

HeliosPad Software User Manual

Residential Energy Monitoring & Control Terminal

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1. Global UI Elements & Common Terms

To avoid repeating information on every page, please review these persistent UI elements and common terms used throughout the Helar Smart Energy platform.

Global Navigation

- **Top Status Bar:** Always visible at the top. It displays the Helar logo, current page name, connection link status, Wi-Fi signal, theme toggle (moon/sun icon), language selection (globe icon), system settings (gear icon), and current date/time.
- **Bottom Navigation Dock:** The floating menu bar at the bottom containing 10 icons. Tap these icons to switch between the 10 main screens described in this manual. The active page icon is highlighted in blue.

Common Icons

- **Star Icon:** Located at the top right of many widgets. Used to mark or pin a specific data card as a favorite.
- **Info Icon (i):** Tap for tooltips or detailed definitions of specific metrics.

Common Units

- **kW (Kilowatt):** Real-time power. Measures energy flowing *right now*.
- **kWh (Kilowatt-hour):** Accumulated energy. Measures total energy generated or consumed *over time*.
- **%:** Percentage, typically used for Battery State of Charge (SOC) or efficiency.
- **¥:** Local currency symbol used for financial and billing metrics.

Common Statuses

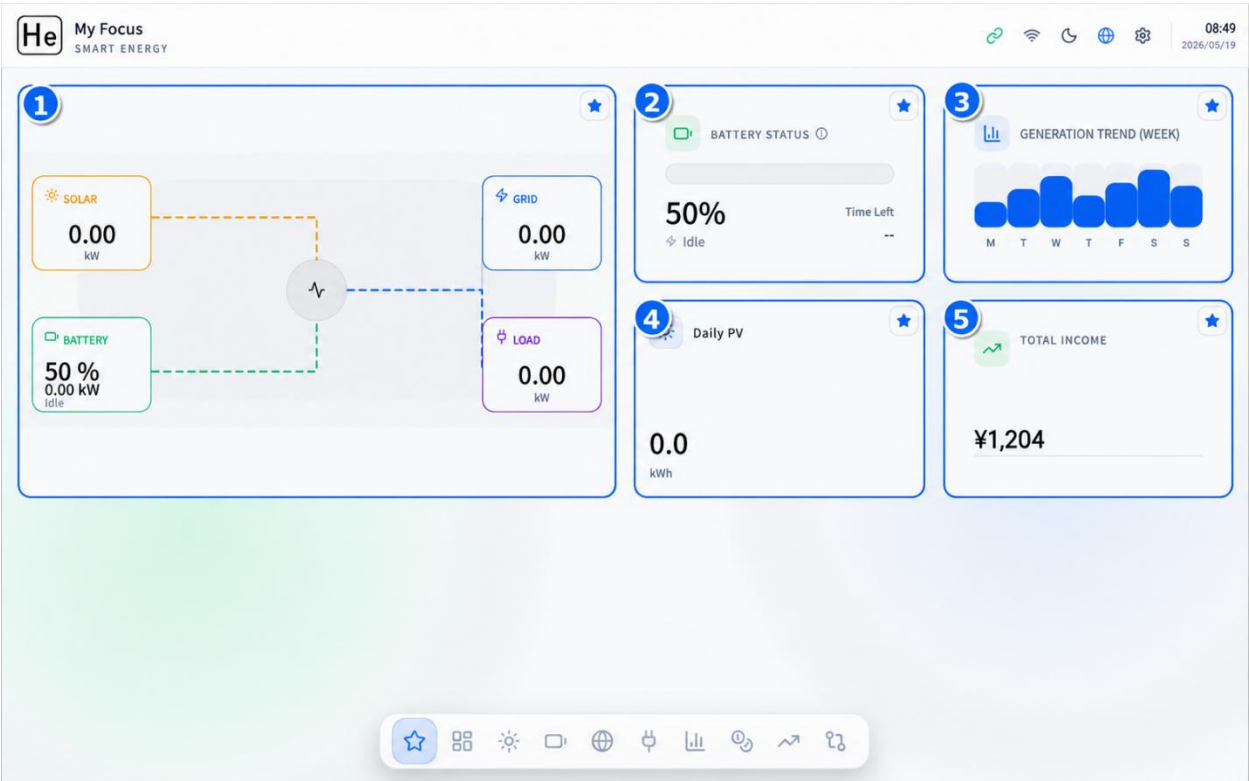
- **Idle:** The device is turned on but currently not charging, discharging, or generating power.
- **Normal:** The device is operating safely without errors.
- **On Grid:** The system is successfully synchronized with the public utility grid.
- **Standby:** The feature (e.g., Emergency Power) is ready to activate but not currently in use.

2. Chapter 1: Dashboard Overview

Screen 1: My Focus

Figure Title: Real-Time Energy Dashboard

Numbered Callout Plan: 1 to 5



No.	Area	Description
1	Energy Flow Diagram	Visualizes real-time power (kW) moving between Solar, Grid, Battery, and Load.
2	Battery Status	Shows current battery charge percentage (%) and operational state (e.g., Idle).
3	Generation Trend (Week)	A bar chart tracking your energy production from Monday to Sunday.
4	Daily PV	Displays today's total accumulated solar energy generation (kWh).
5	Total Income	Displays estimated financial returns based on energy savings and exports.

Key User Actions:

- Monitor the animated dashed lines in the flow diagram to instantly see where home power is coming from.
- Check the battery percentage before sunset to ensure enough power is stored for the night.

