagination)]

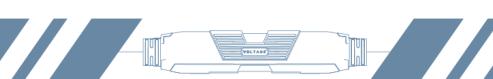
Running Log

This page shows system operation information as a "log text stream": The top usually has an **Export** button.

System Configuration

Channels

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ID	Name	Description	Protocol	Enabled	Connected	Error Count	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Disconnected	0	Detail Points Delete
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Disconnected	0	Detail Points Delete
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input type="checkbox"/>	Disconnected	0	Detail Points Delete

This chapter includes: channel management, channel point configuration, and channel point mapping configuration.

Channel Management

Query Channels

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ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
4	CS_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
5	ECU1170_GPIO	ECU-1170 GPIO/DI/DO	di_do	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete

1. You can filter channels by:

- **Protocol:** Channel protocol type (e.g., modbus_tcp, modbus_rtu, di_do).
- **Enabled:** Enabled status (Enabled, Disabled).
- **Connected:** Connection status (Connected, Disconnected).

2. After selecting filters, click **Search** to apply.

3. Click **Reload** to reset filters.

View Channel Details and Edit

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channel configuration Device model configuration Rules configuration

Protocol: select protocol Enabled: select enabled status Connected: select connected status Reload Search New Channel

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
4	CS_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
5	ECU1170_GPIO	ECU-1170本机DI/DO	di/do	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>

Total 5 20/page 1 >

1. Click **Detail** in the **Operation** column for the target channel to open the details dialog.

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Channel Details

Host: 192.168.1.10	Port: 502
Connect Timeout (ms): 3000	Read Timeout (ms): 3000

Runtime Status

Connected: Connected	Running: Running
Last Update: 2025-12-29 15:49:51	Error Count:
Last Error: No errors	

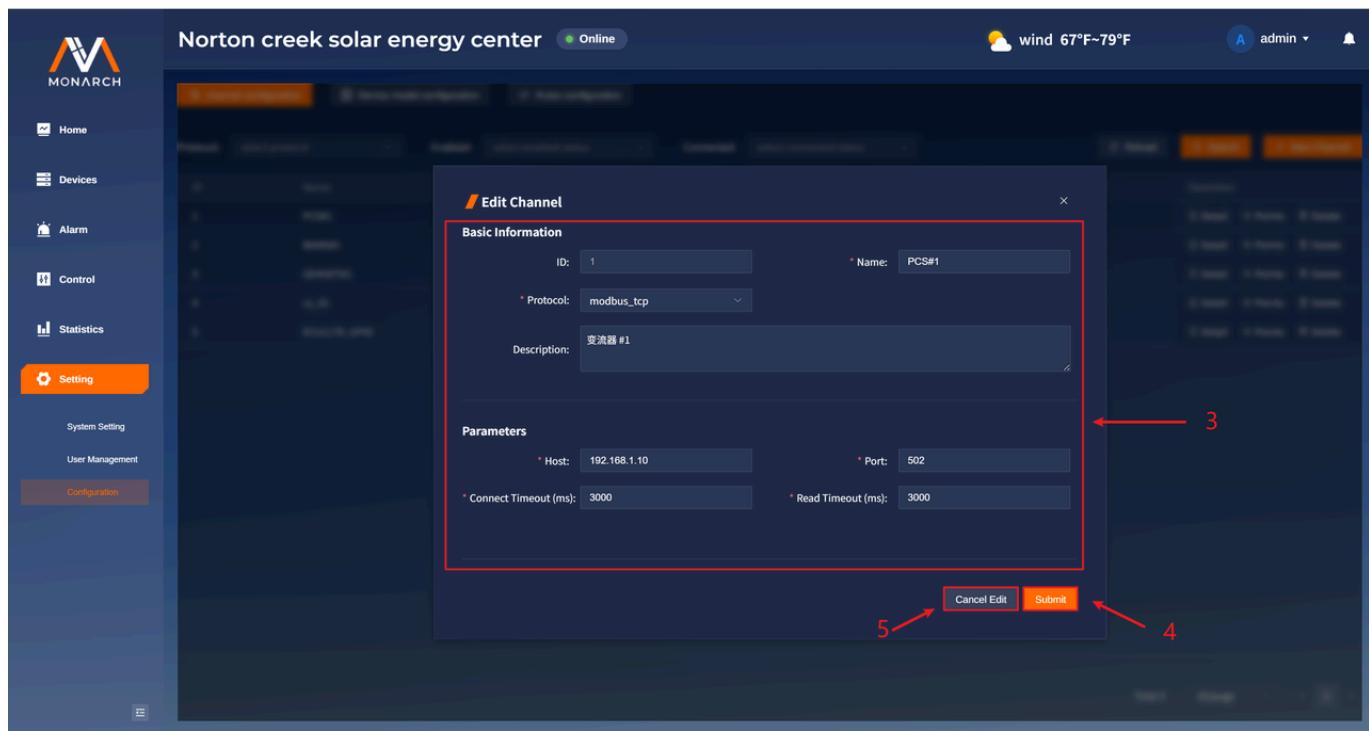
Point Counts

Telemetry: 764	Signal: 109
Control: 17	Adjustment: 553

2. Click **Edit** to enter edit mode.

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3. Enter the values to update. Refer to the field definitions in the basic concepts section.
4. Click **Submit** to save.
5. Click **Cancel Edit** to cancel.

Add a New Channel

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ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
4	CS_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
5	ECU1170_GPIO	ECU-1170本地DI/DO	di/do	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>

Total 5 20/page < 1 >

1. Click **New Channel** to open the add dialog.

Add Channel

Basic Information

* Name: Please enter channel name * Protocol: modbus_tcp

Enabled:

Description: Please enter description

Parameters

* Host: please enter host * Port: please enter port

* Connect Timeout (ms): please enter connect timeout (ms) * Read Timeout (ms): please enter read timeout (ms)

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1. Select the protocol via the **Protocol** dropdown and fill in the required parameters. Refer to the field descriptions in the details page.
2. Click **Submit** to add the channel.
3. Click **Cancel Add** to cancel.

Toggle Channel Enable Status

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCSM#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/> 1	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
4	cs_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
5	ECU1170_GPIO	ECU-1170本机DI/DO	di_do	<input checked="" type="checkbox"/>	Connected	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete

1. Use the slider in the **Enable** column to toggle. Slide left to **Enabled**, right to **Disabled**.

Delete an Existing Channel

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ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input checked="" type="button" value="Delete"/> (highlighted)
4	CS_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
5	ECU1170_GPIO	ECU-1170本机DI/DO	di_d0	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>

1. Click **Delete** in the **Operation** column of the channel row.

Delete Confirmation

Are you sure you want to delete channel GENSET#1?

2. Click **Confirm** to delete.

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3. Click **Cancel** to cancel.

Channel Point Configuration

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input checked="" type="button" value="Points"/> <input type="button" value="Delete"/>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input checked="" type="button" value="Points"/> <input type="button" value="Delete"/>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input checked="" type="button" value="Points"/> <input type="button" value="Delete"/>
4	CS_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input checked="" type="button" value="Points"/> <input type="button" value="Delete"/>
5	ECU1170_GPIO	ECU-1170本机DI/DO	di_do	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input checked="" type="button" value="Points"/> <input type="button" value="Delete"/>

1. Click **Points** in the **Operation** column of the desired channel row to open the points dialog.

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Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_Fault_status	34	1	0		false	<input checked="" type="checkbox"/> Publish
2	System_ON/OFF_status	0	1	0		false	<input checked="" type="checkbox"/> Publish
3	Electrical_room_fan_stop	108	1	0		false	<input checked="" type="checkbox"/> Publish
4	Ac_bus_switch_closed	513	1	0		false	<input checked="" type="checkbox"/> Publish
5	Rack_DC_switch_1_closed	0	1	0		false	<input checked="" type="checkbox"/> Publish
6	AC_module_01_online_status	3	1	0		false	<input checked="" type="checkbox"/> Publish
7	AC_module_01_ON/OFF_status	0	1	0		false	<input checked="" type="checkbox"/> Publish
8	AC_module_01_alarm_status	3	1	0		false	<input checked="" type="checkbox"/> Publish
9	AC_module_01_fault_status	0	1	0		false	<input checked="" type="checkbox"/> Publish

2. The point type tabs include **Telemetry**, **Signal**, **Control**, and **Adjustment**, corresponding to the four-remote point categories. Click a tab to view points of that type.
3. View mode toggle: **Points** and **Mappings**. Click the corresponding button to switch views.
4. Click **Batch Publish** to issue values in bulk.
5. Click **Publish** in the **Operation** column to issue a value for a single point.
6. Click **Export** to export the table data of the current tab to **.csv**.
7. Click **Edit** to enter point edit mode.
8. Click **Cancel** to close the dialog.
9. The point filter box supports fuzzy search by name or precise search via dropdown selection.

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Mappings Table

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position
1	System_Fault_status	1	3	32	uint16	AB	0
2	System_ON/OFF_status	1	3	33	uint16	AB	0
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0
5	Rack_DC_switch_1_closed	1	3	43	uint16	AB	0
6	AC_module_01_online_status	1	3	90	uint16	AB	0
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0
8	AC_module_01_alarm_status	1	3	92	uint16	AB	0
9	AC_module_01_fault_status	1	3	93	uint16	AB	0

When switching the view toggle to **mappings**, the page is interpreted as follows:

10. Click the tab to switch point type and view point mappings.
11. Click **Export** to export the table data of the current point type to **.csv**.
12. Click **Edit** to enter point mapping edit mode.
13. Click **Cancel** to close the dialog.

Issue Point Values

There are two ways to issue point values: **bulk publish** and **single publish**.

Single Publish

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Points Table

Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_Fault_status	34	1	0		false	Publish
2	System_ON/OFF_status	0	1	0		false	Publish
3	Electrical_room_fan_stop	108	1	0		false	Publish
4	Ac_bus_switch_closed	513	1	0		false	Publish
5	Rack_DC_switch_1_closed	0	1	0		false	Publish
6	AC_module_01_online_status	3	1	0		false	Publish
7	AC_module_01_ON/OFF_status	0	1	0		false	Publish
8	AC_module_01_alarm_status	3	1	0		false	Publish
9	AC_module_01_fault_status	0	1	0		false	Publish

1. Click **Publish** for the target point row to open the single publish dialog.

Value Publish

* Value: 12

Cancel Submit

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2. Enter the value to publish in the Value input (for **telemetry** and **adjustment**, the value is numeric; for **signal** and **control**, the value is 0 or 1).
3. Click **Submit** to publish the value.
4. Click **Cancel** to cancel.

Norton creek solar energy center Online Published successfully

Wind 67°F~79°F admin Published successfully

Points Table

telemetry	signal	control	adjustment				
Point Name: Search Point Name							
Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_Fault_status	12	1	0		false	<input checked="" type="checkbox"/> Publish
2	System_ON/OFF_status	1	1	0		false	<input checked="" type="checkbox"/> Publish
3	Electrical_room_fan_stop	108	1	0		false	<input checked="" type="checkbox"/> Publish
4	Ac_bus_switch_closed	513	1	0		false	<input checked="" type="checkbox"/> Publish
5	Rack_DC_switch_1_closed	0	1	0		false	<input checked="" type="checkbox"/> Publish
6	AC_module_01_online_status	3	1	0		false	<input checked="" type="checkbox"/> Publish
7	AC_module_01_ON/OFF_status	0	1	0		false	<input checked="" type="checkbox"/> Publish
8	AC_module_01_alarm_status	3	1	0		false	<input checked="" type="checkbox"/> Publish
9	AC_module_01_fault_status	0	1	0		false	<input checked="" type="checkbox"/> Publish

Batch Publish Export

Cancel Edit

5. On success, the value changes.

Batch Publish

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Norton creek solar energy center Online

Points Table

View Mode: Points Mappings

Point ID	Point Name	Value	Reverse	Operation
1	Grid_interconnection_mode	0	false	
2	Advanced_control_commands_1_bit0	0	false	
3	Advanced_control_commands_1_bit1	0	false	
4	Energy_dispatching_mode	0	false	
5	Active_power_control_mode	0	false	
6	Reactive_power_control_mode	0	false	
7	DC_control_mode	1	false	
8	Control_mode	0	false	
9	Bms_protocol	0	false	

Cancel Edit

1. Click **Batch Publish** on the target point type tab (only affects the current point type).

Norton creek solar energy center Online

Points Table

View Mode: Points Mappings

Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Publish Value
1	System_Fault_status	34	1	0		false	<input type="text"/>
2	System_ON/OFF_status	0	1	0		false	<input type="text"/>
3	Electrical_room_fan_stop	108	1	0		false	<input type="text"/>
4	Ac_bus_switch_closed	513	1	0		false	<input type="text"/>
5	Rack_DC_switch_1_closed	0	1	0		false	<input type="text"/>
6	AC_module_01_online_status	3	1	0		false	<input type="text"/>
7	AC_module_01_ON/OFF_status	0	1	0		false	<input type="text"/>
8	AC_module_01_alarm_status	3	1	0		false	<input type="text"/>

Cancel Publish

Submit Publish

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2. Enter values in the **Publish** column (for **telemetry** and **adjustment**, numeric; for **signal** and **control**, 0 or 1).
3. Click **Submit Publish** to submit the bulk publish.
4. Click **Cancel Publish** to cancel.

