

USER MANUAL



MTS43 SERIES

Local Monitoring Unit

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Preface

Copyrights

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Disclaimers

Before using the product, please read this manual carefully to ensure you fully understand the product and can use it correctly. Please keep this manual properly for future reference after reading. Improper use of this product may cause serious injury to you or others, or result in product damage and property loss. By using this product, you are deemed to have understood, acknowledged, and accepted all terms and contents in this manual. BEIJING EPSOLAR TECHNOLOGY CO., LTD. shall not be liable for any losses caused by the user's failure to use the product in accordance with this manual.

The warranty does not apply to the following conditions:

- Damage caused by improper use or inappropriate environment (Do not place flammable or explosive objects around the device, or install the device on the heat-intolerant buildings or under the direct sunlight).
- The actual current/voltage/power exceeds the limit value of the device.
- Damage caused by working temperature exceeding the rated range.
- Electric arc, fire, explosion and other accidents caused by failure to follow the device stickers or manual instructions.
- Unauthorized disassembly and maintenance of the device.
- Damage caused by force majeure.
- Damage occurred during transportation or handling.

Scope of application

This user manual describes the installation, electrical connection, commissioning, maintenance and troubleshooting of the MTS43 series Local Monitoring Unit (hereinafter referred to as the "monitoring unit").

This manual is only intended for professionals who are familiar with local regulations, standards and electrical systems, have received professional training, and know the product well. Please read this manual carefully to understand the safety information and familiarize yourself with the product's features before using the product.

Symbols explanation

To ensure the user's personal and property safety during operation, as well as the efficient use of this product, relevant safety instructions are provided in the manual and highlighted with the corresponding symbols. To prevent personal injury and property damage, please fully understand and strictly follow these highlighted information. The symbols used in this manual are as follows:

 **DANGER**

Indicates a high-level hazard that, if not avoided, will result in serious injury or death.

 **WARNING**

Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates an important reminder during the operation which, if ignored, may result in an equipment error alarm.

Tip	Indicates recommendation for reference.
	Read through the user manual before any operations.

Important Safety Instructions

1. Requirements for technical personnel

- Professionally trained.
- Familiar with related safety regulations of the electrical system.
- Read this manual carefully and master the related safety precautions.

2. Operations for technical personnel

- Install the monitoring unit to a specified position.
- Conduct test operations for the monitoring unit.
- Operate and maintain the monitoring unit.

3. Safety precautions before installation

DANGER

- Keep the monitoring unit out of reach of children.
- When installing the monitoring unit, please evaluate whether there is a risk of electric arc in the operation area.

NOTICE

- When you receive the monitoring unit, check whether there is any damage that occurred in transportation. Contact the transportation company or our company in time for any problem.
- When placing or moving the monitoring unit, please follow the instructions in the manual.

4. Safety precautions for mechanical installation

DANGER

Before installation, confirm the monitoring unit has no electrical connection.

NOTICE

Ensure enough heat dissipation space for the monitoring unit before installation. Do not install the device in humid, salt spray, corrosion, greasy, flammable, explosive, dust accumulative, or other severe environments.

5. Safety precautions for electrical connection

DANGER

Do not put the monitoring unit close to the flooded lead-acid battery because the spark in the terminals may ignite the hydrogen released by the battery.

WARNING

- Ensure all wirings are secure to prevent overheating due to loose connections.
- When the monitoring unit is working, do not open its shell for any operation.

NOTICE

- The DC input voltage must strictly follow the parameter table. Too high or too low DC input voltage will affect the device's normal operation and may even damage it.
- The monitoring unit shall be powered by only one of the following interfaces: Type-C port, POWER port, or PORT port.
- Do not connect any device drawing more than 300mA to the COM port. Exceeding this limit may cause the monitoring unit to malfunction.
- Do not insert the powered RJ45 connector from the "Power Distribution Box" COM port into the COM port or BMS interface of the monitoring unit. Doing so may damage the monitoring unit.

6. Dangerous operations causing an electric arc, fire, or explosion

- Touch the uninsulated ends of potentially live cables.
- Touch the wiring terminals of the device may be electriferous.
- Improper operations by untrained non-professional or technical personnel.
- The monitoring unit does not contain repair parts internally. If maintenance service is required, please get in touch with our after-sales service personnel.

DANGER

Once an accident occurs, it must be handled by professional and technical personnel. Improper operations would cause more serious accidents.

7. Precautions for maintenance

- It is recommended to check the monitoring unit with testing equipment to ensure there is no voltage and current.
- When conducting the electrical connection and maintenance, post a temporary warning sign or put up barriers to prevent unrelated personnel from entering the electrical connection or maintenance area.
- An improper operation of the monitoring unit may cause personal injury or equipment damage.
- It is recommended to wear an antistatic wrist strap or avoid unnecessary contact with the circuit board.

1 General Information

1.1 Product overview

The MTS43 series is a display and management platform tailored for RV power systems and off-grid power supply systems. Built around key power devices — such as controllers, inverters, inverter/chargers, and batteries — it provides an integrated solution for centralized monitoring, parameter configuration, and energy management.

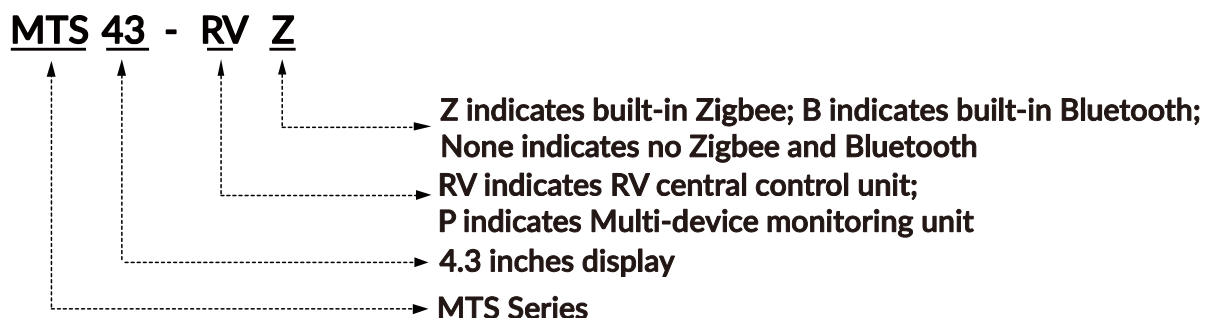
Developed on a unified software platform with a cross-platform GUI architecture, the unit supports both touchscreen and physical buttons. Its core functions are built around three pillars: parameter display, parameter configuration, and system management. By consolidating distributed power devices into a single monitoring unit, it delivers clear visibility, centralized control, and intelligent management of the RV power system. This product is widely used for system monitoring in RVs and off-grid power systems.