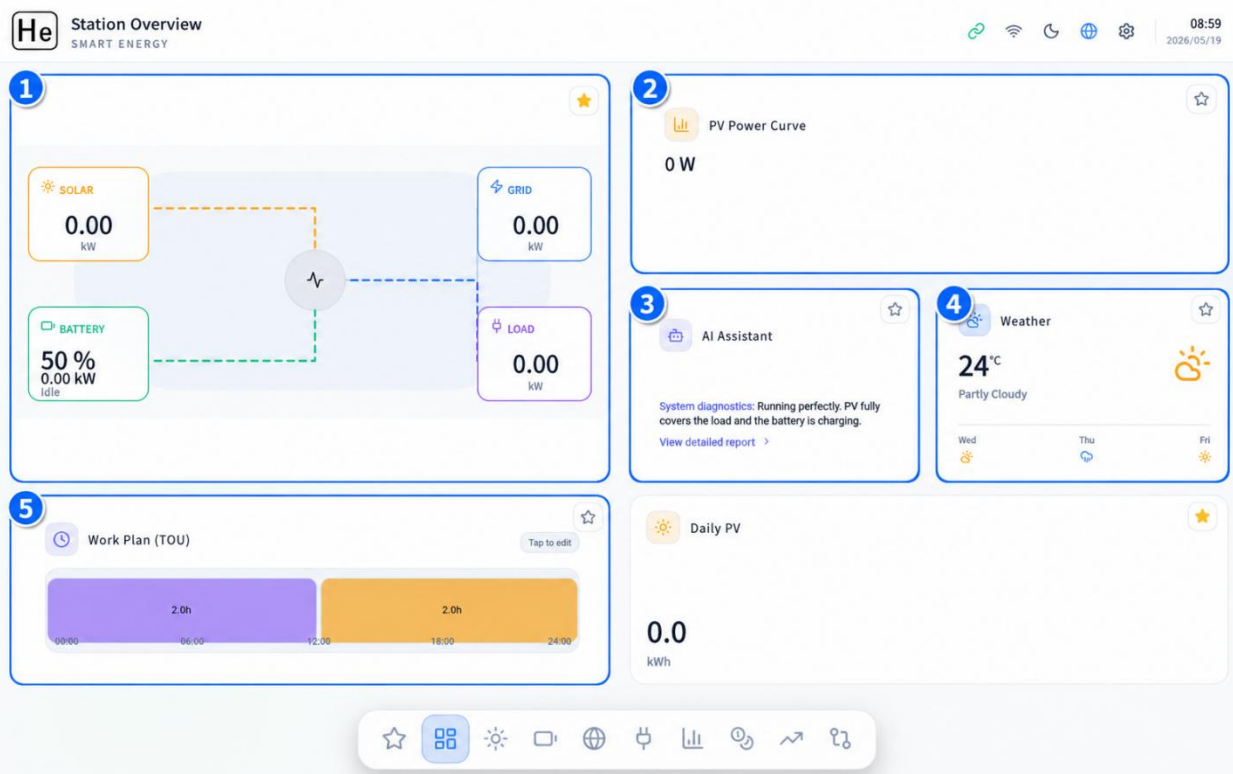
Notes:

- A reading of "0.00 kW" in the flow diagram means no energy is actively transferring to or from that component.

Screen 2: Station Overview

Figure Title: Comprehensive Station Status

Numbered Callout Plan: 1 to 5



No.	Area	Description
1	Energy Flow Diagram	A minimized view of the real-time system power routing.
2	PV Power Curve	A line graph tracking solar generation output throughout the day.
3	AI Assistant	Provides system diagnostics and text-based operational summaries.
4	Weather	Displays local temperature, current conditions, and a multi-day forecast.
5	Work Plan (TOU)	Shows active Time-of-Use schedules determining when the battery charges or discharges.

Key User Actions:

- Read the AI Assistant report for a quick health check (e.g., "Running perfectly").
- Review the Work Plan (TOU) timeline blocks to understand the daily automated battery rules.

Notes:

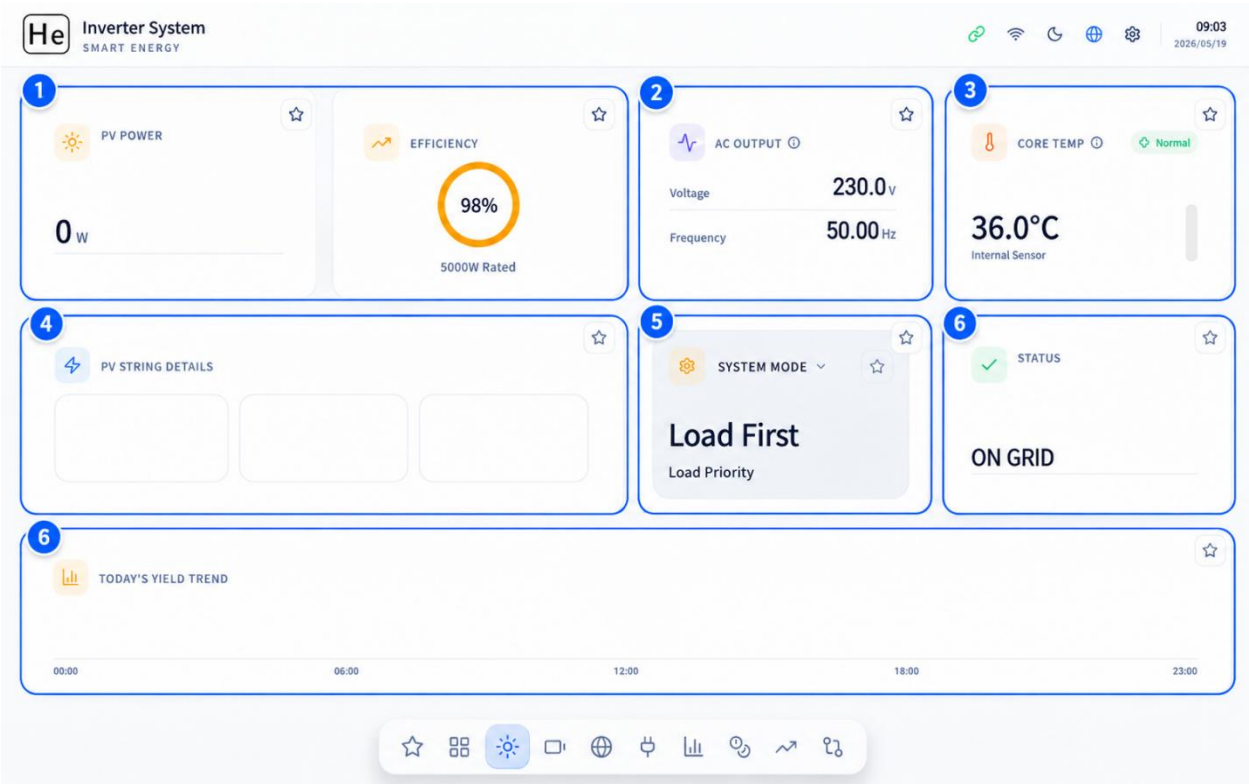
- Weather data requires an active internet connection to synchronize.

3. Chapter 2: Device Monitoring

Screen 3: Inverter System

Figure Title: Inverter Operation Details

Numbered Callout Plan: 1 to 6



No.	Area	Description
1	PV Power & Efficiency	Shows live solar input (W) and the inverter's current conversion efficiency.
2	AC Output	Displays the live voltage (V) and frequency (Hz) supplied to your home.

3	Core Temp	Monitors the inverter's internal sensor temperature (°C).
4	PV String Details	Reserved space for individual solar string data (voltage/current).
5	System Mode	Indicates current operating priority (e.g., "Load First").
6	Status & Yield Trend	Shows grid connection status and a daily visual yield timeline.