The screenshot shows the MONARCH software interface with the title "Norton creek solar energy center" and status "Online". The top right corner displays weather information: "wind 67°F~79°F". The left sidebar includes navigation links: Home, Devices, Alarm, Control, Statistics, and Setting (which is selected). The main content area is titled "Points Table" and shows a table of data points. The table has columns: Point ID, Point Name, Value, Scale, Offset, Unit, Reverse, and Operation. The "telemetry" tab is selected. A red arrow points to the "Value" column for Point ID 1, which is highlighted with a red box and contains the value "10". Other rows in the table include System_FAULT_status (Value 1), Electrical_room_fan_stop (Value 108), Ac_bus_switch_closed (Value 513), Rack_DC_switch_1_closed (Value 0), AC_module_01_online_status (Value 3), AC_module_01_ON/OFF_status (Value 0), AC_module_01_alarm_status (Value 3), and AC_module_01_fault_status (Value 0). The "Batch Publish" button is visible at the bottom right of the table.

Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_FAULT_status	10	1	0		false	
2	System_ON/OFF_status	1	1	0		false	
3	Electrical_room_fan_stop	108	1	0		false	
4	Ac_bus_switch_closed	513	1	0		false	
5	Rack_DC_switch_1_closed	0	1	0		false	
6	AC_module_01_online_status	3	1	0		false	
7	AC_module_01_ON/OFF_status	0	1	0		false	
8	AC_module_01_alarm_status	3	1	0		false	
9	AC_module_01_fault_status	0	1	0		false	

1. On success, the values change.

Batch Edit Points

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Norton creek solar energy center Online

admin

Points Table

View Mode: Points Mappings

telemetry	signal	control	adjustment				
Point Name: Search Point Name							
Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_Fault_status	12	1	0		false	
2	System_ON/OFF_status	1	1	0		false	
3	Electrical_room_fan_stop	108	1	0		false	
4	Ac_bus_switch_closed	513	1	0		false	
5	Rack_DC_switch_1_closed	0	1	0		false	
6	AC_module_01_online_status	3	1	0		false	
7	AC_module_01_ON/OFF_status	0	1	0		false	
8	AC_module_01_alarm_status	3	1	0		false	
9	AC_module_01_fault_status	0	1	0		false	

Batch Publish Export

Cancel Edit

1. Click **Edit** in the points view to enter batch edit mode for all points.

Norton creek solar energy center Online

admin

Points Table

modified added deleted invalid

Import

Point ID	Point Name	Scale	Offset	Unit	Reverse	
1	System_Fault_status	1	0		false	
2	System_ON/OFF_status	1	0		false	
3	Electrical_room_fan_stop	1	0		false	
4	Ac_bus_switch_closed	1	0		false	
5	Rack_DC_switch_1_closed	1	0		false	
6	AC_module_01_online_status	1	0		false	
7	AC_module_01_ON/OFF_status	1	0		false	
8	AC_module_01_alarm_status	1	0		false	
9	AC_module_01_fault_status	1	0		false	

Cancel Edit

2. During editing, you can filter by status (only within the current point-type table):

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- **modified**: Filters points that were actually modified. Modified rows are shown in blue, and modified data is highlighted in blue.

2	System_ON/OFF_status	-	3	0	false		
---	----------------------	---	---	---	-------	--	--

- **added**: Filters points added via the add operation. Added rows and data are shown in green.

1782	test	-	1	0	false		
------	------	---	---	---	-------	--	--

- **deleted**: Filters points deleted via the delete operation. Deleted rows and data are shown in red.

1	System_Fault_status	-	1	0	false		
---	---------------------	---	---	---	-------	--	--

- **invalid**: Filters points with issues after add/modify. Problematic rows show orange markers with a dark red background.

1	test test required and cannot contain spaces	-	1	0	false		
---	---	---	---	---	-------	--	--

Point configuration rules:

- `point_id` : Positive integer (required, unique)
- `signal_name` : String, no spaces allowed (required)
- `scale` : Numeric (required)
- `offset` : Numeric (required)
- `unit` : String (optional)
- `reverse` : true/false (required)

Note: Point edits follow batch-edit principles. Make all changes locally first, then click Submit only after all changes are complete and error-free. The same applies to later mapping edits.

Import Points from a File

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The screenshot shows the MONARCH software interface with the title "Norton creek solar energy center". In the top right, there is a message "Successfully imported 764 points". Below the title, there is a weather icon showing wind at 67°F~79°F. On the left, there is a sidebar with icons for Home, Devices, Alarm, Control, Statistics, Setting (which is selected), System Setting, User Management, and Configuration. The main area displays a "Points Table" modal. The table has tabs for "telemetry", "signal", "control", and "adjustment", with "telemetry" selected. It includes columns for Point ID, Point Name, Scale, Offset, Unit, Reverse, and checkboxes for modified, added, deleted, and invalid status. A file path "PCS_1_telemetry_20251229080256.csv" is shown above the import button. The import button is highlighted with a red arrow. At the bottom of the modal are "Cancel Edit" and "Submit" buttons.

1. Click **Import**, choose a **.csv** file to import. File requirements differ by point type:

- telemetry/adjustment
 - Required headers (**must include the following; extra headers are ignored**):

```
point_id,signal_name,scale,offset,unit,reverse
```

- Field descriptions: follow the point configuration rules
- Format screenshot:

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point_id	point_name	scale	offset	unit	reverse	
1	System_Fault_status	1	0		FALSE	
2	System_ON/OFF_status	1	0		FALSE	
3	Electrical_room_fan_stop	1	0		FALSE	
4	Ac_bus_switch_closed	1	0		FALSE	
5	Rack_DC_switch_1_closed	1	0		FALSE	
6	AC_module_01_online_status	1	0		FALSE	
7	AC_module_01_ON/OFF_status	1	0		FALSE	
8	AC_module_01_alarm_status	1	0		FALSE	
9	AC_module_01_fault_status	1	0		FALSE	
10	EPO	1	0		FALSE	
11	CAN_A_comm._Fault	1	0		FALSE	
12	Module_Fan_fault_1	1	0		FALSE	
13	Module_over_temperature_1	1	0		FALSE	
14	Temp._sensor_1_fault	1	0		FALSE	
15	Bms_dry_contact_fault	1	0		FALSE	
16	Module_over_current_fault_1	1	0		FALSE	
17	Module_current_abnormal_1	1	0		FALSE	
18	DC_input_over_voltage	1	0		FALSE	
19	DC_bus_over_voltage	1	0		FALSE	
20	AC_bus_over_voltage	1	0		FALSE	
21	Off-grid_Volt_abnormal	1	0		FALSE	
22	Module_temperature	1	0		FALSE	
23	Ambient_temperature	1	0		FALSE	
24	Cabinet_temperature	1	0		FALSE	
25	Nominal_online_capacity	0.1	0	kVA	FALSE	
26	Total_PF_of_AC_bus	1	0		FALSE	
27	L1_PF_of_AC_bus	1	0		FALSE	
28	L2 PF of AC bus	1	0		FALSE	

- signal/control
- Required headers (must include the following; extra headers are ignored):

point_id,point_name,reverse

- Field descriptions: follow the point configuration rules.
- Format screenshot:

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point_id	point_name	reverse
1	Grid_interconnection_mode	FALSE
2	Advanced_control_commands_1_bit0	FALSE
3	Advanced_control_commands_1_bit1	FALSE
4	Energy_dispatching_mode	FALSE
5	Active_power_control_mode	FALSE
6	Reactive_power_control_mode	FALSE
7	DC_control_mode	FALSE
8	Control_mode	FALSE
9	Bms_protocol	FALSE
10	Start_up_mode	FALSE
11	Input_dry_contact_A_custom_function	FALSE
12	Input_dry_contact_B_custom_function	FALSE
13	Input_dry_contact_C_custom_function	FALSE
14	Input_dry_contact_D_custom_function	FALSE
15	Output_dry_contact_A_custom_function	FALSE
16	Power_change_mode	FALSE
17	Anti-islanding_enable	FALSE
18	FVRT_mode	FALSE
19	Permit_service	FALSE
20	FVRT_power_mode	FALSE
21	Off-grid_Volt_startup_mode	FALSE
22	Power_priority_mode	FALSE
23	Micro-grid_power_supply_mode	FALSE
24	Limit_export_function	FALSE
25	Capacity_ratio_limits_function	FALSE
26	Q(U)_reactive_power_limit_mode	FALSE
27	RTU_Baud_rate	FALSE
28	Rated Freqauency	FALSE

Note:

- All imported records are rendered as "added" (green highlight). Even with validation errors, records are imported but marked as "invalid" so you can fix them in the UI.
- Each import overwrites the current point information.

Add Points

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Points Table

Point ID	Point Name	Scale	Offset	Unit	Reverse
768	Enter signal name	1	0	Enter unit	false
767	test	1	0		false
1	System_Fault_status	1	0		false
2	System_ON/OFF_status	1	0		false
3	Electrical_room_fan_stop	1	0		false
4	Ac_bus_switch_closed	1	0		false
5	Rack_DC_switch_1_closed	1	0		false
6	AC_module_01_online_status	1	0		false
7	AC_module_01_ON/OFF_status	1	0		false

1. Click the **Add** icon button to create an editable row at the top of the current point-type table.
2. Fill in the row according to the configuration rules.
3. Click the **checkmark** icon to confirm the local add.
4. Click the **X** icon to cancel the local add.
5. After confirmation, the new row appears as shown and can be filtered by **added**.

Note: Each tab allows only one pending add at a time. A new add row appears only after the previous add is confirmed or canceled. If a pending add row exists, clicking Add again will not create another row.

Delete Points

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Points Table

telemetry	signal	control	adjustment	modified	added	deleted	invalid
767	test	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	System_Fault_status	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/> 	<input type="checkbox"/> 
2	System_ON/OFF_status	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Electrical_room_fan_stop	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Ac_bus_switch_closed	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Rack_DC_switch_1_closed	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	AC_module_01_online_status	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	AC_module_01_ON/OFF_status	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	AC_module_01_alarm_status	1	0	false	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Click the **delete** icon for the target row to delete it locally.
2. Deleted rows appear as shown and can be filtered by **deleted**.
3. Click the restore icon to undo the local delete.

Modify Points

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Point ID	Point Name	Scale	Offset	Unit	Reverse
767	test	1	0	Enter unit	false
1	System_Fault_status	2	0		false
2	System_ON/OFF_status	2	0	Enter unit	false
3	Electrical_room_fan_stop	1	0		false
4	Ac_bus_switch_closed	1	0		false
5	Rack_DC_switch_1_closed	1	0		false
6	AC_module_01_online_status	1	0		false
7	AC_module_01_ON/OFF_status	1	0		false
8	AC_module_01_alarm_status	1	0		false

1. Click the **edit** icon for the target point to modify it.
2. Modify according to the configuration rules. For existing points, the ID cannot be changed.
3. For newly added points, the ID can be changed.
4. Click the **confirm** icon to save the local modification.
5. Click the **cancel** icon to cancel the modification.
6. Modified rows appear as shown, with changed data marked in blue and filterable by **modified**.