Features

- Manage up to 16 devices in one network
- Multiple communication options with isolated RS485 (Modbus) and a dedicated BMS port
- Track vehicle-wide energy data and set charging priorities
- Intuitive GUI with touch or button control
- Expandable to other on-board equipment beyond power devices⁽¹⁾
- Full fault logging and data management

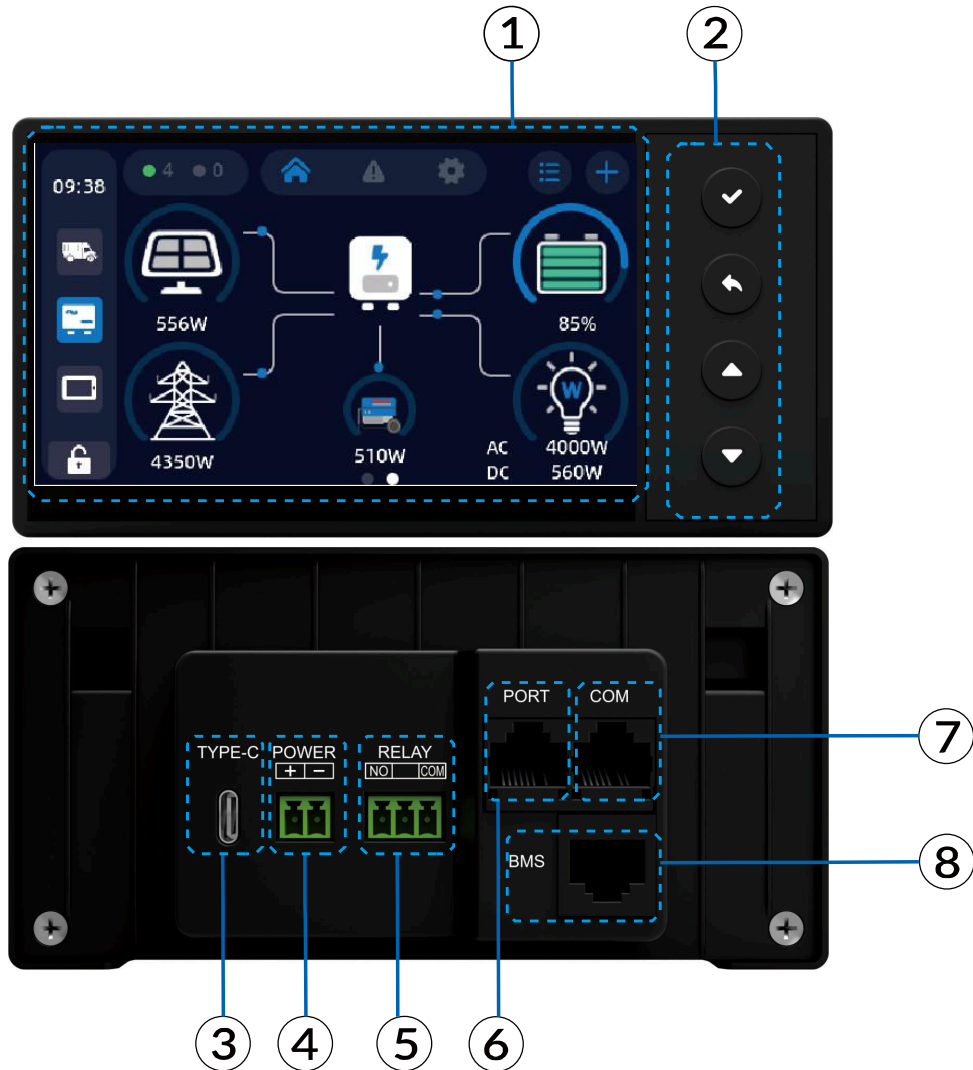
(1) Only available for the RV's central control display.

Naming rules



1.2 Product exterior

1.2.1 Appearance and ports



No.	Instruction	No.	Instruction
1	LCD	5	Dry contact port ⁽³⁾
2	Buttons	6	PORT port (RJ45) ⁽⁴⁾
3	Type-C port ⁽¹⁾	7	COM port (RJ45) ⁽⁵⁾
4	POWER port ⁽²⁾	8	BMS port (RJ45) ⁽⁶⁾

(1) Provides 5VDC power to the monitoring unit.

(2) Dedicated power input for the monitoring unit. Input voltage range: 8VDC to 60VDC.

(3) Dry contact specification: 1A@125VAC.

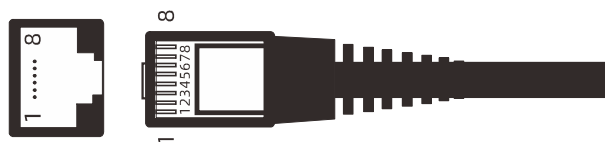
(4) This port supports both communication and power supply functions.

① **Communication modes (configurable):**

- **RS485:** Using Modbus protocol, it can connect to charging/discharging devices (e.g., controllers, DC-DC converters, inverter/chargers, inverters), HUBs, and on-board equipment (e.g., lights, water pumps, air conditioners, ventilation systems).
- **LIN (reserved):** Using CI-BUS protocol, it can connect to charging/discharging devices (e.g., controllers, DC-DC converters, inverter/chargers, inverters), HUBs, and on-board equipment (e.g., lights, water pumps, air conditioners, ventilation systems).
- **CAN:** It can connect to a lithium battery BMS via pins 4 and 5.

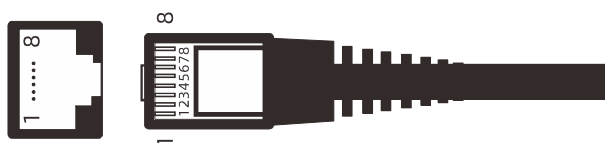
② **Power supply function:** Provides power input to the monitoring unit via pins 1 and 2. Input voltage range: 8VDC to 60VDC.

The pin definition of the port is as follows:



Pin	Definition	Pin	Definition
1	VIN-	5	CAN-L
2	VIN+	6	RS485-A
3	RS485-B	7	LIN-BUS (reserved)
4	CAN-H	8	LIN-GND (reserved)

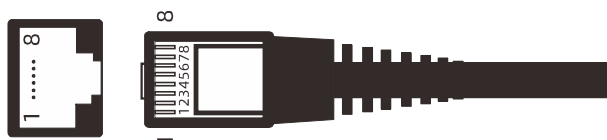
- (5) Supporting RS485 communication, it can connect to devices such as Wi-Fi modules, PCs, 4G modules, and TCP modules for remote monitoring (COM ID: 32, read-only). The pin definition of the port is as follows:



Pin	Definition	Pin	Definition
1	+5VDC (300mA)	5	/
2	/	6	RS485-A
3	RS485-B	7	/

4	/	8	COM-GND
---	---	---	---------

- (6) Supports either RS485 or CAN communication (reserved). Users can select the appropriate interface type based on actual application requirements. The device features a built-in BMS-Link module. After connecting a lithium battery directly to the BMS port, the module converts BMS protocols from various lithium battery manufacturers into the device's standard protocol by configuring the corresponding BMS protocol ID. This enables reliable communication between the device and lithium battery BMS units from different brands. The pin definition of the port is as follows:



Pin	Definition	Pin	Definition
1	/	5	CAN-L (reserved)
2	/	6	/
3	/	7	RS485-A
4	CAN-H (reserved)	8	RS485-B