Key User Actions:

- Verify that the Core Temp is marked "Normal".
- Check the System Mode to ensure your preferred energy routing logic is active.

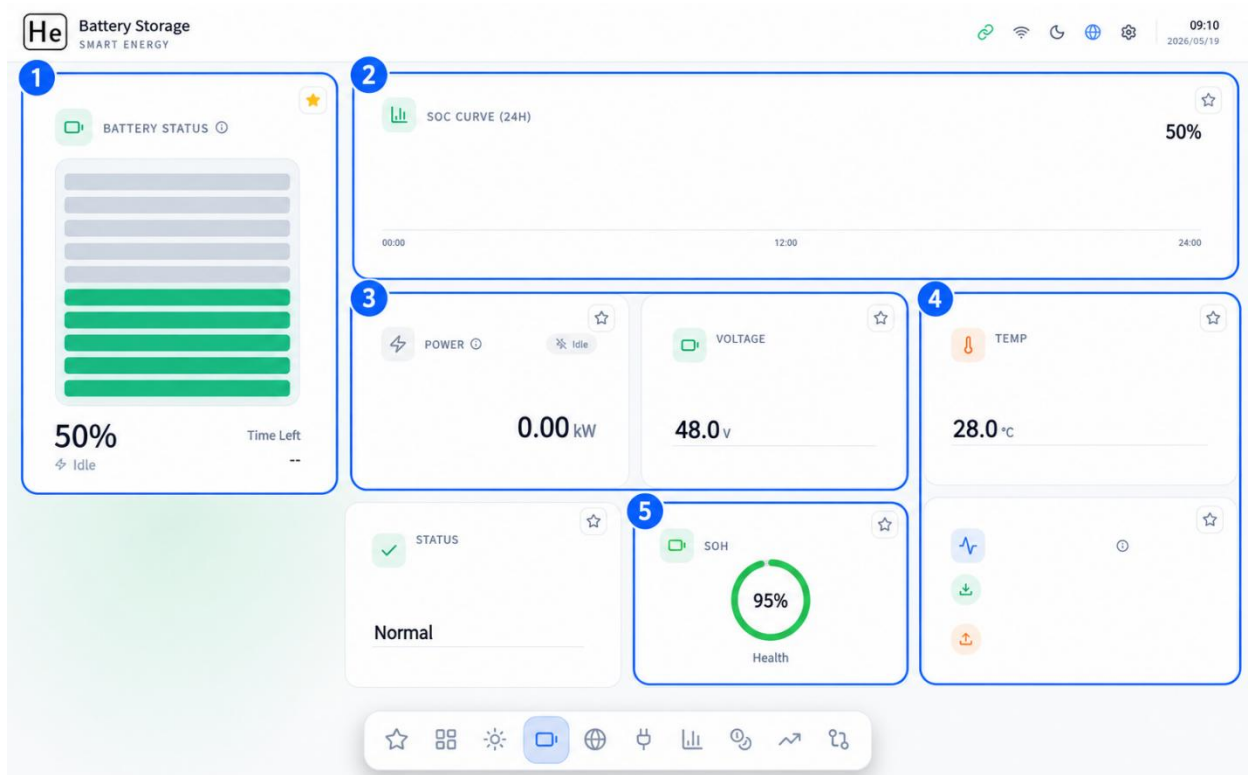
Notes:

- PV String Details will populate based on how many solar strings are physically wired to your inverter.

Screen 4: Battery Storage

Figure Title: Battery Management System

Numbered Callout Plan: 1 to 5



No.	Area	Description
1	Battery Status	A visual stack gauge showing current charge percentage and estimated time left.
2	SOC Curve (24H)	A trendline showing how the battery charged and discharged over the last 24 hours.
3	Power & Voltage	Displays real-time flow (kW) and internal battery voltage (V).
4	Temp & Status	Shows current battery cell temperature (°C) and operational mode.
5	SOH (State of Health)	Indicates the long-term lifespan and degradation level of the battery module (%).

Key User Actions:

- Monitor the SOC Curve to identify heavy power consumption periods during the night.
- Check SOH periodically; a health rating near 100% indicates excellent battery condition.

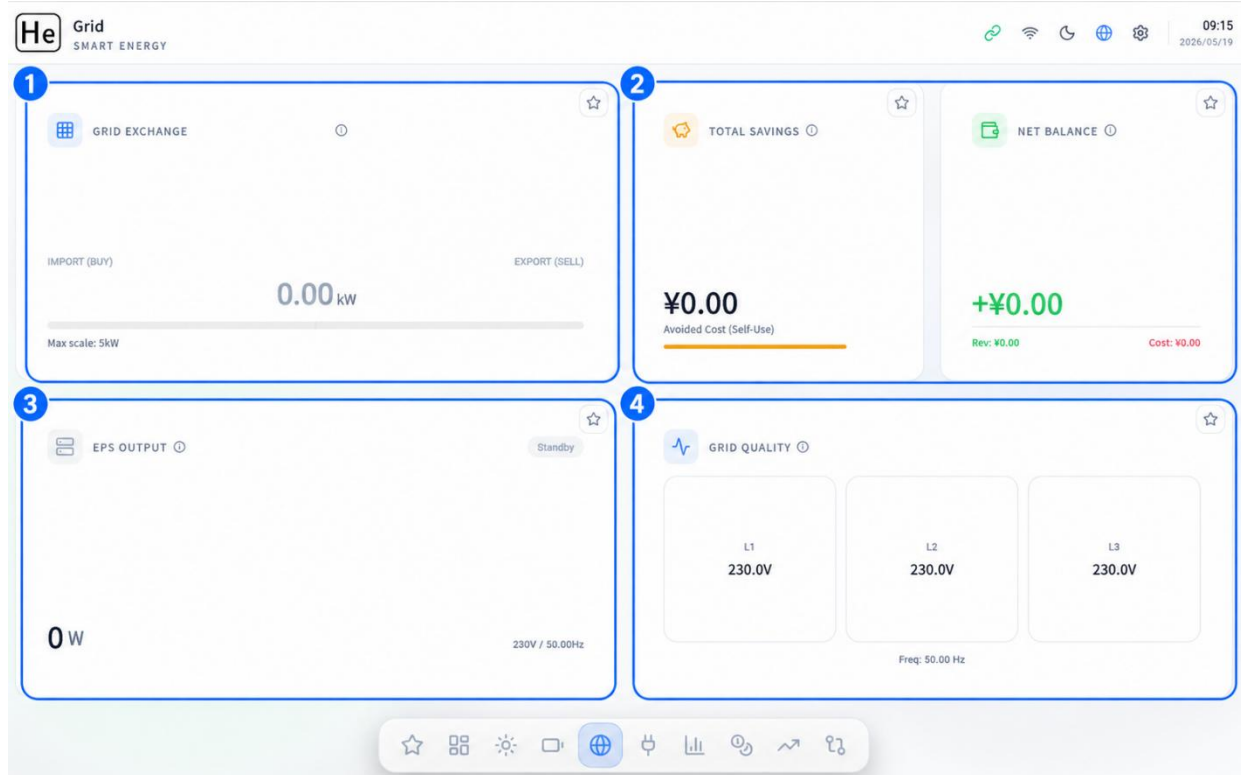
Notes:

- "Time Left" estimations will fluctuate depending on your real-time household load.