Submit All Changes

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The screenshot shows the MONARCH software interface with the title "Norton creek solar energy center". The main menu on the left includes Home, Devices, Alarm, Control, Statistics, Setting (which is selected), System Setting, User Management, and Configuration. The central window is titled "Points Table" and has tabs for telemetry, signal, control, and adjustment. The telemetry tab is selected. A search bar for "Point Name" is present. The table lists a single point with the following data:

Point ID	Point Name	Scale	Offset	Unit	Reverse
	test	1	0		false

A red box highlights the row for "test". A red arrow labeled "1" points to the "Submit" button at the bottom right of the table. Another red arrow labeled "2" points to the "Cancel Edit" button next to it. A third red arrow labeled "3" points to the error message "must positive integer" located below the table.

1. Before submission, ensure all modified point data is valid. Errors appear below invalid data.
2. Click **Submit** to submit the batch changes.
3. Click **Cancel Edit** to exit edit mode and restore the original point data.

Note: You do not need to run a manual search. After clicking Submit, if issues exist you can jump directly to them.

Export Point CSV Files

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Norton creek solar energy center Online

Points Table

telemetry	signal	control	adjustment				
Point Name: <input type="text" value="Search Point Name"/>							
<input type="button" value="Batch Publish"/> <input type="button" value="Export"/>							
Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_Fault_status	12	1	0		false	<input checked="" type="checkbox"/> Publish
2	System_ON/OFF_status	1	1	0		false	<input checked="" type="checkbox"/> Publish
3	Electrical_room_fan_stop	108	1	0		false	<input checked="" type="checkbox"/> Publish
4	Ac_bus_switch_closed	513	1	0		false	<input checked="" type="checkbox"/> Publish
5	Rack_DC_switch_1_closed	0	1	0		false	<input checked="" type="checkbox"/> Publish
6	AC_module_01_online_status	3	1	0		false	<input checked="" type="checkbox"/> Publish
7	AC_module_01_ON/OFF_status	0	1	0		false	<input checked="" type="checkbox"/> Publish
8	AC_module_01_alarm_status	3	1	0		false	<input checked="" type="checkbox"/> Publish
9	AC_module_01_fault_status	0	1	0		false	<input checked="" type="checkbox"/> Publish

Click **Export** to export the table data under the current tab as **.csv**. The filename format is: **channel name + tab name (telemetry/signal/control/adjustment) + current timestamp**.

Channel Point Mapping Configuration

Batch Edit Point Mappings

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Norton creek solar energy center Online

MONARCH

- Home
- Devices
- Alarm
- Control
- Statistics
- Setting
- System Setting
- User Management
- Configuration

Mappings Table

telemetry	signal	control	adjustment						View Mode: Points Mappings
				Point Name:	Search Point Name				Export
1	System_Fault_status	1	3	32	uint16	AB	0		
2	System_ON/OFF_status	1	3	33	uint16	AB	0		
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0		
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0		
5	Rack_DC_switch_1_closed	1	3	43	uint16	AB	0		
6	AC_module_01_online_status	1	3	90	uint16	AB	0		
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0		
8	AC_module_01_alarm_status	1	3	92	uint16	AB	0		
9	AC_module_01_fault_status	1	3	93	uint16	AB	0		

Cancel Edit

1. In the **mappings** view, click **Edit** to enter mapping edit mode.

Norton creek solar energy center Online

MONARCH

- Home
- Devices
- Alarm
- Control
- Statistics
- Setting
- System Setting
- User Management
- Configuration

Mappings Table

telemetry	signal	control	adjustment						Import
				Point Name:	Search Point Name				<input type="checkbox"/> modified <input type="checkbox"/> invalid
1	System_Fault_status	1	3	32	uint16	AB	0	<input checked="" type="checkbox"/>	
2	System_ON/OFF_status	1	3	33	uint16	AB	0	<input checked="" type="checkbox"/>	
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0	<input checked="" type="checkbox"/>	
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0	<input checked="" type="checkbox"/>	
5	Rack_DC_switch_1_closed	1	3	43	uint16	AB	0	<input checked="" type="checkbox"/>	
6	AC_module_01_online_status	1	3	90	uint16	AB	0	<input checked="" type="checkbox"/>	
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0	<input checked="" type="checkbox"/>	
8	AC_module_01_alarm_status	1	3	92	uint16	AB	0	<input checked="" type="checkbox"/>	

Cancel Edit Submit

2. During editing, you can filter changes by:

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- **modified:** Filters points that were actually modified. Modified rows are shown in blue, and modified data is highlighted in blue.

1	Total_Start	2	16	1001	bool	AB	<input checked="" type="checkbox"/>
---	-------------	---	----	------	------	----	-------------------------------------

- **invalid:** Filters points with issues after add/modify. Problematic rows show orange markers with a dark red background.

1	System_Fault_status	-1 must be 1-247	3	4	5 not allowed	1 not allowed	2	<input checked="" type="checkbox"/>
---	---------------------	---------------------	---	---	------------------	------------------	---	-------------------------------------

Point mapping rules (mapping fields differ by channel type):

modbus_rtu/modbus_tcp:

- **Function Code:**

depends on point type (four-remote):

- **telemetry:** 3, 4
- **signal:** 1, 2, 3, 4
- **control:** 5, 15, 6, 16
- **adjustment:** 6, 16

- **Data Type:**

- **telemetry:** int16, uint16, int32, float32, uint32, int64, uint64, float64
- **signal:** same as telemetry, plus bool
- **control:** same as telemetry, plus bool
- **adjustment:** same as telemetry

- **Byte Order:**

options depend on data length:

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- **bool:** no restriction
- **16-bit:** AB, BA
- **32-bit:** AB, BA, ABCD, DCBA, BADC, CDAB
- **64-bit:** adds ABCDEFGH, HGFEDCBA, BADCFEHG, GHEFCDAB to the 32-bit list
- **Bit Position:** Editable only when dataType is bool with functionCode 3/4, or for 16-bit integers (0-15). Other types are fixed at 0.

Import Point Mappings from File

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position	Operation
1	System_Fault_status	1	3	32	uint16	AB	0	<input checked="" type="checkbox"/>
2	System_ON/OFF_status	1	3	33	uint16	AB	0	<input checked="" type="checkbox"/>
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0	<input checked="" type="checkbox"/>
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0	<input checked="" type="checkbox"/>
5	Rack_DC_switch_1_close_d	1	3	43	uint16	AB	0	<input checked="" type="checkbox"/>
6	AC_module_01_online_st atus	1	3	90	uint16	AB	0	<input checked="" type="checkbox"/>
7	AC_module_01_ON/OFF_s tatus	1	3	91	uint16	AB	0	<input checked="" type="checkbox"/>
8	AC_module_01_alarm_sta	1	3	92	uint16	AB	0	<input checked="" type="checkbox"/>

1. Click **Import** and select a CSV file to import. Requirements differ by channel type:

- **modbus_rtu/modbus_tcp**

- Required headers:

```
point_id,slave_id,function_code,register_address,data_type,byte_order,bit_position
```

- Field descriptions: follow the point configuration rules.

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- Format screenshot:

point_id	point_name	reverse
1	Grid_interconnection_mode	FALSE
2	Advanced_control_commands_1_bit0	FALSE
3	Advanced_control_commands_1_bit1	FALSE
4	Energy_dispatching_mode	FALSE
5	Active_power_control_mode	FALSE
6	Reactive_power_control_mode	FALSE
7	DC_control_mode	FALSE
8	Control_mode	FALSE
9	Bms_protocol	FALSE
10	Start_up_mode	FALSE
11	Input_dry_contact_A_custom_function	FALSE
12	Input_dry_contact_B_custom_function	FALSE
13	Input_dry_contact_C_custom_function	FALSE
14	Input_dry_contact_D_custom_function	FALSE
15	Output_dry_contact_A_custom_function	FALSE
16	Power_change_mode	FALSE
17	Anti-islanding_enable	FALSE

- **di_do**

- Required headers:

`point_id, gpio_number`

- Field descriptions: follow the point configuration rules.
- Format screenshot:

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point_id	gpio_number
1	504
2	505
3	506
4	507
5	508
6	509
7	510
8	511

Note:

- When modifying instance point mappings by import, the imported data overwrites the current mapping information.
- During import, points are matched by point ID. If a point ID does not exist on the page, it is ignored. If duplicate mappings exist, the later one is used.

Manually Edit Point Mappings

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Mappings Table

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position	Operation
1	System_Fault_status	1	3	32	uint16	AB	0	<input checked="" type="checkbox"/> <input type="checkbox"/>
2	System_ON/OFF_status	1	3	33	uint16	AB	0	<input type="checkbox"/>
3	Electrical_room_fan_stop	2	3	36	uint16	AB	0	<input checked="" type="checkbox"/>
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0	<input type="checkbox"/>
5	Rack_DC_switch_1_close	1	3	43	uint16	AB	0	<input type="checkbox"/>
6	AC_module_01_online_status	1	3	90	uint16	AB	0	<input type="checkbox"/>
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0	<input type="checkbox"/>
8	AC_module_01_alarm_sta	1	3	92	uint16	AB	0	<input type="checkbox"/>

1. Click the **edit icon** for the target point mapping to modify it.
2. Modify according to the mapping rules. For existing points, the ID cannot be changed.
3. Click the **confirm icon** to save the local change.
4. Click the **cancel icon** to cancel.
5. Modified rows appear as shown, with changed data marked in blue and filterable by **modified**.

Submit All Changes

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Point ID	Signal Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position	Operation
1	System_Fault_status	-1 must be 1-247	3	4	5 not allowed	1 not allowed	2	<input checked="" type="checkbox"/>

1. Before submission, ensure all mapping data is valid. Errors appear below invalid data.
2. Click **Submit** to submit the batch changes.
3. Click **Cancel Edit** to exit edit mode and restore the original mapping data.

Note: You do not need to run a manual search. After clicking Submit, if issues exist you can jump directly to them.

Export Point Mapping CSV Files

CONNECTING POWER

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Mappings Table

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position
1	System_Fault_status	1	3	32	uint16	AB	0
2	System_ON/OFF_status	1	3	33	uint16	AB	0
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0
5	Rack_DC_switch_1_closed	1	3	43	uint16	AB	0
6	AC_module_01_online_status	1	3	90	uint16	AB	0
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0
8	AC_module_01_alarm_status	1	3	92	uint16	AB	0
9	AC_module_01_fault_status	1	3	93	uint16	AB	0

1. Click **Export** to export the table data for the current point type as **.csv**. The filename format is:
channel name + tab name (telemetry/signal/control/adjustment) + "_mapping" + current timestamp.

Device Instance Configuration

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The screenshot shows the MONARCH software interface for managing device instances. The top navigation bar includes the MONARCH logo, the system name "Norton creek solar energy center", an "Online" status indicator, weather information (wind 67°F~79°F), user "admin", and a notification bell.

The left sidebar menu has the following items: Home, Devices, Alarm, Control, Statistics, and Setting (which is currently selected). Under Setting, there are sub-options: System Setting, User Management, and Configuration.

The main content area displays a table of device instances:

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Disconnected	<input type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Disconnected	<input type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete
4	ECU1170_GPIO	ECU-1170 本机 DI/DO	di_do	<input type="checkbox"/>	Disconnected	<input type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete

At the bottom right of the main area, there are buttons for "Total 4", "20/page", and page navigation (1, >).

This chapter includes: instance management, instance point configuration, and instance point routing configuration.

Instance Management

Query Device Instances

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Norton creek solar energy center Online

Wind 67°F~79°F

Setting

ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
2	diesel_gen_01	diesel_generator	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
3	pcs_01	pcs	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
4	pv_01	pv_inverter	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>

Total 4 20/page < 1 >

1. You can filter instances by:

- **Product_Name** : The product name of the instance.