Tip	Please go to EPEVER official website to check or download the currently supported BMS manufacturers and the BMS parameters
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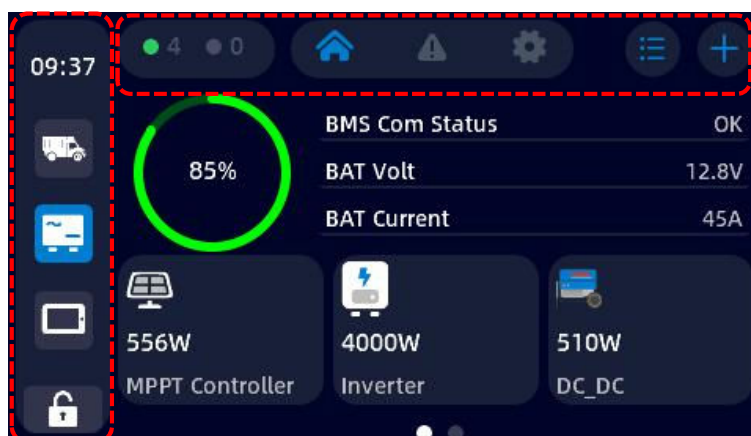
1.2.2 Buttons/LCD

a) Buttons

Buttons	Operation	Instruction
	Press	- Enter the select interface. - Confirm settings.
	Press	Exit the current interface.
	Press	Moves the cursor left or up.
	Press	Moves the cursor right or down.

b) Display screen

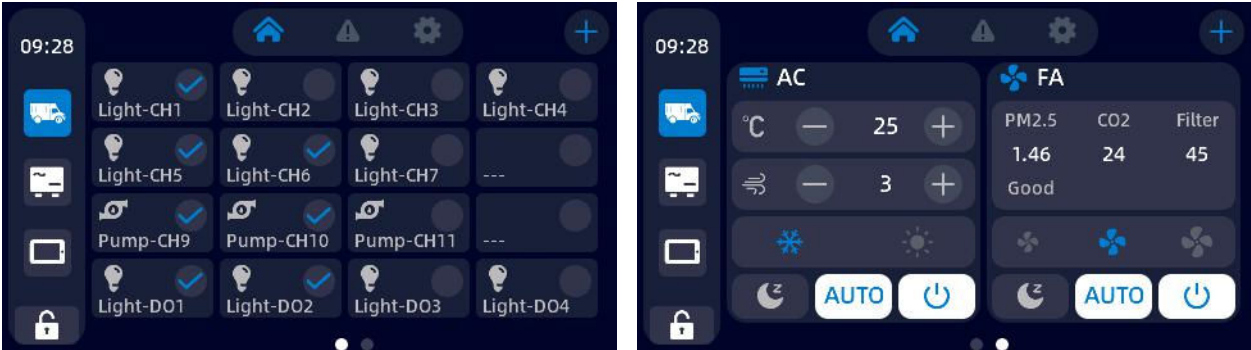
1) Menu bar



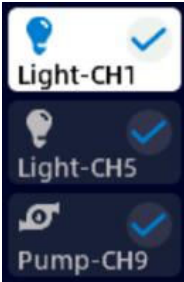
Icon	Instruction
	Displays the system time. Please set the system time correctly before use.
	On-board equipment icon (available only on the RV's central control display). When selected, switches to the on-board equipment screen, and the title bar provides access to the main page of on-board devices, fault query and parameter settings.
	Power device icon. When selected, switches to the main screen. The title bar provides access to the main page of power devices, fault query, and parameter settings.
	LCD device icon. When selected, switches to the LCD quick setup screen. The title bar provides access to the main page of LCD, fault status and parameter settings.
	Lock screen icon (available only on the RV's central control display). When selected, switches to the lock screen.
	Displays the number of power devices online/offline. Tap to view details. This icon appears only on the power device screen.
	Homepage icon. Tap to quickly return to the home screen.
	System fault status icons. : No fault; : Fault detected. Tap the icon to view real-time fault information. See Subsection 3.4.4 Real-time faults and events for details.
	Parameter settings icon. Tap to enter the parameter browsing screen, where various parameters can be customized. See Section 3.5 Parameter settings for details.

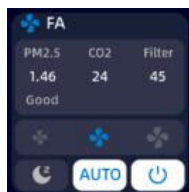
	Real-time parameters of power devices. Tap to view real-time data of all selected power devices. This icon appears only on the power device screen.
	Add devices icon. Tap this icon on the power device or on-board equipment screen to enter the device addition screen. See Section 3.3 Add/Modify device for details.

2) On-board equipment screen



Note: This function is only available for RV's central control display.

Icon	Instruction
	User-added switchable devices (e.g., lights, pumps).  : Highlighted icon indicates the device is ON;  : Grayed out icon indicates the device is OFF;  indicates the device is displayed on lock screen;  indicates the device is not displayed on lock screen.  indicates an unadded or non-controllable device. (The 2nd and 3rd positions in column 4 of the display are non-controllable devices.)
	RV air conditioner information.  : Temperature and control buttons;  : Fan speed and control buttons;  : Cool mode switch;  : Heat mode switch;  : Sleep mode switch;  : Auto mode switch;  : ON/OFF icon (when the icon is highlighted, the air conditioner is turned on; when the icon is grayed out, the air conditioner is turned off.)



RV ventilation system information.

PM2.5	CO2	Filter
1.46	24	45

: Data of the PM2.5 level, CO₂ level, and filter dust accumulation.

Good

: Displays the cabin air quality;



: Sleep mode switch;



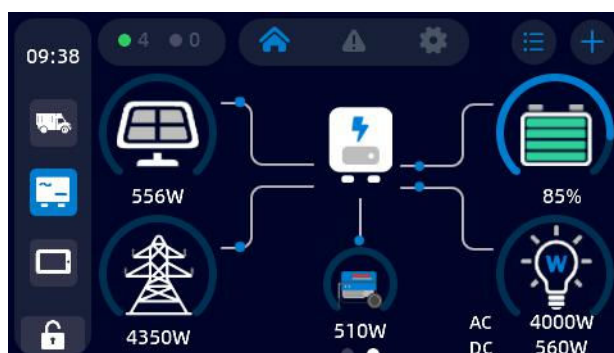
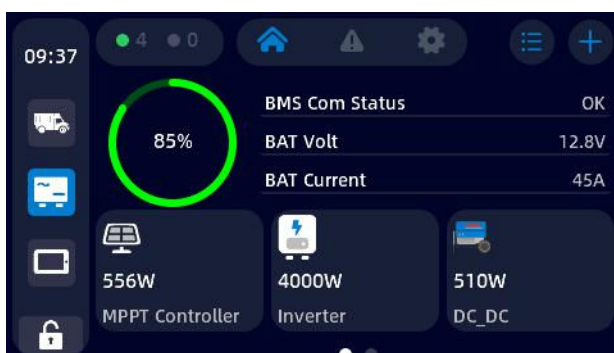
: Auto mode switch;



: ON/OFF

icon (when the icon is highlighted, the ventilation system is turned on; when the icon is grayed out, the ventilation system is turned off.).