Screen 5: Grid

Figure Title: Utility Grid Interaction

Numbered Callout Plan: 1 to 4



No.	Area	Description
1	Grid Exchange	A balance bar showing the ratio of power Imported (Bought) vs. Exported (Sold).
2	Total Savings & Net Balance	Financial calculations comparing avoided costs against actual grid revenues/costs.
3	EPS Output	Status of the Emergency Power Supply feature (e.g., Standby).
4	Grid Quality	Live voltage readings for different grid phases (L1, L2, L3) and frequency.

Key User Actions:

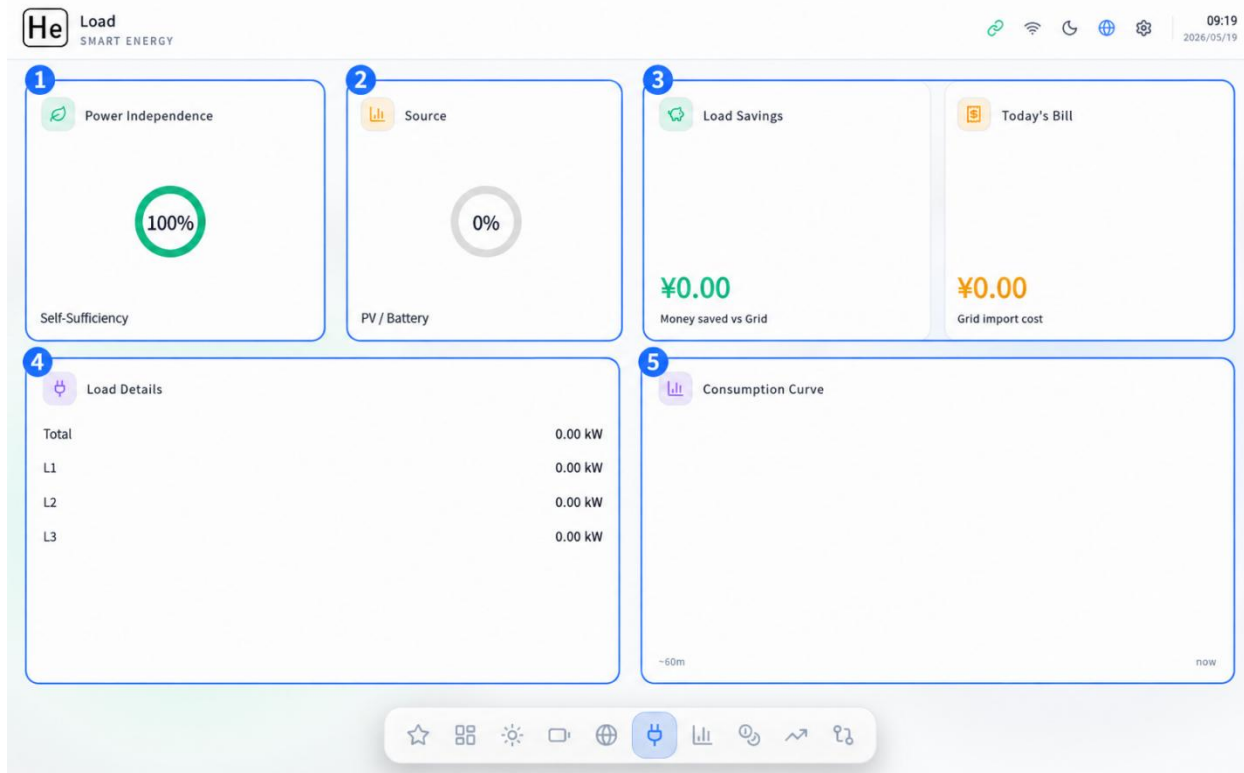
- Use the Grid Exchange bar to quickly see if you are a net buyer or seller of power today.
- Ensure EPS Output indicates "Standby" so backup power is ready during a grid outage.

Notes:

- Financial values displayed here are estimates based on the tariffs entered into system settings.

Screen 6: Load

Figure Title: Household Consumption

Numbered Callout Plan: 1 to 5

No.	Area	Description
1	Power Independence	Shows your Self-Sufficiency percentage (reliance on PV/Battery vs. Grid).
2	Source	Breaks down the exact origin of the energy powering your home.
3	Load Savings & Today's Bill	Estimated money saved by not using the grid, alongside today's estimated grid cost.
4	Load Details	A breakdown of power consumption across different electrical phases (Total, L1, L2, L3).
5	Consumption Curve	A timeline graph tracking energy usage spikes in your home.

Key User Actions:

- Strive for a high Power Independence score to maximize the value of your solar investment.
- Check the Consumption Curve to identify which appliances draw the most power.

Notes:

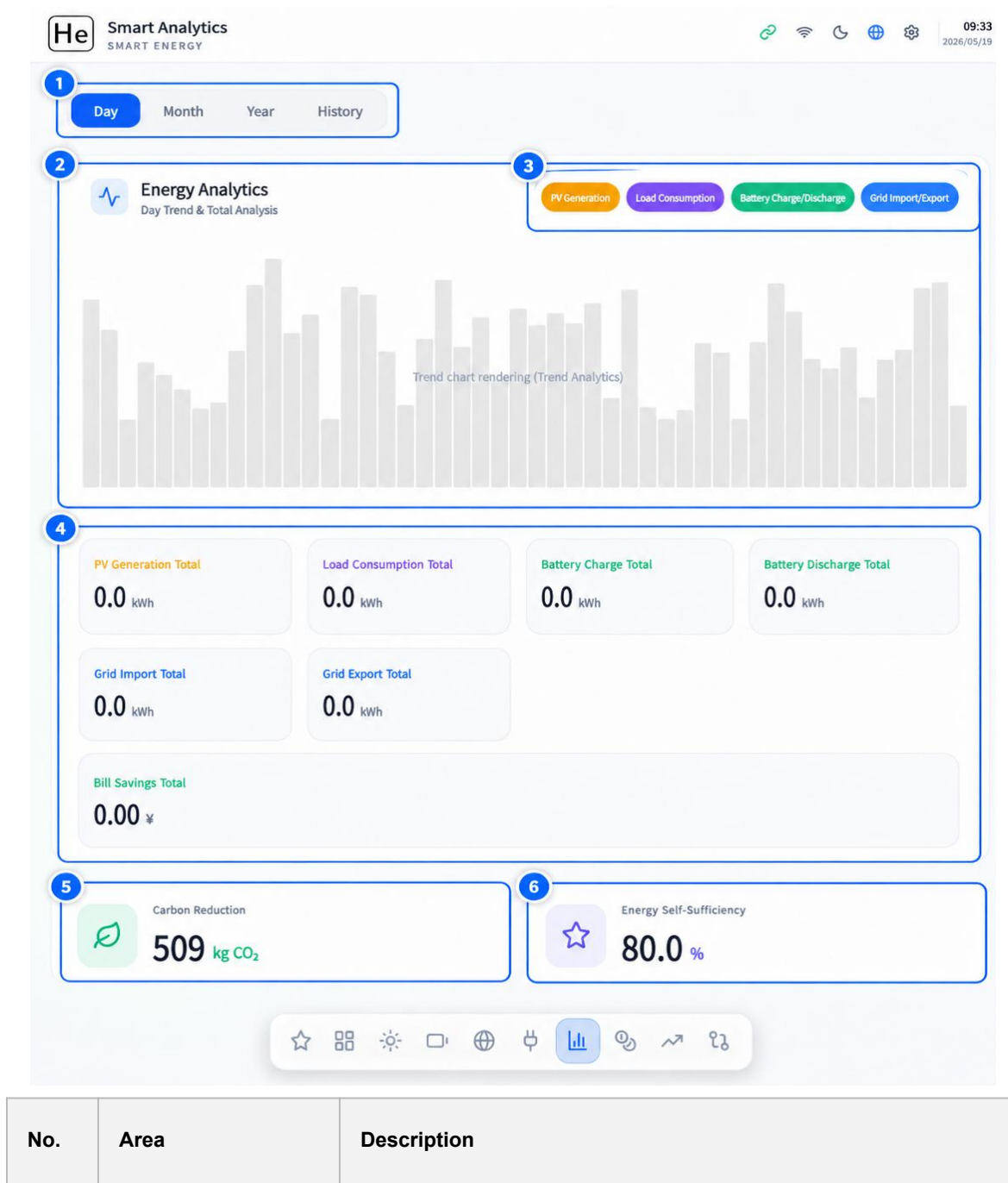
- If your home only has single-phase power, L2 and L3 in Load Details will remain at 0.00 kW.

4. Chapter 3: Analytics & Finance

Screen 7: Smart Analytics

Figure Title: Comprehensive Energy Charts

Numbered Callout Plan: 1 to 6



1	Time Filters	Toggle buttons to view data by Day, Month, Year, or full History.
2	Energy Analytics Chart	A detailed, combined bar chart rendering daily trends across multiple metrics.
3	Metric Toggles	Color-coded buttons to hide/show PV, Load, Battery, or Grid data on the chart.
4	Totals Summary	Bottom cards showing exact kWh totals for PV, Load, Battery, and Grid during the selected period.
5	Carbon Reduction	Displays the estimated carbon emission reduction, usually shown in kg CO ₂ .
6	Energy Self-sufficiency	Shows the percentage of energy supplied by the local PV/battery system instead of the grid.

Key User Actions:

- Use the Time Filters to view analytics by day, month, year, or full history.
- Select Bill Savings, Export Revenue, or Net Value to review different financial trends.
- Check Bill Savings Total to understand the estimated cost savings for the selected period.
- Review Carbon Reduction and Energy Self-sufficiency to evaluate environmental contribution and energy independence.

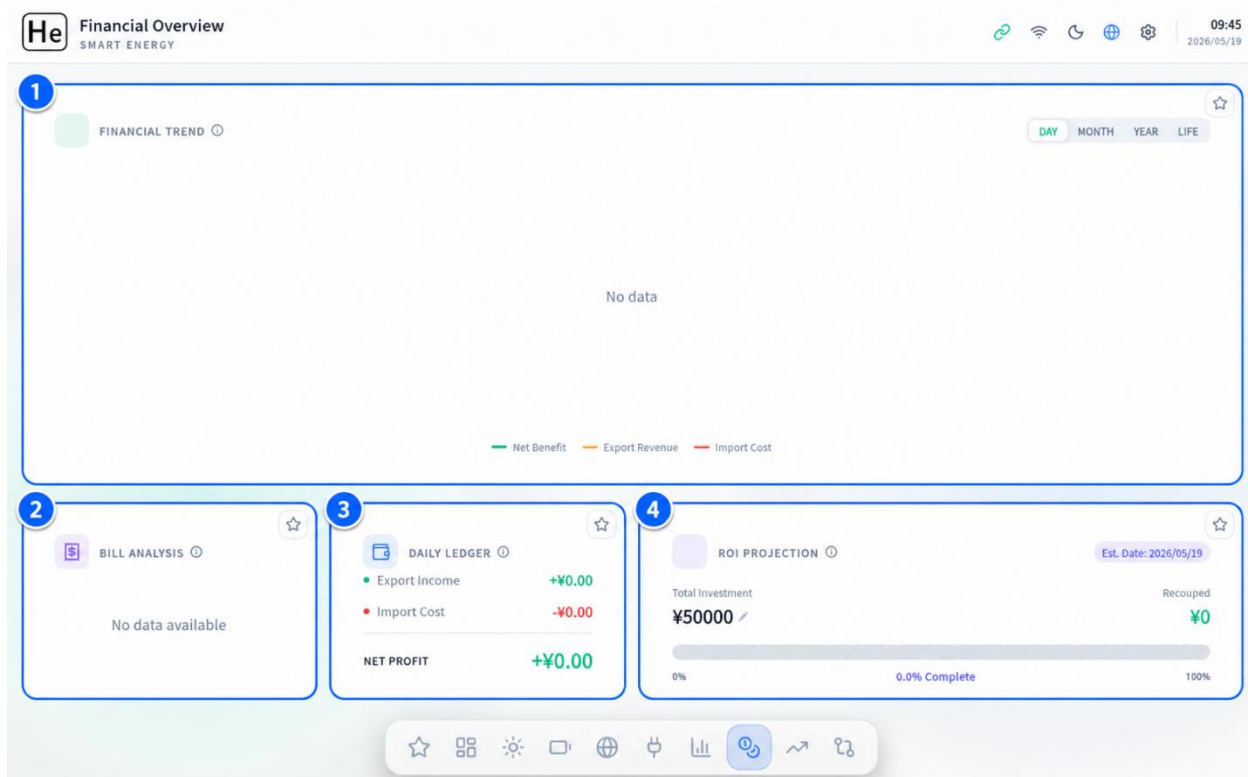
Notes:

- The values shown on this page are calculated based on system data, tariff settings, and available historical records.
- If no data is available, the chart or metric cards may appear empty or display zero values.
- Carbon reduction and self-sufficiency values are estimates and may vary depending on system configuration, data accuracy, and calculation method.