1. Click **Search** to filter.

2. Click **Reload** to reset.

Add a Device Instance

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productName: Please select productName

ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	Detail Points Delete
2	diesel_gen_01	diesel_generator	Detail Points Delete
3	pcs_01	pcs	Detail Points Delete
4	pv_01	pv_inverter	Detail Points Delete

Total 4 20/page 1 >

1. Click **New Instance** to open the add dialog.

Norton creek solar energy center Online

Device Instance Detail

Basic Information

- Instance Name:
- Product Name:

Properties:

Key	:	Value	Delete
Key	:	Value	Delete

6 5 4 3 2

Cancel Submit

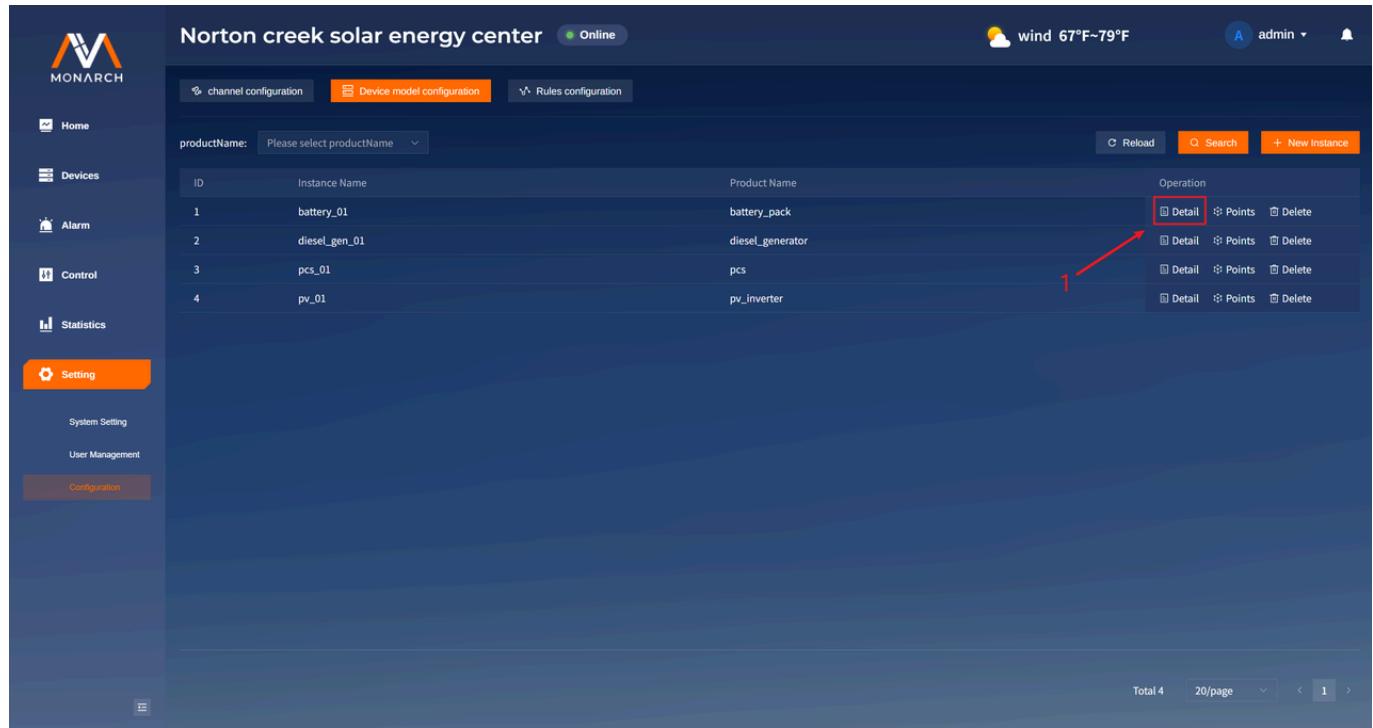
2. Enter the required parameters. Refer to the instance field definitions in the basic concepts.

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3. Click the add property icon to add a property value.
4. Click the delete property icon to remove a property value.
5. Click **Submit** to create the instance.
6. Click **Cancel** to cancel.

View Device Instance Details



The screenshot shows the MONARCH platform interface for managing device instances. The top navigation bar includes the 'Norton creek solar energy center' name, an 'Online' status indicator, weather information ('wind 67°F~79°F'), and user authentication ('admin'). The left sidebar has a 'Setting' section selected, containing 'System Setting', 'User Management', and 'Configuration'. The main content area displays a table of device instances:

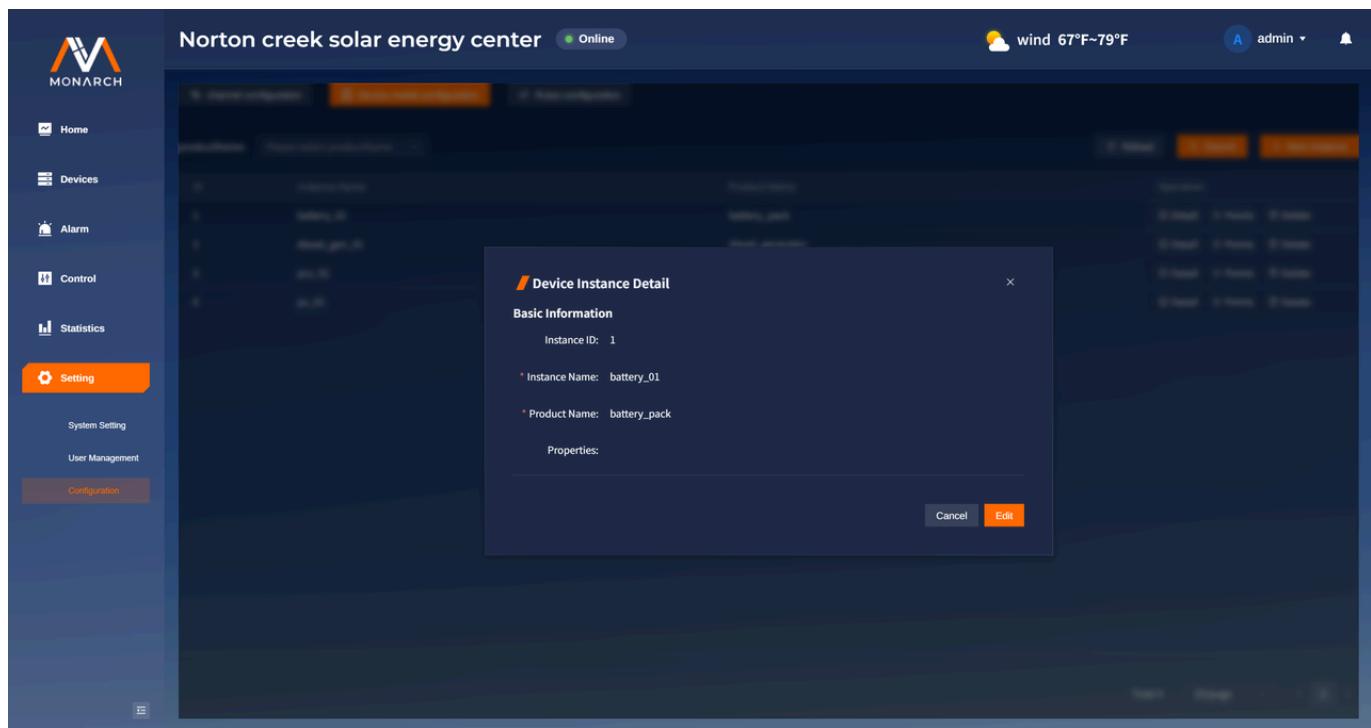
ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	[Detail] [Points] [Delete]
2	diesel_gen_01	diesel_generator	[Detail] [Points] [Delete]
3	pcs_01	pcs	[Detail] [Points] [Delete]
4	pv_01	pv_inverter	[Detail] [Points] [Delete]

At the bottom right of the table, there are pagination controls: 'Total 4', '20/page', and page numbers '1 >'. A red arrow points to the 'Detail' button for the first instance (battery_01).

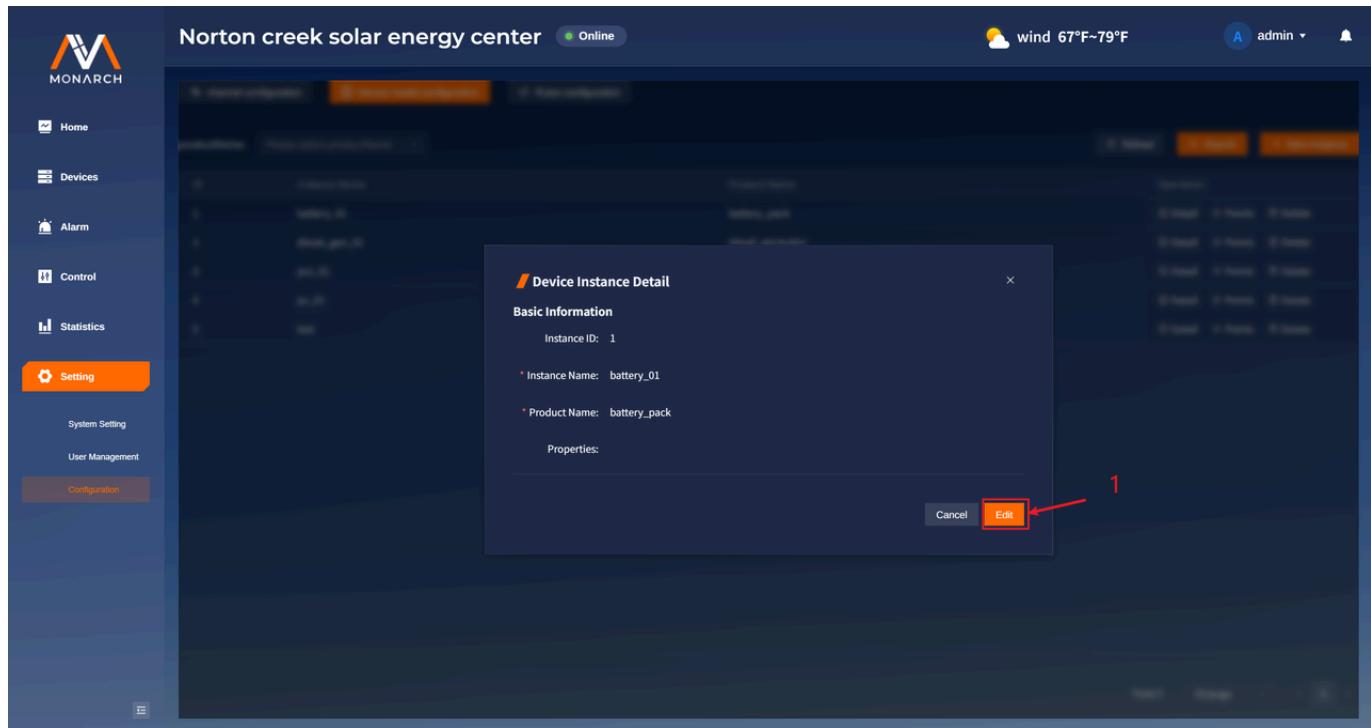
1. Click **Detail** in the **Operation** column to open the instance details dialog.

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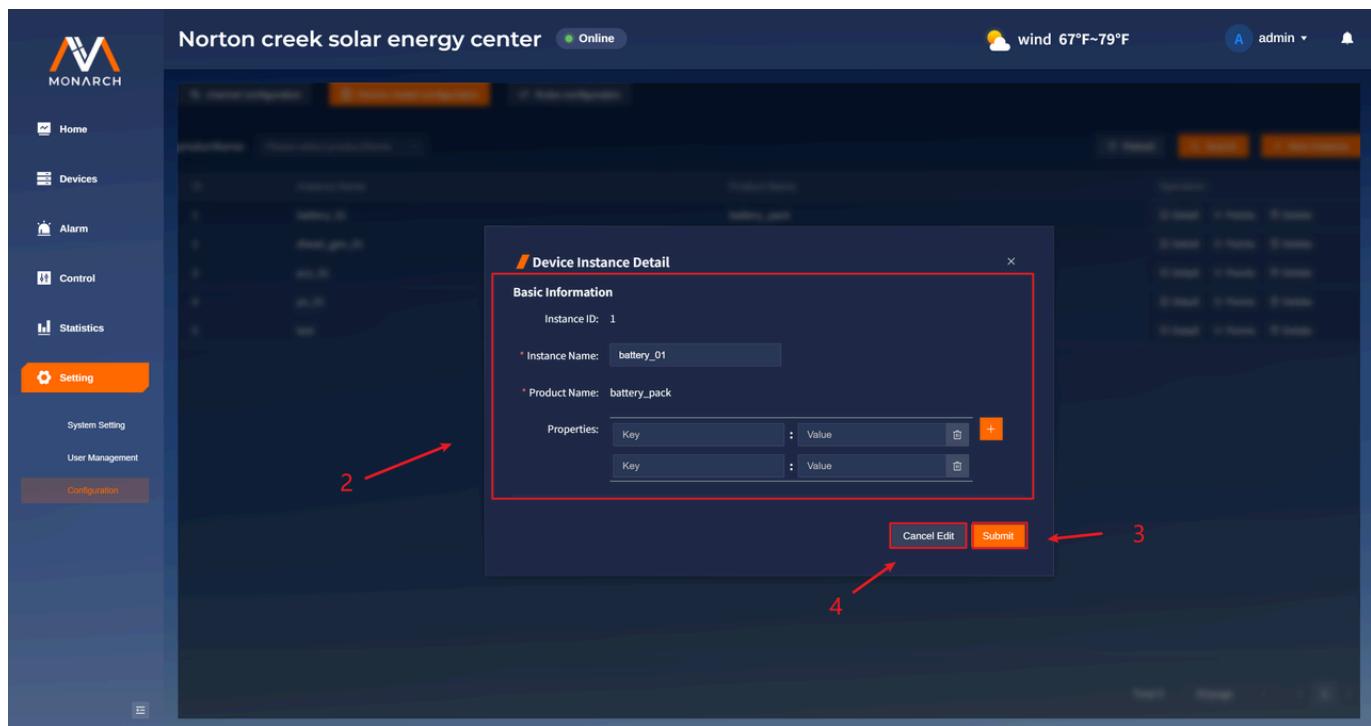
Edit Device Instances



1. In the instance details dialog, click **Edit** to enter edit mode.

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2. During editing, **Product Name** cannot be changed; other fields are the same as in add.
3. Click **Submit** to save changes.
4. Click **Cancel Edit** to cancel.