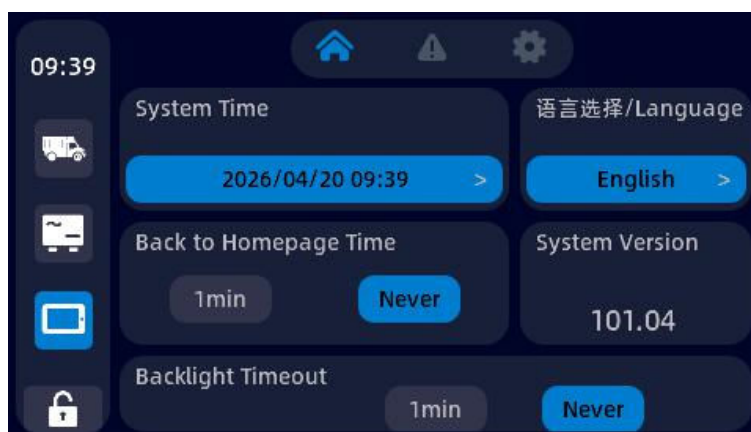
3) Power device screen

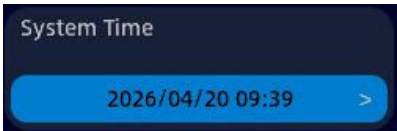
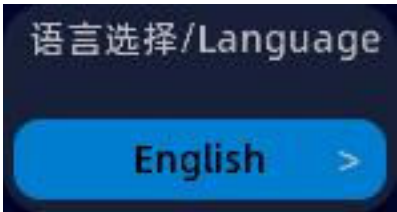
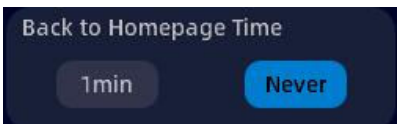
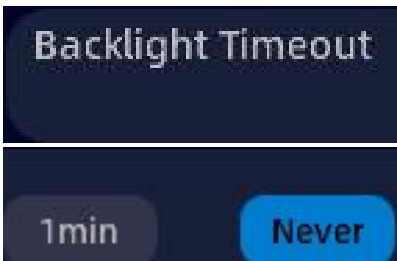


Icon	Instruction
	Displays the SOC value for lithium batteries with communication. For batteries without communication (including lead-acid), the SOC value is not displayed.
	Displays the communication status, voltage, and current of the lithium battery. Battery current not shown for non-communicating batteries (including lead-acid). Note: BMS Comm Status: OK = Normal, NG = Fault, NO = Disabled.
	Displays the total power of the MPPT.
	Displays the total power of the inverter.
	Displays the total power of the DC-DC converter.
	Indicates multiple pages of data are available. Swipe left or right to navigate between pages.

	Displays the operating status, total power, and energy flow of PV devices.  : PV is active/working;  : PV voltage is too low.
	Displays the operating status, total power, and energy flow of utility.  : Utility is connected;  : No Utility power connected.
	Power device icon.
	Displays battery level and energy flow status. Note: For lithium batteries with communication, the display shows SOC, and the energy flow direction reflects real-time battery current. For non-communicating batteries (including lead-acid), the display shows voltage, and the energy flow direction is derived from estimated power calculations, which may be subject to estimation deviations.
	Displays the load status, total power, and energy flow.  : AC output is available;  : AC output is not available.
	Displays starter battery status, total power, and energy flow.  : Starter battery connected and voltage normal.  : Starter battery voltage too low or not connected. Note: Displayed on the RV's central control display only.

4) LCD



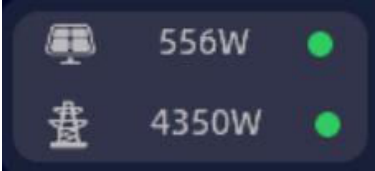
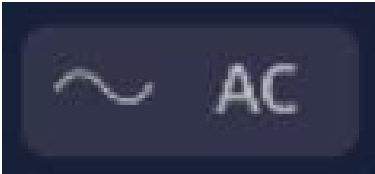
Icon	Instruction
	Displays the LCD system time. Tap the blue time area to modify the time.
	Displays the LCD system language. Tap the blue key to change the display language.
	Sets the idle time before the LCD automatically returns to the home screen. After modification, the key turns blue.
	Displays the LCD system version number.
	Sets the backlight delay time when the LCD is idle. After modification, the key turns blue.

5) Lock screen



Note: This function is only available for RV's central control display.

Icon	Instruction
2026-04-20 09:29	Displays the system time.
	System fault icons. : No fault; : Fault detected (appears when a fault occurs in on-board equipment, power devices, or the monitoring unit). To view detailed fault information, exit the lock screen first.
Inside 23.45°C Outside 34.56°C	Displays the interior and exterior temperature of the RV.
	Displays the SOC percentage of the RV house battery. For batteries without communication (including lead-acid), the SOC value is not displayed.
30% FWT-TANK1, 55% FWT-TANK2, 65% GWT-TANK3, 80% BWT-TANK4	Displays the water tank remaining space.
Pump-CH9, Pump-CH10 Light-CH1, Light-CH5 Light-CH6, Light-DO1 Light-DO2, FA	Switchable on-board devices (including the ventilation system). Allows toggling the device on or off. Note: The two devices below the water tank are fixed to display the water pump.
	RV system operating modes. : Away mode, turns off all switchable onboard devices (as listed in section 3.3.1) and AC load when selected; : Economy mode, turns off the 20A load devices (as listed in section 3.3.1) connected to the HUB when selected;

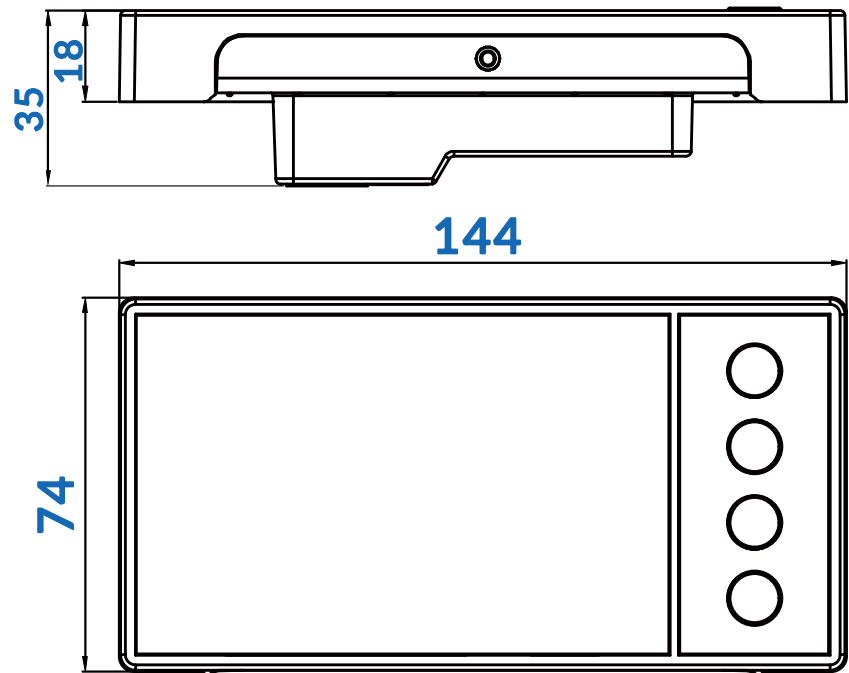
	 : Normal mode, all devices (as listed in section 3.3.1) operate normally when selected.
	Air conditioner on/off switch.
	Power device information. - MPPT and AC charging status:  indicates Charging;  indicates Not charging. - Displays the power of the MPPT and AC supply.
	On-board DC load switch. Turns all DC loads on/off from the on-board equipment home screen, except devices that are non-controllable or bound to a mechanical switch.
	AC switch (Power devices). When utility power is not available, this switch turns the AC loads on/off. When utility power is present, the AC loads are powered directly by the utility bypass and this switch has no control over the AC loads. Note: After the RV central control display is powered on, this switch is off by default and must be turned on manually.
	Exit button. Tap to exit the lock screen. Located at the bottom of the LCD screen.