Screen 8: Financial Overview

Figure Title: Financial Tracking and ROI

Numbered Callout Plan: 1 to 4



No.	Area	Description
1	Financial Trend	A line chart visualizing Net Benefit, Export Revenue, and Import Cost over time.
2	Bill Analysis	Visual breakdown of your estimated utility bill components.
3	Daily Ledger	A quick calculation of Export Income minus Import Cost to show Net Profit.
4	ROI Projection	Tracks total system investment against recouped savings to show the completion percentage.

Key User Actions:

- Monitor the Daily Ledger to see exact profit/loss calculations for the current day.
- Check the ROI Projection progress bar to see how close the system is to paying for itself.

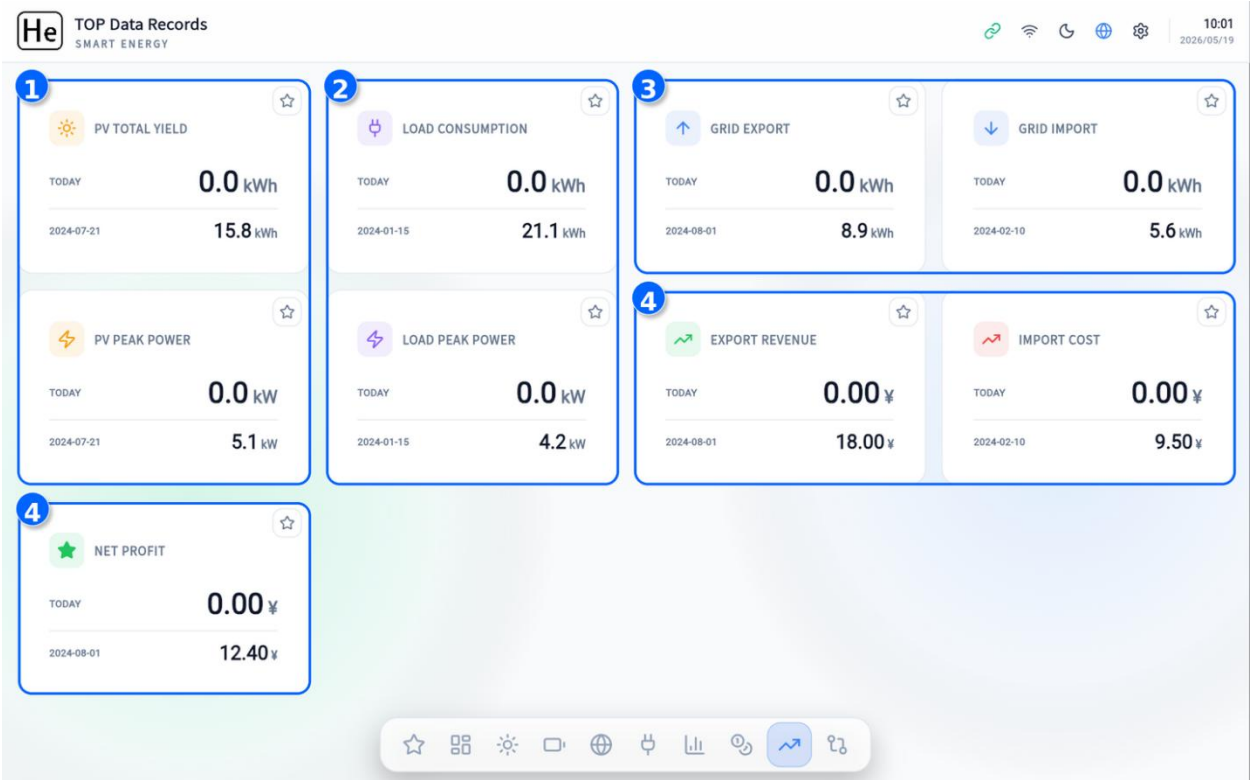
Notes:

- ROI projection requires initial investment costs to be manually configured in the settings.

Screen 9: TOP Data Records

Figure Title: System Peak Records

Numbered Callout Plan: 1 to 4



No.	Area	Description
1	PV Total Yield & Peak Power	Displays the highest historical records for daily generation and peak power output.
2	Load Consumption & Peak	Displays the highest historical records for daily usage and peak power draw.
3	Grid Export & Import	Shows the specific dates with the maximum energy sent to or pulled from the grid.
4	Revenue & Profit Records	Highlights the best-performing days financially.

Key User Actions:

- Use these records to understand the maximum capabilities and historical extremes of your system.

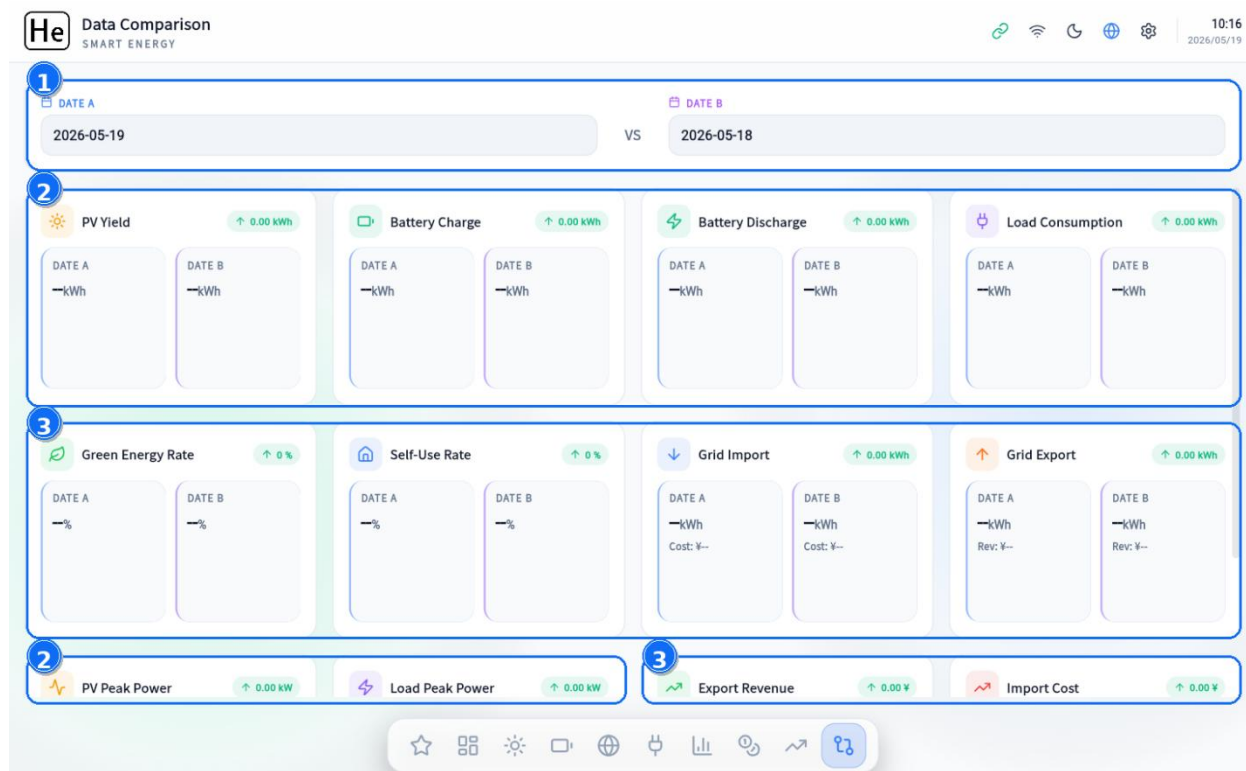
Notes:

- Each card shows today's value compared against the all-time highest recorded date.

Screen 10: Data Comparison

Figure Title: Custom Period Comparison

Numbered Callout Plan: 1 to 3



No.	Area	Description
1	Date Selection	Two calendar input fields to select "Date A" and "Date B".
2	Energy Metric Comparisons	Side-by-side cards comparing PV Yield, Battery usage, and Load Consumption for both dates.
3	Financial & Grid Comparisons	Side-by-side cards comparing Green Energy Rates, Grid flows, and Revenue/Cost differences.

Key User Actions:

- Tap the Date A and Date B fields to select a sunny day and a cloudy day to compare performance.
- Look for the green/red arrow indicators to quickly spot increases or decreases between the two dates.

Notes:

- Ensure both selected dates have complete data for an accurate comparison.

5. FAQ & Troubleshooting

Q: Why does my Solar panel show "0.00 kW"?

A: This is completely normal during the night, heavy overcast conditions, or if your panels are covered by snow. If it shows 0.00 kW during bright daylight, check your inverter connection.

Q: My dashboard shows the system is "Offline". What should I do?

A: Check the top navigation bar. If the Link or Wi-Fi icon is crossed out or grey, your system has lost internet connection. Check your home router, ensure the Wi-Fi password hasn't changed, and restart your home network.

Q: Why are my "Total Income" and "Savings" showing ¥0.00?

A: The system requires local utility rates to calculate financials. Ensure your electricity tariffs (buy/sell prices) are properly configured in the system settings.

Q: The Battery "Time Left" fluctuates constantly. Is it broken?

A: No. "Time Left" is a dynamic calculation based on what your home is consuming *at this exact second*. If an appliance like a microwave turns on, the estimated time left will drop significantly, but will recover once the microwave turns off.

6. Settings & Configuration

6.1 Accessing Settings

To access the Settings module, tap the gear icon located in the top right corner of the status bar. This area contains all adjustable parameters and system configuration options for your Helar Smart Energy platform.

Figure Title: Entering the Settings Module

Numbered Callout Plan: 1

No.	Area	Description
1	Settings Icon	The gear icon located in the top status bar.

6.2 Settings Overview

The Settings module is divided into a left navigation menu for category selection and a right content area for viewing and adjusting specific parameters. After making any adjustments, you must tap "Save Changes" to apply them, or "Cancel" to discard them.

Figure Title: Settings Layout and Navigation

Numbered Callout Plan: 1 to 5

No.	Area	Description
1	Left Navigation Menu	Use to switch between different configuration categories.

2	Page Title	Indicates the current settings category being viewed.
3	Configuration Content Area	The main workspace containing adjustable parameters.
4	Cancel	Discards any unsaved changes and reverts to previous values.
5	Save Changes	Applies and stores the new parameter configurations.

Note: Some settings are informational only, while others can be modified.

Caution: Changing advanced settings may affect system behavior, battery operation, or grid interaction. Only modify advanced parameters when instructed by the installer or technical support.

6.3 Station Configuration

Figure Title: Station Configuration

Numbered Callout Plan: 1 to 4

No.	Section	Description
1	Plant Information	Basic details and capacity of your solar installation.
2	Revenue & Currency	Financial parameters used to calculate estimated income and savings.
3	Left Navigation Menu	Active tab indicating the current section.
4	Save Changes	Tap to confirm updates to station details or tariffs.

Setting	Description	User Guidance
Plant Name	The display name for your smart energy station.	Customize to easily identify your home system.

Installed PV Capacity	Total maximum power of your installed solar panels.	Informational; typically set by your installer.
Battery Storage	Total capacity of the installed battery system.	Informational; reflects detected hardware.
Currency	The local currency symbol used for all financial charts.	Set to your local currency (e.g., ¥, \$, €).
Feed-in Tariff (Export)	The price at which you sell excess solar power to the grid.	Check your utility contract for the exact rate per kWh.
Grid Import Tariff	The price you pay to purchase power from the grid.	Set to match your utility provider's billing rate.

Note: Financial values shown in analytics and income-related pages may depend on the tariff values configured here.

Caution: If you are unsure about tariff values, contact your installer or utility provider before changing them.

6.4 Inverter Configuration

6.4.1 Basic Control

Figure Title: Basic Inverter Control

Numbered Callout Plan: 1 to 4

No.	Section	Description
1	Inverter Switch	Master toggle to enable or disable the inverter's power output.
2	Grid Standard	The regional compliance code the inverter follows.
3	Active Power Limit	Restricts the maximum power output of the system.
4	Save Changes	Tap to apply new basic control parameters.

Setting	Description	User Guidance
Inverter Switch	Controls the overall operational state of the inverter.	Leave ON for normal daily operation.
Grid Standard	Ensures the system complies with local grid frequency and voltage rules.	Do not change unless directed by the installer or grid operator.
Active Power Limit	Caps the maximum power the system can generate.	Leave at default unless restricted by your local utility company.