Delete Device Instances

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Norton creek solar energy center Online

productName: Please select productName

ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
2	diesel_gen_01	diesel_generator	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
3	pcs_01	pcs	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
4	pv_01	pv_inverter	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
5	test	battery_cell	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete

Total 5 20/page 1 >

1. Click **Delete** in the **Operation** column for the target device instance row.

Norton creek solar energy center Online

productName: Please select productName

ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
2	diesel_gen_01	diesel_generator	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
3	pcs_01	pcs	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
4	pv_01	pv_inverter	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete
5	test	battery_cell	<input type="checkbox"/> Detail <input type="checkbox"/> Points <input type="checkbox"/> Delete

Delete Instance

Are you sure you want to delete instance "test"?

Total 5 20/page 1 >

2. Click **Confirm** to delete.

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3. Click **Cancel** to cancel.

Instance Point Configuration

ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
2	diesel_gen_01	diesel_generator	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
3	pcs_01	pcs	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
4	pv_01	pv_inverter	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
5	test	battery_cell	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>

1. Click **Points** in the **Operation** column of the target instance row to open the points dialog.

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Point ID	Point Name	Value	Unit	Description	Operation
1	Pack Voltage	0	V		Execute
2	Pack Current	0	A		Execute
3	SOC	0	%		Execute
4	SOH	0	%		Execute
5	Cell Voltages Array	0	V		Execute
6	Cell Temperatures Array	0	°C		Execute
7	Max Cell Voltage	0	V		Execute
8	Min Cell Voltage	0	V		Execute
9	Average Cell Voltage	0	V		Execute

2. The **View Mode** selector switches between point view and routing view (default is point view).
3. Use the tabs to switch point types. In point view there are three tabs: **Property**, **measurement**, **action**.
4. The point filter box supports fuzzy search by name or precise search via dropdown selection.
5. **Export** exports the current point-type table as CSV.
6. **Execute** issues a point command.
7. **Cancel** closes the dialog.

Issue Point Commands

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Norton creek solar energy center Online

Points Table

Point ID	Point Name	Value	Unit	Description	Operation
1	Enable Pack	10			Execute
2	Disable Pack	-			Execute
3	Start Cell Balancing	-			Execute
4	Stop Cell Balancing	-			Execute

View Mode: Points Routing

Export

Cancel

1. Click **Execute** in the **Operation** column for the target point to open the execute dialog.

Norton creek solar energy center Online

Execute

* Value: 20

Cancel Submit

2. Enter the value to execute (numeric).

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3. Click **Submit** to submit.

4. Click **Cancel** to cancel.

Point ID	Point Name	Value	Unit	Description	Operation
1	Enable Pack	20	-		<input type="checkbox"/> Execute
2	Disable Pack	-	-		<input type="checkbox"/> Execute
3	Start Cell Balancing	-	-		<input type="checkbox"/> Execute
4	Stop Cell Balancing	-	-		<input type="checkbox"/> Execute

5. After successful submission, the value changes.

Export Point CSV Files

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Norton creek solar energy center Online

Points Table

property	measurement	action			
Point Name:	Search Point Name				
Point ID	Point Name	Value	Unit	Description	Operation
1	Enable Pack	10			
2	Disable Pack	-			
3	Start Cell Balancing	-			
4	Stop Cell Balancing	-			

View Mode: Points Routing

1 Export

Cancel

1. Click **Export** to export the current table data. The CSV filename format is: **instance name_point type (property/measurement/action)_points_timestamp.csv**. The exported file looks like:

A	B	C	D	E
1	point_id point_name	value	unit	description
2	1 Enable Pack			
3	2 Disable Pack			
4	3 Start Cell Balancing			
5	4 Stop Cell Balancing			
6				
7				
8				
9				

Instance Point Routing Configuration

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Norton creek solar energy center Online

Wind 67°F~79°F admin

Routings Table

Point ID	Point Name	Channel	Point Type	Point	Enabled
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true
3	SOC	BAMS#1	Telemetry	BamsPower	true
4	SOH	BAMS#1	Telemetry	BamsSoc	true
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true

Cancel Edit

1. Switch to **Routing** in **View Mode** to open the instance point routing view.

2. Click **Edit** to enter routing edit mode.

Note: Property points are inherent product attributes and do not require routing to channel points, so only measurement and action types appear in routing.

Export Point Routing CSV Files

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The screenshot shows the MONARCH software interface with the title 'Norton creek solar energy center' and status 'Online'. On the left, there's a sidebar with navigation options: Home, Devices, Alarm, Control, Statistics, Setting (which is selected), System Setting, User Management, and Configuration. The main area displays a 'Routings Table' modal. The table lists various telemetry points from a BAMS#1 channel, categorized by point type (Telemetry). The 'Enabled' column shows all entries as true. At the bottom right of the modal, there are 'Cancel' and 'Edit' buttons, and an 'Export' button which is highlighted with an orange arrow.

Point ID	Point Name	Channel	Point Type	Point	Enabled
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true
3	SOC	BAMS#1	Telemetry	BamsPower	true
4	SOH	BAMS#1	Telemetry	BamsSoc	true
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true

1. Click **Export** to export the current table data. The CSV filename format is: **instance name_point type(measurement/action)_routing_timestamp.csv**. Example:

A	B	C	D	E	F	G	H
point_id	point_name	channel_id	channel_name	channel_point_type	channel_point_id	channel_point_name	enabled
1	Pack Voltage	2	BAMS#1	T		1 BamsVoltage	TRUE
2	Pack Current	2	BAMS#1	T		2 BamsCurrent	TRUE
3	SOC	2	BAMS#1	T		3 BamsPower	TRUE
4	SOH	2	BAMS#1	T		4 BamsSoc	TRUE
5	Cell Voltages Array	2	BAMS#1	T		5 BamsSoh	TRUE
6	Cell Temperatures Array	2	BAMS#1	T		6 BamsPermitChgPower	TRUE
7	Max Cell Voltage	2	BAMS#1	T		7 BamsPermitDsgPower	TRUE
8	Min Cell Voltage	2	BAMS#1	T		8 BamsPermitChgCurrent	TRUE
9	Average Cell Voltage	2	BAMS#1	T		9 BamsPermitDsgCurrent	TRUE
10	Cell Voltage Imbalance	2	BAMS#1	T		10 BamsBcuSocDiff	TRUE
11	Max Cell Temperature	2	BAMS#1	T		11 BamsBcuMinSoc	TRUE
12	Min Cell Temperature	2	BAMS#1	T		12 BamsBcuMinSocNo	TRUE
13	Balancing Status Array	2	BAMS#1	T		13 BamsBcuMaxSoc	TRUE
14	Protection Status	2	BAMS#1	T		14 BamsBcuMaxSocNo	TRUE
15	Cell Count	2	BAMS#1	T		15 BamsMaxCellVol	TRUE
16							
17							
18							
19							
20							
21							
22							
23							
24							

In the exported file, **point_type** uses abbreviations: **T = Telemetry, S = Signal, C = Control, A = Adjustment.**

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Batch Edit Instance Point Routing

Norton creek solar energy center Online

Wind 67°F~79°F admin Notification

Routings Table

Point ID	Point Name	Channel	Point Type	Point	Enabled
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true
3	SOC	BAMS#1	Telemetry	BamsPower	true
4	SOH	BAMS#1	Telemetry	BamsSoc	true
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true

View Mode: Points Routing

Export Import

Cancel Edit

1. Click **Edit** to enter routing edit mode.

Norton creek solar energy center Online

Wind 67°F~79°F admin Notification

Routings Table

Point ID	Point Name	Channel	Channel Point Type	Channel Point	Enabled	Operation
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true	<input checked="" type="checkbox"/>
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true	<input checked="" type="checkbox"/>
3	SOC	BAMS#1	Telemetry	BamsPower	true	<input checked="" type="checkbox"/>
4	SOH	BAMS#1	Telemetry	BamsSoc	true	<input checked="" type="checkbox"/>
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true	<input checked="" type="checkbox"/>
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true	<input checked="" type="checkbox"/>
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true	<input checked="" type="checkbox"/>
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true	<input checked="" type="checkbox"/>
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true	<input checked="" type="checkbox"/>

Import

Cancel Edit Submit

modified invalid

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2. During editing, you can filter by:

- **modified:** Filters points that were actually modified. Modified rows are shown in blue, and modified data is highlighted in blue.

2	Pack Current	PCS#1	Telemetry	System_ON/OFF_status	true	<input checked="" type="checkbox"/>
---	--------------	-------	-----------	----------------------	------	-------------------------------------

- **invalid:** Filters points with issues after add/modify. Problematic rows show orange markers with a dark red background.

1	Pack Voltage	999 Does not exist	Telemetry	1 Does not exist	true	<input checked="" type="checkbox"/>
---	--------------	-----------------------	-----------	---------------------	------	-------------------------------------

Point routing configuration rules:

- **Channel** is the channel that hosts the channel point mapped to the instance point.
- **Channel Point Type** is the four-remote type of the mapped channel point. Available values depend on the channel protocol:
 - For modbus_rtu and modbus_tcp channels: for measurement points, Channel Point Type can only be Telemetry or Signal; for action points, it can only be Control or Adjustment.
 - For di_do channels: for measurement points, Channel Point Type can only be Signal; for action points, it can only be Control.
- **Channel Point** is the channel point mapped to the instance point.
- The three fields must be selected in order: Channel -> Channel Point Type -> Channel Point.

Manually Edit Routing

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Point ID	Point Name	Channel	Channel Point Type	Channel Point	Enabled	Operation
1	Pack Voltage	BAMS#1	Telemetry	BamsCurrent	true	<input checked="" type="checkbox"/>
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
3	SOC	BAMS#1	Telemetry	BamsPower	true	<input checked="" type="checkbox"/>
4	SOH	BAMS#1	Telemetry	BamsSoc	true	<input checked="" type="checkbox"/>
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true	<input checked="" type="checkbox"/>
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true	<input checked="" type="checkbox"/>
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true	<input checked="" type="checkbox"/>
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true	<input checked="" type="checkbox"/>
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true	<input checked="" type="checkbox"/>

1. Click the **edit icon** for the target routing row.
2. Modify according to the routing rules. For existing points, the ID cannot be changed.
3. Click the **confirm icon** to save the local change.
4. Click the **cancel icon** to cancel.
5. Modified rows appear as shown, with changed data marked in blue and filterable by **modified**.

Import Routing from File

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Point ID	Point Name	Channel	Channel Point Type	Channel Point	Enabled	Operation
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true	<input checked="" type="checkbox"/>
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true	<input checked="" type="checkbox"/>
3	SOC	BAMS#1	Telemetry	BamsPower	true	<input checked="" type="checkbox"/>
4	SOH	BAMS#1	Telemetry	BamsSoc	true	<input checked="" type="checkbox"/>
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true	<input checked="" type="checkbox"/>
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true	<input checked="" type="checkbox"/>
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true	<input checked="" type="checkbox"/>
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true	<input checked="" type="checkbox"/>
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true	<input checked="" type="checkbox"/>

1. Click **Import** and select a **.csv** file. The file must meet the following requirements:

- Required headers (**must include the following; extra headers are ignored**):

`point_id,channel_id,channel_point_type,channel_point_id(enabled)` After import, points are matched to routing info by **point_id**.