NOTICE

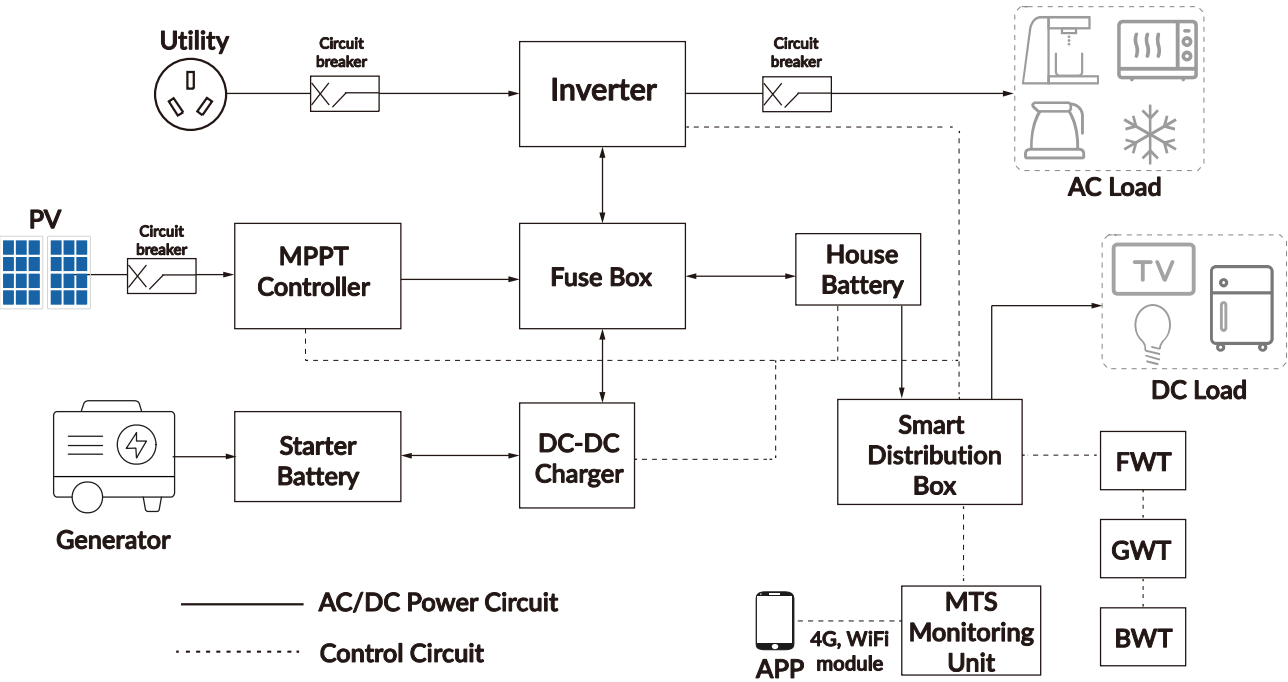
- When the RV central control display powers on, the lock-screen DC switch is off by default. It turns on automatically when any controllable switchable on-board devices (except FA system and air conditioner) is turned on (mechanical-switch-bound devices excluded).
- The lock-screen AC switch is off by default and requires manual activation to power AC loads.

1.2.3 Dimensions

Unit: mm



1.3 System schematic diagram



2 Installation and Connection

2.1 Precautions

- Please read the manual carefully to get familiar with the installation steps before installation.
- Loose connections or corroded wires may cause excessive heating, melt the wire insulation, ignite surrounding materials, or even result in fire. Ensure all connectors are properly tightened. It is recommended to secure wires with cable ties to prevent connectors from loosening due to wire movement in mobile applications.
- Although the monitoring unit supports a wide DC input voltage range, the DC input must be connected strictly in accordance with the specifications in the parameter table. Voltage that is too high or too low may cause the unit to malfunction or become damaged.
- System connection wires shall be selected based on a current density not exceeding 3.5A/mm^2 .
- Avoid direct sunlight and rain infiltration for outdoor installation.
- Do not install the monitoring unit in the humid, salt spray, corrosive, greasy, flammable, explosive, dust accumulative or other severe environments.

2.2 Installation requirements

Ensure that sufficient space is available when determining the installation location for the monitoring unit.

NOTICE

It is not recommended to use this product in a closed environment.

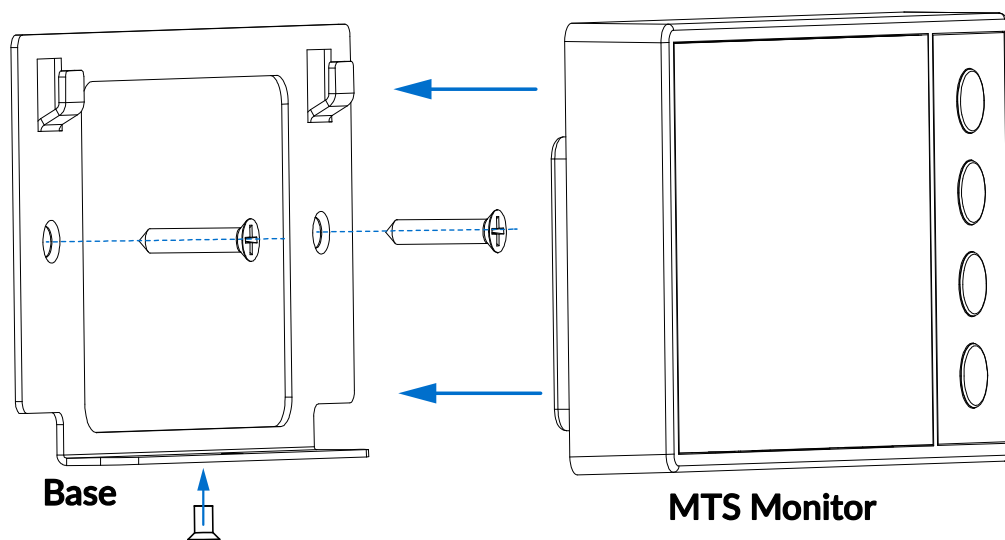
2.2.1 Wall mounting

Step 1: Position and drill holes according to the mounting dimensions of the base, then install plastic expansion bolts.

Step 2: Secure the base using two cross-recessed pan head self-tapping screws.

Step 3: Place the monitoring unit into the base slot and snap it into place.

Step 4: Fasten the monitoring unit to the base using one $\text{M3} \times 8$ countersunk head screw.