6.4.2 Advanced Features

Figure Title: Advanced Inverter Features

Numbered Callout Plan: 1 to 5

No.	Section	Description
1	Anti-Reflux	Controls the flow of excess energy to the public grid.
2	Power Sensor Type	Specifies the hardware used to measure energy flow.
3	Backup (EPS)	Settings related to the Emergency Power Supply during an outage.
4	Other Advanced Switches	Additional technical features like DRMS or Winter Mode.
5	Save Changes	Tap to apply new advanced configurations.

Setting	Description	User Guidance
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Anti-Reflux	Prevents solar energy from being exported (sold) to the grid.	Enable only if your utility strictly prohibits grid exporting.
Power Sensor Type	Defines the communication protocol for the smart meter.	Do not alter; requires matching physical hardware.
Dry Contact	Configures external signaling for smart home integrations.	Used by installers for advanced load management.
Backup (EPS)	Enables or disables backup power when the grid fails.	Keep enabled if you want power during an outage.
DRMS Control	Demand Response management compliance switch.	Enable if mandated by your regional energy provider.
Winter Mode	Optimizes battery maintenance during long periods of low sunlight.	May be recommended by technical support in specific climates.

Caution: Most settings on this page are advanced configuration items. Residential users should only modify them under installer or technical support guidance. Incorrect inverter settings may affect system output, compliance, or grid connection.

6.5 Battery Configuration

Figure Title: Battery Limits and Protection

Numbered Callout Plan: 1 to 4

No.	Section	Description
1	Battery Specs	Displays recognized battery chemistry and total capacity.
2	Protection & Limits	Adjustable charge/discharge rates and cutoff thresholds.
3	Left Navigation Menu	Active tab indicating the Battery Configuration section.

4	Save Changes	Tap to apply new battery parameters.
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Setting	Description	User Guidance
Battery Type	The chemical composition of the installed battery.	Informational; automatically detected or set by installer.
Total Capacity	The maximum energy storage limit.	Informational; do not modify unless hardware is added.
Max Charge Rate	The fastest allowable speed for charging the battery.	Leave at default to preserve battery lifespan.
Max Discharge Rate	The fastest allowable speed for drawing power from the battery.	Leave at default to prevent unexpected system shutdowns.
On-grid Discharge Cut-off	The battery percentage at which it stops discharging during normal grid operation.	Commonly set around 10-20% to reserve power for unexpected outages.
Off-grid Discharge Cut-off	The absolute minimum battery percentage allowed during a blackout.	Set lower (e.g., 5-10%) to maximize backup time, but avoid 0% to prevent damage.
Charge Cut-off SOC	The maximum allowed charge percentage.	Usually left at 100% for normal daily cycling.

Note: Battery protection and SOC thresholds affect backup time, system behavior, and battery lifespan.

Caution: Incorrect battery settings may reduce usable capacity or affect battery protection performance.

6.6 Device Configuration

6.6.1 HMI & System Configuration

Figure Title: Display and System Preferences

Numbered Callout Plan: 1 to 4

No.	Section	Description
1	HMI & Display	Options to adjust screen brightness and timeout behavior.
2	System Configuration	General localization settings like language and time.
3	Power Control	Basic device power management options.
4	Save Changes	Tap to apply display and localization updates.

Setting	Description	User Guidance
Screen Brightness	Adjusts the backlight intensity of the display.	Set to a comfortable level for your viewing environment.
Screen Timeout	Time before the display automatically turns off to save power.	A shorter timeout (e.g., 1-5 minutes) is recommended.
Power Control	Options to put the display or system into sleep mode.	Use to conserve energy when the display is not needed.
System Language	The language used for all text on the platform interface.	Select your preferred language.
System Time	The internal clock of the smart energy station.	Ensure this is accurate for correct historical data and TOU scheduling.
Onboarding Tutorial	Re-enables the initial user guide pop-ups.	Useful if you need a quick refresher on the dashboard layout.

6.6.2 Data Management & Connectivity

Figure Title: Network, Updates, and Data Reset

Numbered Callout Plan: 1 to 5

No.	Section	Description
1	Data Management	Options to clear historical logs or reset the system.
2	Connectivity & Update	Network status and firmware upgrade tools.
3	Wi-Fi Connection	Interface to select and join a local wireless network.
4	Firmware Update	Trigger a check for new system software.
5	Reset / Clear actions	Buttons to factory reset or wipe saved data.

Setting	Description	User Guidance
Reset System	Reboots the control system or restores factory defaults.	Use with extreme caution. Only perform under technical support guidance.
Clear Daily Data	Wipes the energy generation/consumption data for today.	Unnecessary for normal operation; may disrupt today's analytics.
Clear All Data	Deletes all historical logs, charts, and records permanently.	Irreversible action. Do not use unless transferring ownership.
Wi-Fi Connection	Connects the system to your home internet router.	Required for remote monitoring and weather data updates.

Firmware Update	Installs the latest software improvements from Helar.	Perform only when system power is stable (e.g., daytime with solar).
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Caution: Reset and data-clearing actions may remove configuration or historical information. Do not perform factory reset or firmware update during unstable power conditions unless instructed by technical support.

6.7 About

6.7.1 Device Identity & System Information

Figure Title: Hardware and Software Identity

Numbered Callout Plan: 1 to 3

No.	Section	Description
1	Device Identity	Identifiers unique to your specific hardware unit.
2	System Information	Uptime and hardware storage statistics.
3	Software Version	The current installed operating system build.

Item	Description
Device Name	The custom network name assigned to the system.
Product Name	The official Helar product model designation.
Serial Number	The unique identification code for warranty and support.
Hardware Specs	Technical details regarding the internal components.
Storage	Available and used capacity of the internal data drive.

System Uptime	Total continuous time the system has been powered on.
Software Version	The currently active firmware build number.

6.7.2 Legal & Support

Figure Title: Manufacturer and Compliance Details

Numbered Callout Plan: 1 to 3

No.	Section	Description
1	Manufacturer	Official company information and copyright.
2	Support	Contact details for technical assistance.
3	Certifications	Safety and regional compliance marks.

Item	Description
Manufacturer	Helar corporate entity and registered address.
Support	Official email, phone number, or website for customer service.
Certifications	Details of regional grid compliance and safety testing standards.

6.8 Important Notes for Advanced Settings

General user-adjustable settings:

- Plant Name
- Currency
- **Screen Brightness**
- **Screen Timeout**
- System Language
- System Time

- Wi-Fi reconnection
- Onboarding Tutorial

Advanced settings:

- Grid Standard
- Active Power Limit
- Anti-Reflux
- Power Sensor Type
- Backup (EPS)
- DRMS Control
- Battery protection thresholds
- Reset / Clear All Data
- Firmware Update

Caution: Some configuration items directly affect inverter behavior, battery protection, backup power, or grid interaction. If you are unsure about a setting, do not change it without guidance from the installer or technical support.