- Field descriptions:

- point_id** is the instance point ID. If the point does not exist, the routing is invalid.
- point_name** is the instance point name.
- channel_id** is the ID of the channel containing the mapped channel point. If the channel does not exist, the channel point is considered missing and an error is shown.
- channel_point_type** is the four-remote type of the mapped channel point (T/S/C/A). **It accepts both abbreviations T, S, C, A and full names Telemetry, Signal, Control, Adjustment (case-sensitive).**
- channel_point_id** is the channel point ID. If it does not exist, an error is shown.

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- `enabled` indicates whether the mapping is enabled; accepts `false` or `true`.
- Format screenshot:

point_id	channel_id	channel_point_type	channel_point_id	enabled
1		2 T		1 TRUE
2		2 T		2 TRUE
3		2 T		3 TRUE
4		2 T		4 TRUE
5		2 T		5 TRUE
6		2 T		6 TRUE
7		2 T		7 TRUE
8		2 T		8 TRUE
9		2 T		9 TRUE
10		2 T		10 TRUE
11		2 T		11 TRUE
12		2 T		12 TRUE
13		2 T		13 TRUE
14		2 T		14 TRUE
15		2 T		15 TRUE

Note:

- Importing routing data overwrites the current routing information.
- During import, points are matched by ID. If a point ID does not exist on the page, it is ignored. If duplicates exist, the later one is used.

Submit All Changes

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Point ID	Point Name	Channel	Channel Point Type	Channel Point	Enabled	Operation
1	Pack Voltage	999 Does not exist	Telemetry	1 Does not exist	true	<input checked="" type="checkbox"/>

1. Before submission, ensure the modified data is valid. Errors appear below invalid data.
2. Click **Submit** to submit the batch changes.
3. Click **Cancel Edit** to exit edit mode and restore the original table. **Note: You do not need to run a manual search. After clicking Submit, if issues exist you can jump directly to them.**

Rule Configuration

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ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	<input checked="" type="checkbox"/>	Detail Edit Delete

This chapter includes: basic rule operations and rule flow operations.

Rule Operations

Add a Rule

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Norton creek solar energy center Online

channel configuration Device model configuration Rules configuration

ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	<input checked="" type="checkbox"/>	Detail Edit Delete

Total 1 20/page 1 >

1. Click **New Rule** to open the add dialog.

Norton creek solar energy center Online

channel configuration Device model configuration Rules configuration

Add RuleChain

Name: name

Description: description

Cancel Submit

2. Enter the rule name (required) and description (optional).

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3. Click **Submit** to create the rule.
4. Click **Cancel** to cancel and close the dialog.

Edit a Rule

The screenshot shows the MONARCH software interface for managing rules. The top navigation bar includes the system name "Norton creek solar energy center" and status indicators like "Online", weather ("wind 67°F~79°F"), and user "admin". The left sidebar has a navigation menu with "Setting" selected. The main content area displays a table of rules:

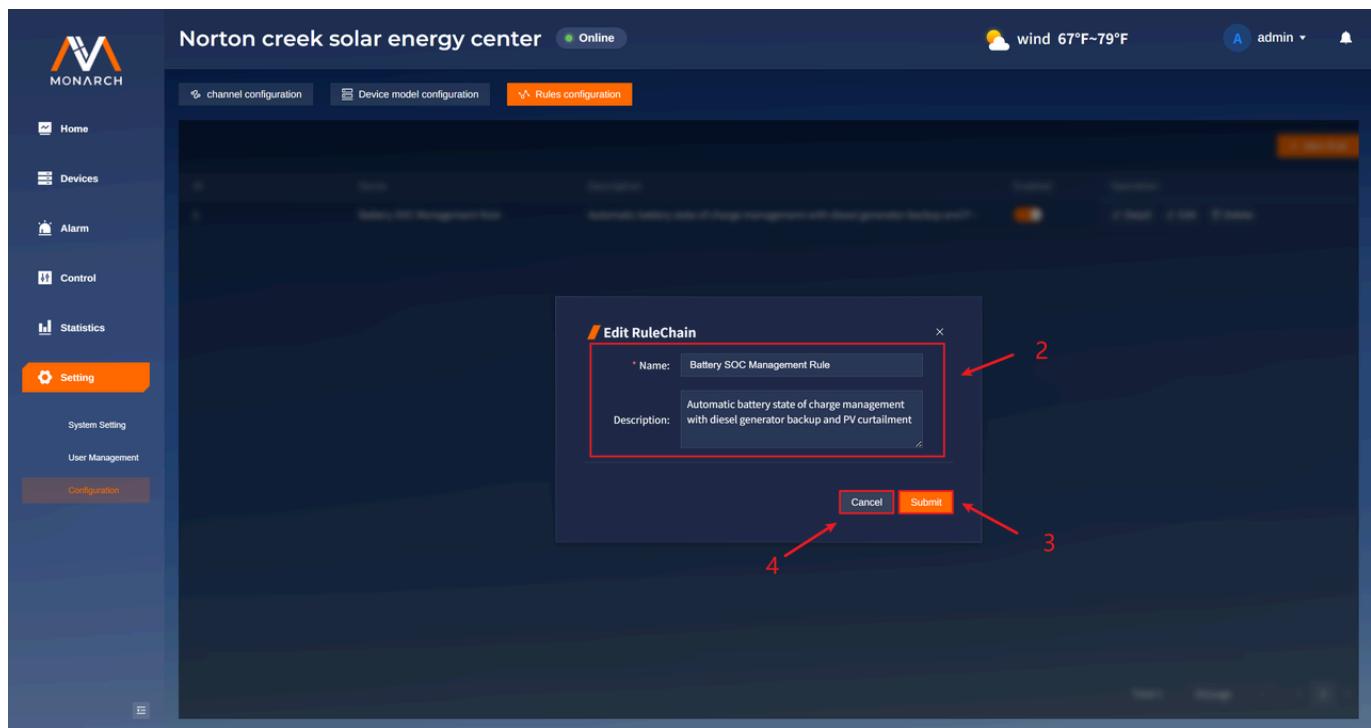
ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	<input checked="" type="checkbox"/>	Detail Edit Delete

At the bottom right of the table, there are pagination controls: "Total 1", "20/page", and page numbers "1 >". A red arrow points to the "Edit" link in the "Operation" column for the first rule.

1. Click **Edit** in the **Operation** column for the target rule to open the edit dialog.

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2. Modify the rule name and description.
3. Click **Submit** to save changes.
4. Click **Cancel** to cancel and close the dialog.

Delete a Rule

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Norton creek solar energy center Online

wind 67°F~79°F admin

channel configuration Device model configuration Rules configuration

ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	<input checked="" type="checkbox"/>	Detail Edit Delete

Total 1 20/page 1 >

1. Click **Delete** in the **Operation** column for the target rule to open the confirmation dialog.

Norton creek solar energy center Online

wind 67°F~79°F admin

channel configuration Device model configuration Rules configuration

ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	<input checked="" type="checkbox"/>	Detail Edit Delete

Delete Confirmation
 Are you sure you want to delete this record?
Cancel Confirm

Total 1 20/page 1 >

2. Click **Confirm** to delete.

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3. Click **Cancel** to cancel.

Rule Flow Operations

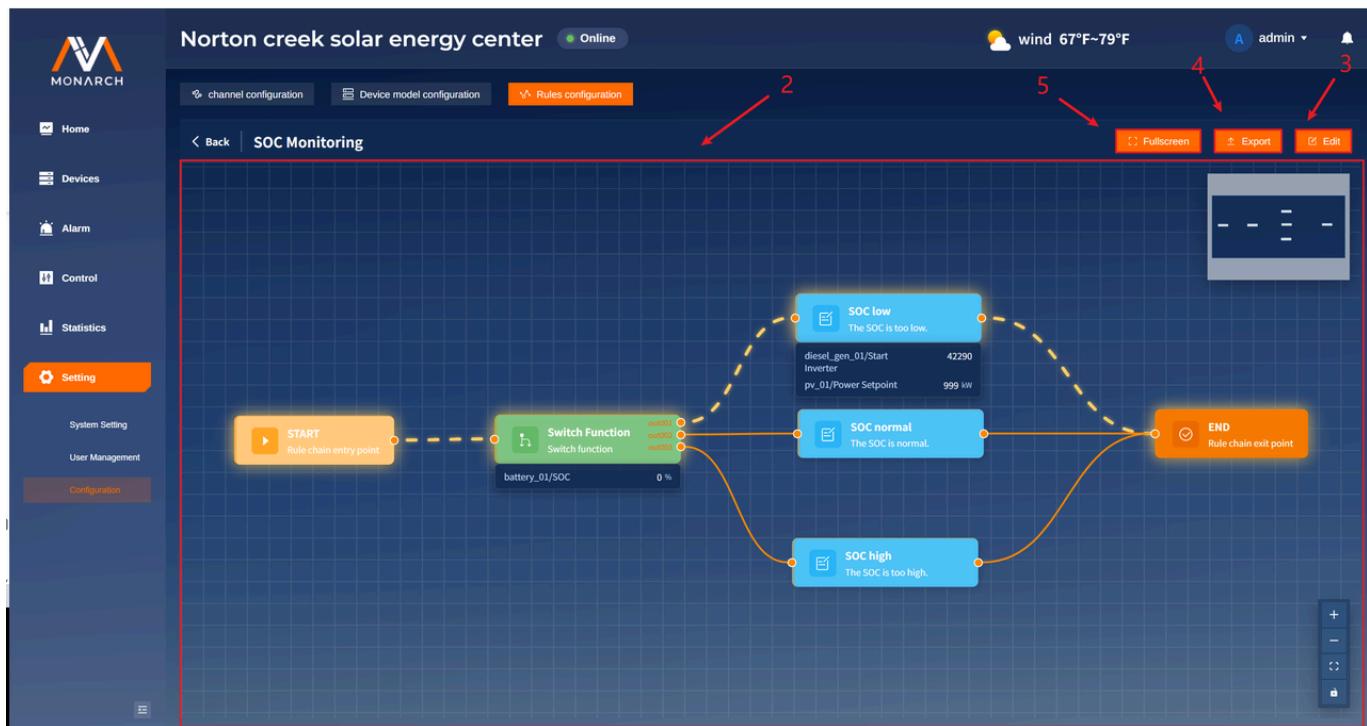
View Rule Flow Details and Real-Time Execution Path

ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	<input checked="" type="checkbox"/>	Detail Edit Delete

1. Click **Detail** in the **Operation** column of the target rule row to navigate to the rule flow details page.

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2. The highlighted path in the flow is the currently executed path. Node data for the current path is displayed below the node.
3. Click **Edit** to enter rule flow edit mode.
4. Click **Export** to export the current rule flow as a **.json** file. The structure is as follows:

```
{
  "cooldown_ms": 5000, // loop interval
  "description": "Control the diesel generators and photovoltaic systems based on the values",
  "enabled": true, // enabled
  "flow_json": { // records point and edge information
    "edges": [ // all edges
      {
        "id": "edge-1766625864321", // edge id
        "source": "start", // source node
        "target": "node-1766625792260", // target node
        "sourceHandle": "right", // output handle id on the source node
        "targetHandle": "left" // input handle id on the target node
    }
  }
}
```

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```

},
.....
],
"nodes": [ // all nodes
{
  "id": "start", // node id
  "type": "start", // start node
  "position": { // position on canvas
    "x": -213, // x coordinate
    "y": 107 // y coordinate
  },
  "data": { // internal data
    "config": { // point config
      "wires": { // output handles and their target node ids (except for special types, o
        "default": [
          "node-1766625792260"
        ]
      }
    },
    "description": "START", // node description
    "id": "start", // node id
    "label": "START", // node title
    "status": "", // node status (reserved)
    "type": "start" // node type
  }
},
{
  "id": "end",
  "type": "end", // end node
  "position": {
    "x": 629,
    "y": 101
  },
  "data": {
    "config": {
      "wires": {
        "default": []
      }
    }
  }
}
]
}

```

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```

    },
    "description": "END",
    "id": "end",
    "label": "END",
    "status": "",
    "type": "end"
}
},
{
  "id": "node-1766625792260",
  "type": "custom", // custom node type
  "position": {
    "x": 25,
    "y": 106
  },
  "data": {
    "cardId": "function-2",
    "config": { // function-switch node, used for conditions
      "rule": [ // output handles and rule conditions
        {
          "name": "out001", // output handle name, matches wires
          "rule": [ // rules
            {
              "operator": "<=", // operator
              "type": "variable", // type for this rule
              "value": 5, // value
              "variables": "X1" // variable name, matches the variables definition
            }
          ],
          "type": "default" // reserved
        },
        {
          "name": "out002",
          "type": "default",
          "rule": [
            {
              "type": "variable",
              "variables": "X1",
            }
          ]
        }
      ]
    }
  }
}