2.2.2 Wire size

Wiring and installation methods shall comply with local electrical code requirements.

It is recommended that the conductor cross-sectional area of the wiring connected to the POWER port of the monitoring unit be no less than 0.2 mm².

2.3 Device connection

2.3.1 Connecting power and communication cables

1. **Power supply selection:** Choose one of the following three interfaces as the power input: **Type-C port:** Standard 5VDC power input; **POWER port** or **PORT com. port:** Input voltage range from 8VDC to 60VDC.

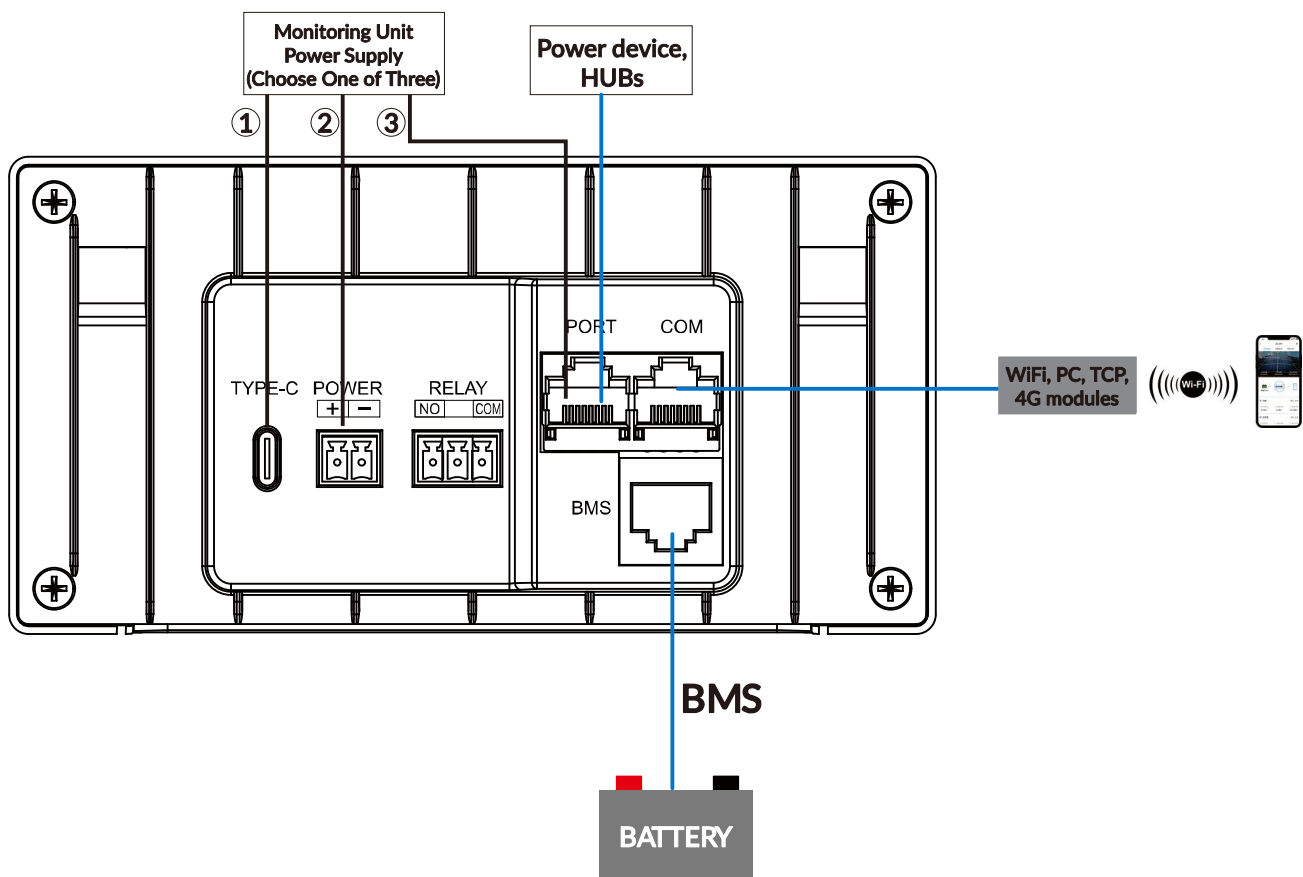
2. **Multi-device networking power supply:** When multiple power devices are present in the system, they can be connected to the PORT port of the monitoring unit via a HUB device (see interface definition in Subsection 1.2.1 Appearance and ports). PORT port allows a HUB device (e.g., COM port of the RV Power Distribution Box) with power supply capability to power the monitoring unit.

3. **Remote monitoring connection:** The COM port (ID: 32, read-only) can be connected to devices such as Wi-Fi modules, PCs, 4G modules, or TCP modules for remote monitoring (see interface definition in Subsection 1.2.1 Appearance and ports).

4. **Lithium battery communication connection:** Connect the lithium battery communication cable to the BMS port of the monitoring unit. This port supports either RS485 or CAN communication (see interface definition in Subsection 1.2.1 Appearance and ports).

NOTICE

The powered RJ45 connector from the "Power Distribution Box" COM port is designed only for the PORT interface. Do not connect it to the COM port or BMS interface of the monitoring unit, as this may damage the unit.



2.3.2 Wireless auto-networking

The monitoring unit is equipped with a built-in Zigbee module (MTS43-RVZ, MTS43-PZ), which enables auto-networking among the unit, HUB devices, and power devices without the need for communication cables.

NOTICE

- When using wireless auto-networking, the corresponding HUB devices and power devices must be equipped with Zigbee modules that are paired with the unit's built-in Zigbee module.
- Remote monitoring via the COM port is not supported in wireless auto-networking mode. For remote monitoring, communication via the PORT (RS485) interface is recommended.

2.3.3 Custom Bluetooth module

The monitoring unit can be customized with a built-in Bluetooth module, which enables auto-networking among the unit, HUB devices, and power devices without the need for communication cables (functionally identical to the Zigbee module).

NOTICE

- The custom Bluetooth module must be configured at the factory prior to shipment.
- The corresponding HUB devices and power devices must be equipped with Bluetooth

modules that are paired with the unity's built-in Bluetooth module.

2.3.4 Connecting optional accessories

a) When connecting a lead-acid battery and the system includes a HUB device, an optional remote temperature sensor (Model: RTS-D47K) is required to monitor battery temperature, with a maximum sensing distance of ≤ 20 meters. The remote temperature sensor connects to the RV.BUS-5V (3×RJ45) port on the HUB device and must be added as a power device on the display (refer to Subsection [3.3.2 Adding power device](#) for details).

b) When connecting a lead-acid battery and the system does not include a HUB device, an optional remote temperature sensor (Model: RTS300R47K3.81A) is required to monitor battery temperature. This sensor must be connected to a power device, such as the TRC series. For detailed instructions, refer to the corresponding product manual.

NOTICE

- The remote temperature sensor is intended only for use in RV systems.
- The sensor ID is fixed at 29 and is not user-configurable. When adding this accessory, ensure the ID is set to 29.
- When no temperature sensor is connected, the default charging temperature is 25°C, and temperature compensation is disabled.

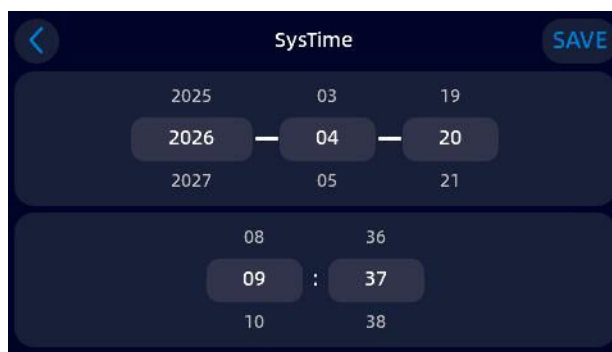
3 Operation

3.1 Device startup

Before operating the device, verify that all components are wired correctly, with no misconnections or missing connections. When power is applied, the screen lights up and displays the following in order: Welcome Screen → Program Loading Screen → RV System Quick Setup Screen.



On the Quick Setup of the RV Central Control System screen, tap “OK/ 确认” to enter the language selection screen. On the “Language Selection” screen, after setting the need language, tap  to enter the “SysTime” setting screen.



After setting the system time, select "SAVE". The system will then navigate to the on-board equipment screen. **Note:** Once the system time is set and saved on the multi-device monitoring system, the display will navigate to the Power Device screen.

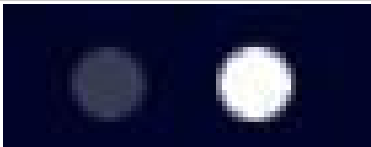
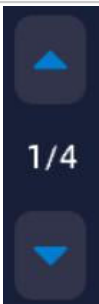
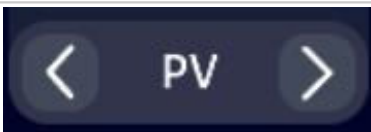
NOTICE

- The RV System Quick Setup screen and the on-board equipment addition screen are displayed only during the first power-on of the monitoring unit. After the unit is powered off and then restarted, the program will load and then jump directly to the lock screen. While for the multi-device monitoring system, the display will navigate to the Power Device screen.
- On any of the screens mentioned above, tapping the icon  will return to the previous screen.

3.2 Operate the device

3.2.1 Touchscreen operation

Tap icons on the touchscreen to view the corresponding parameters.

Icon	Instruction
	Indicates multiple pages of display or settings. Swipe left or right to navigate through all pages.
	Indicates data from two or more devices. Tap  /  to switch between real-time data of different devices.
	Indicates multiple data groups for the current device. Tap  /  to switch between different data groups.
	Parameter setting methods: 1. On/Off switches:  indicates OFF;  indicates ON. Tap the button to toggle the state. 2. Selections: Tap the desired option. Upon successful setting, the option will be highlighted. 3. Input type: Enter numeric values or text using the on-screen keyboard. The entered content appears in the input field. Tap "Save" to confirm and automatically return to the previous screen.



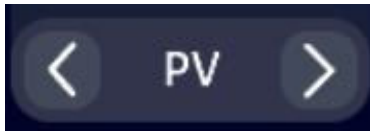
Time setting: Swipe up or down on the year, month, day, hour, and minute fields respectively. The value displayed in the central box is the selected value. Finally, tap the “Save” button to return to the previous screen. The system time is now set.

NOTICE

- When setting parameters, a "Processing..." prompt appears. When the prompt disappears with "√ Success", the setting is successful. When it disappears with "× Failed", the setting has failed.
- Tap the icon  in the upper-left corner to return to the previous screen.
- If the entered value is within the allowed range, tapping “SAVE” returns to the previous screen and the parameter value changes. This indicates the setting was successful. If the entered value exceeds the allowed range, the input field border turns red. Tapping “SAVE” returns to the previous screen but the parameter value does not change. This indicates the setting failed.
- To switch between the on-board equipment screen, power device screen, LCD screen, and lock screen, tap the corresponding icon:  /  /  / .
- On the on-board equipment screen, tap  /  to exit the current screen and return to the on-board equipment main page.
- On the power device screen, tap  /  to exit the current screen and return to the power device main page.
- On the LCD screen, tap  /  to exit the current screen and return to the LCD main page.

3.2.2 Button operation

Icon	Instruction
	Indicates multiple pages of display or settings. Press  /  to move the cursor. When the selected icon is on the first or last line of the current page, press the  /  again to turn the page and view other parameters.
	Indicates data from two or more devices. Press  /  to move the cursor, select  /  , and then press the confirm key  to switch between real-time data of different devices.



Indicates multiple data groups for the current device. Press / to move the cursor, select / , and then press the confirm key to switch between different data groups.

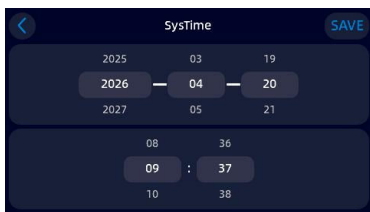


Parameter setting methods:

On/Off switches: indicates OFF, and indicates ON. Press / to move the cursor, select the button, and then press the confirm key to toggle the state.

Selections: Press / to select the desired parameter button, then press the confirm key to enter the configurable screen; then press / to select the desired option, and press the confirm key to complete. Upon successful setting, the option will be highlighted.

Input type: Press / to select an input-type parameter, then press the confirm key to enter the parameter input screen. Press / to select the desired digit, then press the confirm key . The selected digit appears in the input field. After entering all digits, press / to select "Save", then press the confirm key to return to the previous screen.



Time setting: On the time setting screen, press / to select the Year field, then press the confirm key . The year field border turns blue. Press / to adjust the year value, then press the confirm key to confirm. The year field border returns to white. Then press / to select the Month, Day, Hour, and Minute fields respectively, and adjust each following the same procedure. After making all adjustments, press / to select Save, then press the confirm key to return to the previous screen. The system time is now set.

NOTICE

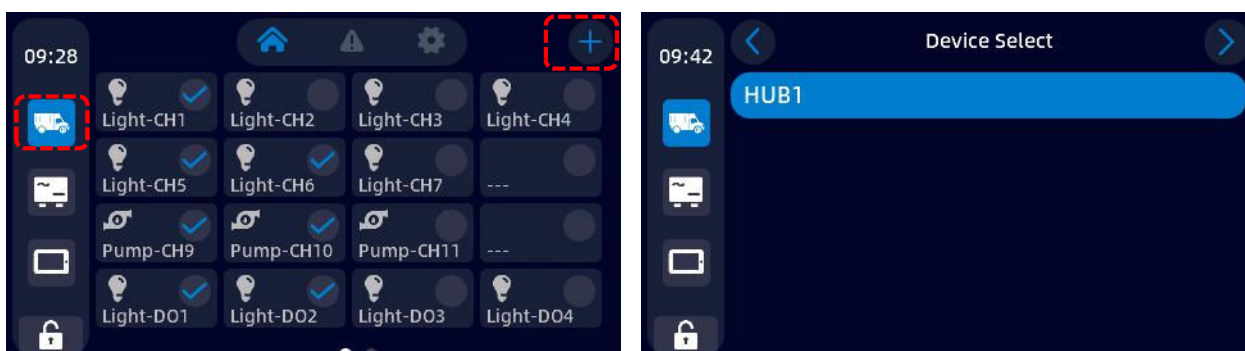
- When setting parameters, a "Processing..." prompt appears. When the prompt disappears with "√ Success", the setting is successful. When it disappears with "× Failed", the setting has failed.
- Press the Exit key  to return to the previous screen. The Exit key is inactive on the on-board equipment screen, Power Device screen, LCD screen, and Lock screen.
- If the entered value is within the allowed range, tapping "Save" returns to the previous screen and the parameter value changes. This indicates the setting was successful. If the entered value exceeds the allowed range, the input field border turns red. Tapping "Save" returns to the previous screen but the parameter value does not change. This indicates the setting failed.
- To switch between the on-board equipment screen, power device screen, LCD screen, and lock screen, press / to select the corresponding icon:  /  /  / , then press the confirm key .
- On the on-board equipment screen, select  /  and press the confirm key  to exit the current screen and return to the on-board equipment main page.
- On the power device screen, tap  /  and press the confirm key  to exit the current screen and return to the power device main page.
- On the LCD screen, tap  /  and press the confirm key  to exit the current screen and return to the LCD main page.