```

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```
        "operator": ">=",
        "value": 49
    },
    {
        "type": "relation", // relation operator to combine rules
        "value": "And" // logical operator
    },
    {
        "type": "variable",
        "variables": "X1",
        "value": 99,
        "operator": "<"
    }
]
},
{
    "name": "out003",
    "type": "default",
    "rule": [
        {
            "type": "variable",
            "variables": "X1",
            "operator": ">",
            "value": 99
        }
    ]
}
],
"variables": [ // parameter definitions
{
    "instance_id": 1, // instance id for the point
    "instance_name": "battery_01", // instance name for the point
    "name": "X1", // default name used in rules
    "pointType": "measurement", // point type
    "point_name": "SOC", // point name
    "type": "single", // parameter type: single or combined
    "unit": "%", // unit
    "point_id": 3, // point id
    "value": 99
}
]
```

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```

        "formula": [] // when combined, records formula definition
    }
],
"wires": { // for function-switch, multiple outputs map to next node ids
    "out001": [
        "node-1766627111063"
    ],
    "out002": [
        "node-1766627120005"
    ],
    "out003": [
        "node-1766627123081"
    ]
}
},
"description": "Switch function",
"id": "node-1766625792260",
"label": "Switch Function",
"type": "function-switch",
"status": ""
}
},
{
"id": "node-1766627111063",
"type": "custom",
"position": {
    "x": 300,
    "y": -5
},
"data": {
    "cardId": "action-1",
    "config": {
        "rule": [ // rule config
            {
                "Variables": "X1", // defined variable
                "value": 42290 // assigned value
            },
            {

```

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```

    "Variables": "X2",
    "value": 999
  },
],
"variables": [
{
  "formula": [],
  "instance_id": 2,
  "instance_name": "diesel_gen_01",
  "name": "X1",
  "pointType": "action",
  "point_id": 1,
  "point_name": "Start Inverter",
  "type": "single",
  "unit": ""

},
{
  "name": "X2",
  "type": "single",
  "instance_id": 4,
  "instance_name": "pv_01",
  "pointType": "action",
  "point_id": 5,
  "point_name": "Power Setpoint",
  "unit": "kW",
  "formula": []
}
],
"wires": {
  "default": [
    "end"
  ]
},
},
"description": "The SOC is too low.",
"id": "node-1766627111063",
"label": "SOC low",
"type": "action-changeValue", // this node type can execute actions or change point \

```

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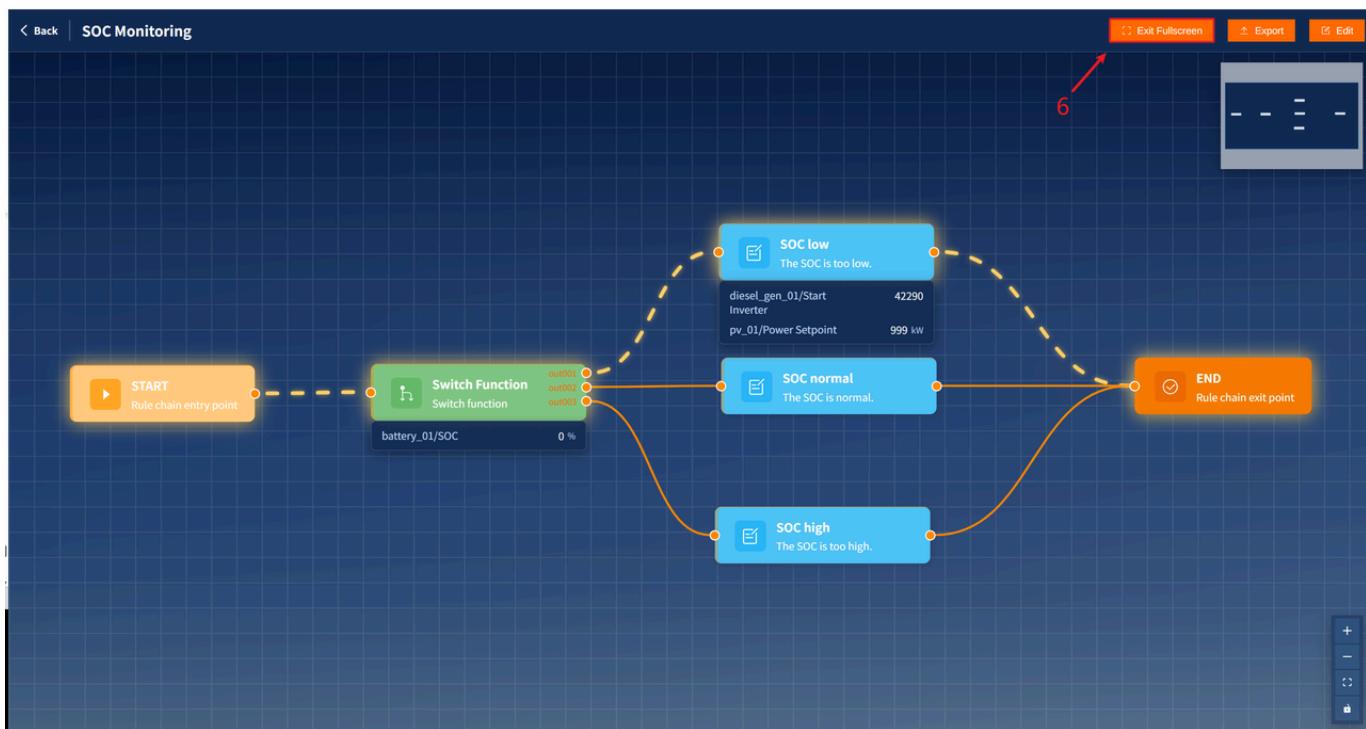


```

    "status": "",
  },
},
.....
],
},
"format": "vue-flow",
"id": "1", // rule id
"name": "SOC Monitoring", // rule name
"priority": 10 // priority
}

```

5. Click **FullScreen** to enter full-screen mode.

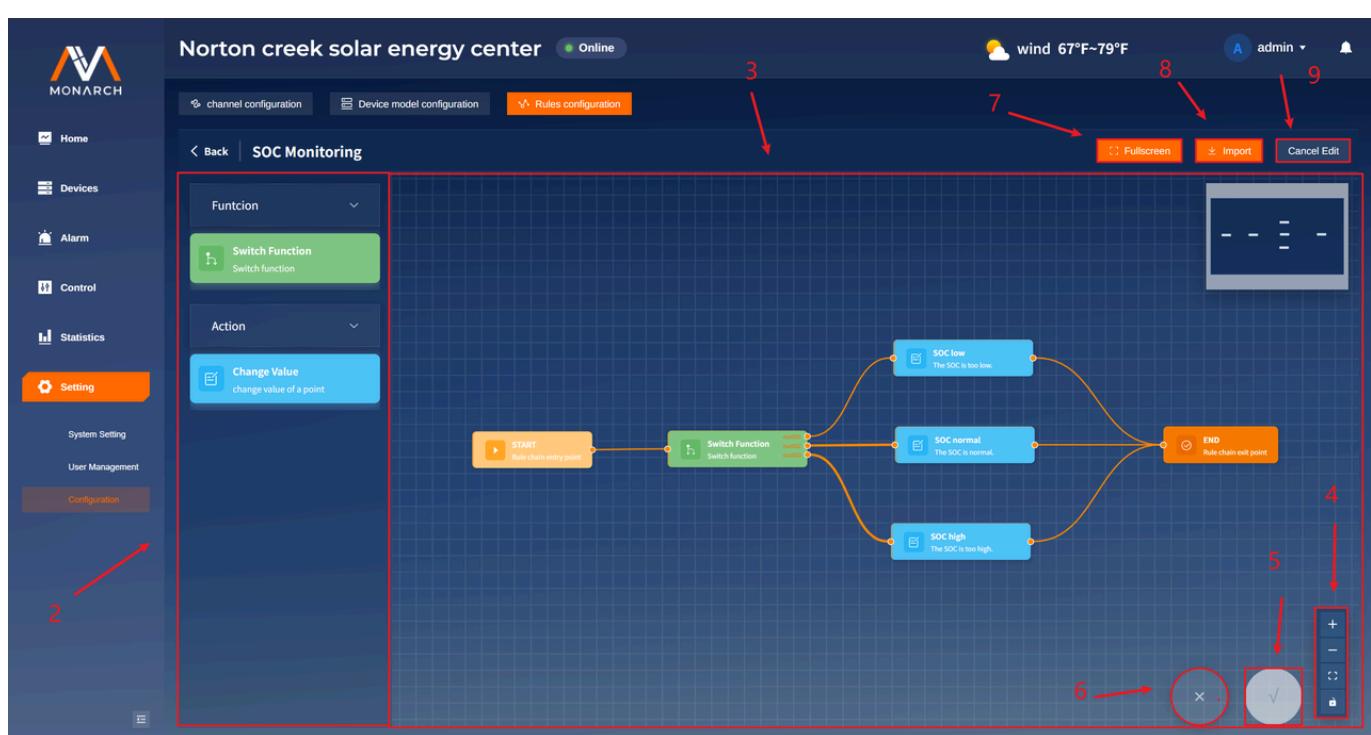
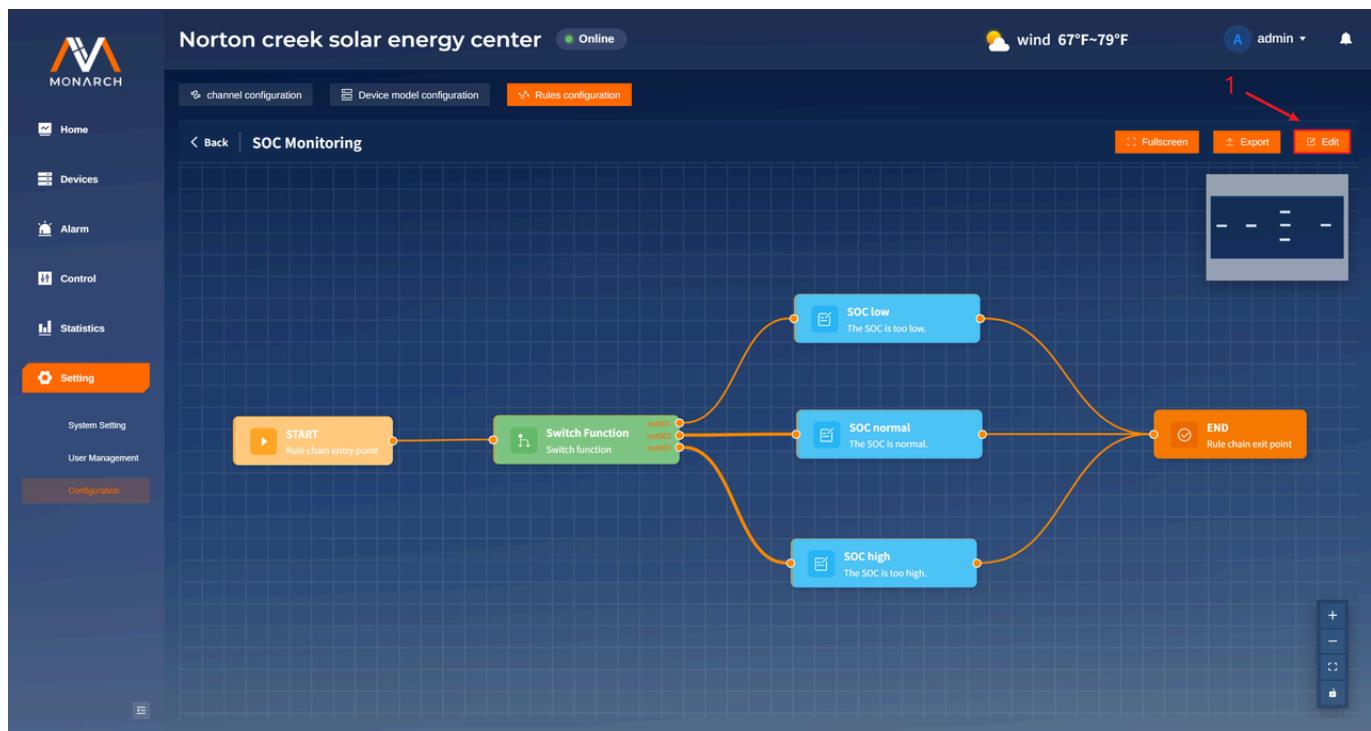


6. Click **Exit Fullscreen** to exit.

Edit Rule Flow

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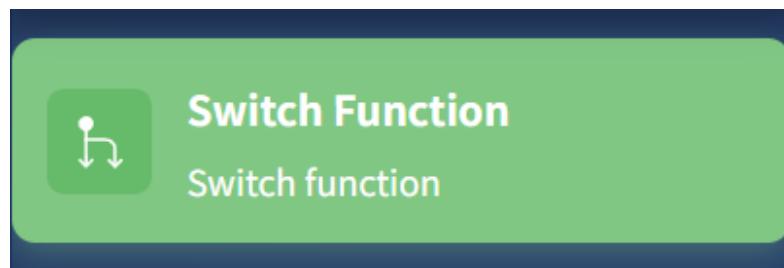


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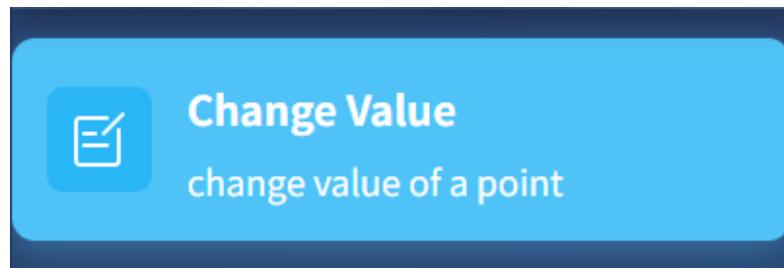
2. The cards below are custom function cards. Drag the required card onto the rule flow canvas. Different cards have different functions:

- **Switch Function - Value condition card**



This card is used to judge whether a point value meets a condition.

- **Change Value - Data modification card**



This card is used to modify a point value for an instance.

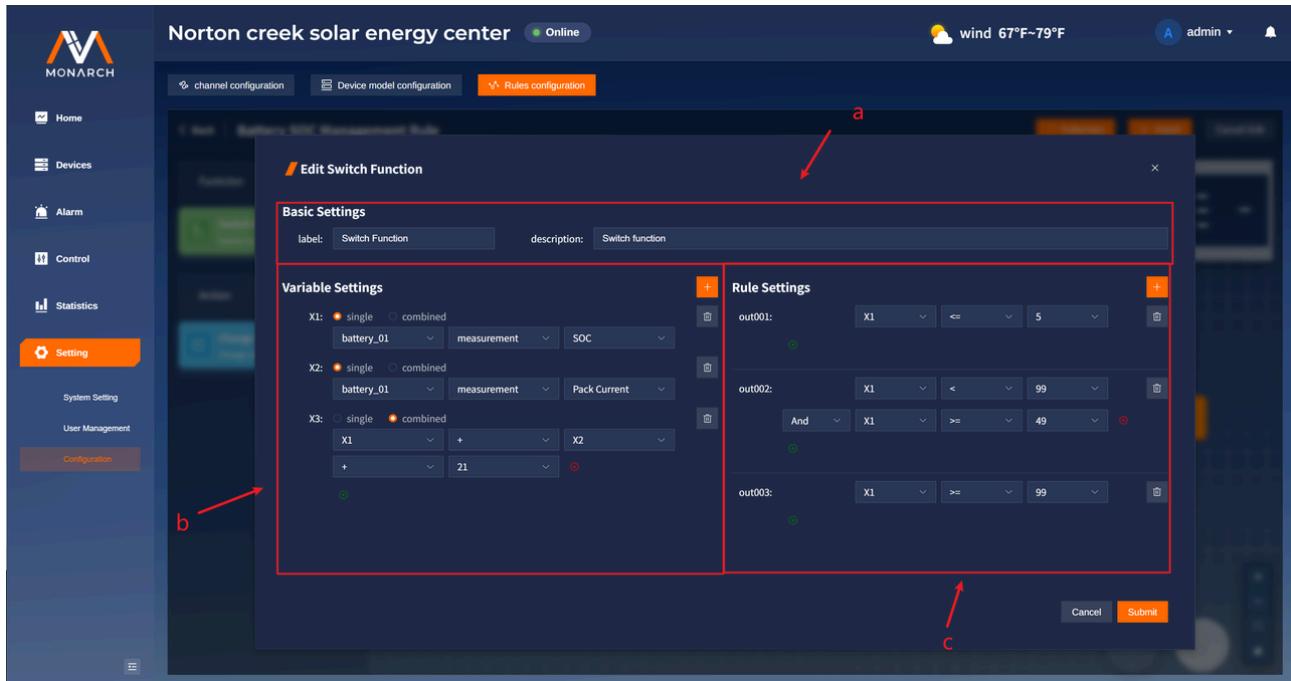
3. The rule flow canvas is where you configure cards and connections. Basic operations:

- The canvas must include **Start** and **End** cards. **The rule flow must start with Start and end with End.**
- The left handles on a card are inputs and can only be line endpoints; the right handles are outputs and can only be line starting points.
- To delete, click a card or line and press **Backspace**. **Start and End cards cannot be deleted.**
- Double-click a card to configure its parameters. Different card types have different data to edit:

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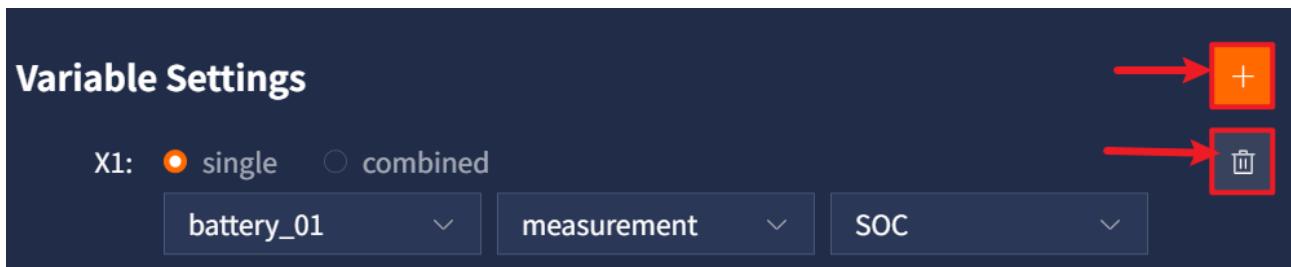
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- Switch Function - Value condition card



① The first section is basic info: **label** is the card title, and **description** is the card description.

② The second section is parameter definition, where you declare parameters:



Click the add button to create a parameter. Each parameter is named **X + auto-increment number**. Click the delete icon next to a parameter to remove it. Parameter definitions have two types: **single** and **combined**:

- **single**: a single parameter. Select instance name, point type, and point name.

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X1: single combined

battery_01 measurement SOC

- **combined:** a composite parameter. You can select existing parameters or enter numbers and combine them with operators **+**, **-**, *****, **/**. Click the **green add icon** to add a calculation row, and click the **red delete icon** to remove a row.

X3: single combined

X1 **+** **X2**

+ **21**

③ The third section is rule definition, where you define conditions:

Rule Settings

out001: **X1** **<=** **5**

Click the **orange add icon** to add a rule. Each rule is named **out + auto-increment number**. Click the **delete icon** next to a rule to remove it.

out002: **X1** **<** **99**

And **X1** **>=** **49**

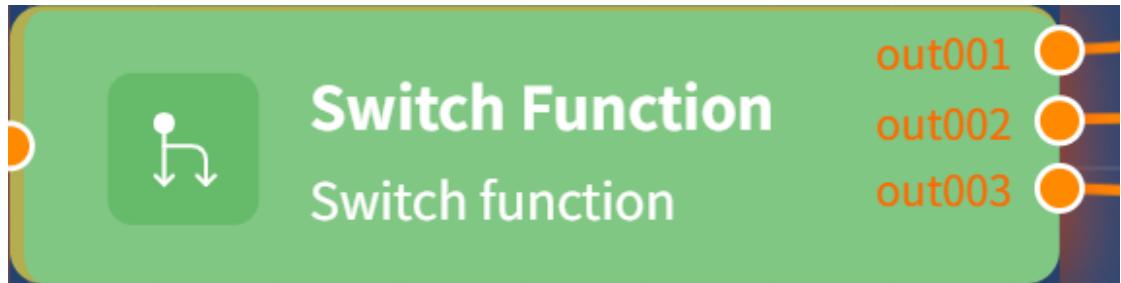
Based on parameter names defined above, you can compare parameters to other parameters or values. Click the green add icon to add an extra condition line and combine conditions (currently

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only **And** is supported, meaning both must be satisfied). Click the red delete button on a condition line to remove it.

Note: Each complete `out+xxx` rule generates a corresponding output handle on the node card. Only when the condition is satisfied will the flow proceed to the next node connected to that handle.



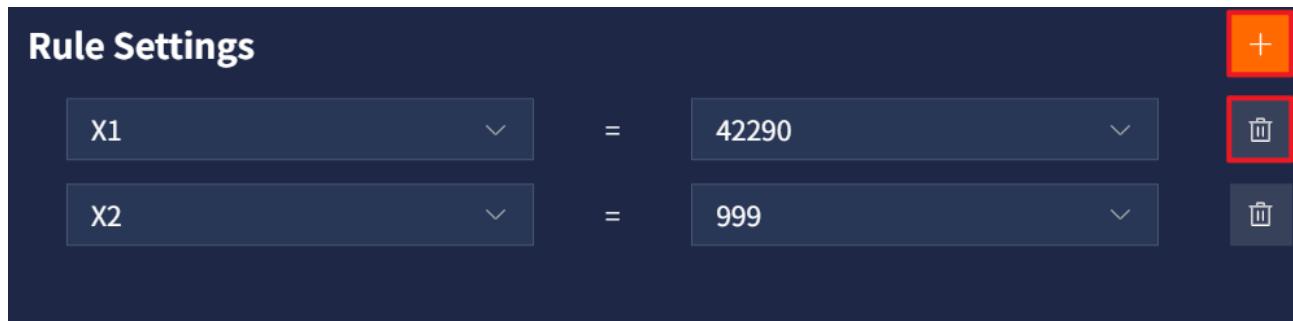
- Change Value - Data modification card

- ① The first section is basic info: **label** is the card title, and **description** is the card description.
- ② The second section is parameter definition, the same as in **Switch Function**.

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③ The third section is change-rule definition, where you modify instance point parameters.



Click the **orange add icon** to add a change rule. Click the **delete icon** next to a rule to remove it.

The modification rule uses left and right parameters: the left side is the target parameter to change; the right side is the new value or parameter. The left selector can only choose **single** parameters; the right selector can choose any defined parameter or a custom value.

4. Canvas controls from top to bottom: zoom in, zoom out, fit to canvas, disable/enable canvas interactions.
5. Rule flow save button. Save is enabled only when nodes/edges are added, modified, or deleted.
6. Rule flow cancel button. Cancel is enabled only when nodes/edges are added, modified, or deleted; it restores the last saved state.
7. **Fullscreen** button to enter full-screen edit mode.
8. **Import** button. Select a .json file to import a rule flow; **the .json format must match the exported format.**
9. **Cancel Edit** button to exit edit mode.

FAQ and Troubleshooting

The page has no data and device Update Time does not change

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Please check in order:

1. Refresh the page (F5)
2. Switch to another menu and switch back
3. Check whether the top bar can jump to the alarm page (verifies base routing)
4. Ask the administrator to check:
 - Whether the backend service is normal
 - Whether the WebSocket push source is normal
 - Whether devices/channels are online

It is recommended to provide the administrator with:

- The page where the issue occurs (e.g., Devices > PV > Value Monitoring)
- The time the issue occurred
- Whether all devices have no data or only a specific type has no data

After logging in, you are redirected back to the login page

Possible causes:

- Account expired or password incorrect
- Token refresh failed Suggestions:
 - Log in again
 - If it still fails, contact the administrator to reset the account

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