3.3 Add/Modify device

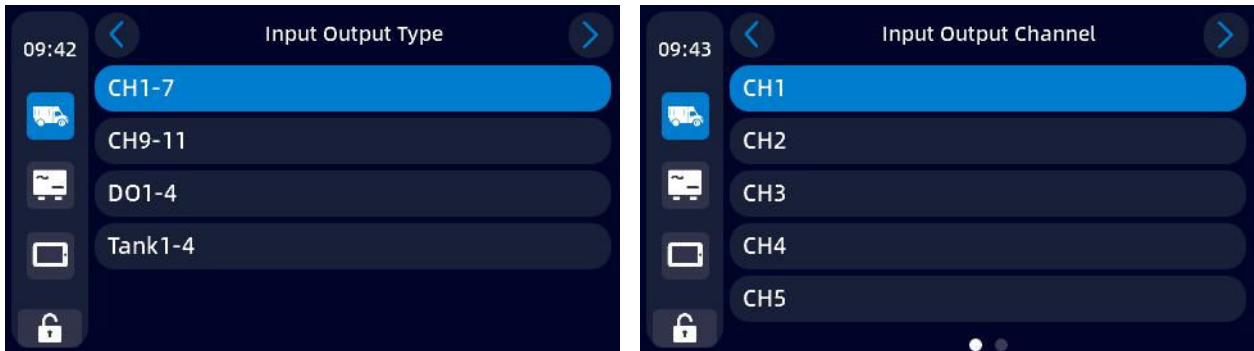
3.3.1 Adding on-board equipment

Note: The "3.3.1 Add on-board equipment" content is available only on the RV central control display. CH8 and CH12 are non-controllable devices and do not support adding or control (positions 2 and 3 in column 4 on the on-board equipment main screen).

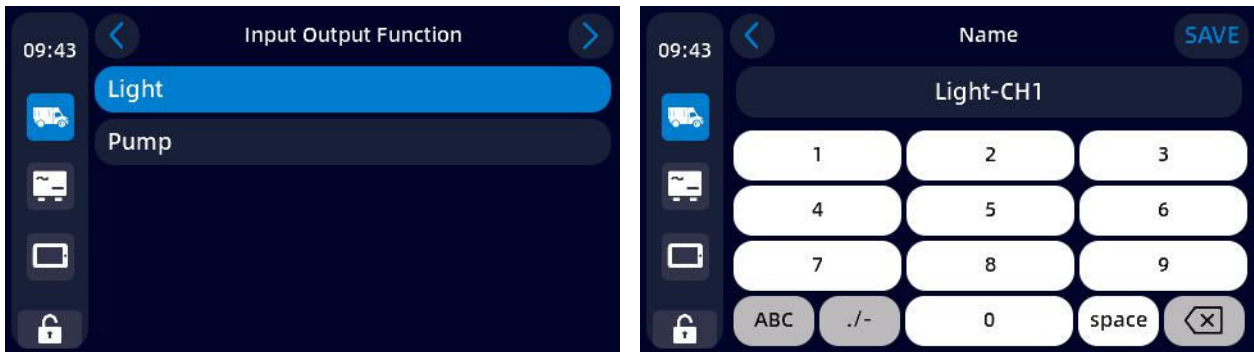
During first-time use, devices must be added first. On the Home screen, tap/select  to enter the on-board equipment screen, then tap/select  in the upper-right corner to enter the "Device Select" interface.



Tap/select the HUB device to which the target on-board device is connected, then tap/select  to enter the “Input Output Type” screen.



On the “Input Output Type” screen, select the type of the on-board device, then tap/select  to enter the “Input Output Channel” screen; select the channel number of the on-board device, then tap/select  to enter the “Input Output Function” screen.



Select the function of the on-board device, then tap/select  to enter the device name setting screen. Enter the desired display name (default is "device function + channel number", but custom names are also allowed). Select “SAVE” to save the settings and return to the on-board equipment screen. When communication is normal, the added on-board device can be controlled via the monitoring unit.

Note: The same procedure applies to adding other on-board equipment.

NOTICE

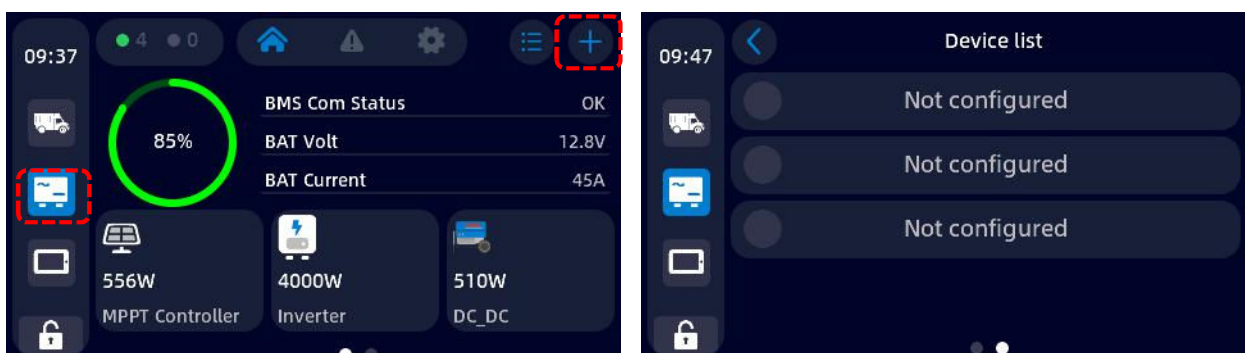
- On any of the screens mentioned above, tapping the icon  will return to the previous screen.
- The procedure for modifying an already added device is the same as for adding a new device.
- After adding on-board equipment, you must configure the parameters in the “Parameter Setup” screen before the devices can be viewed and operated on the monitoring unit. For details, see Subsection [3.5.1 On-board equipment settings](#).

Description for “Input Output Function”: HUB1 and HUB2 have the same functionality; the only difference is the number of available interfaces.

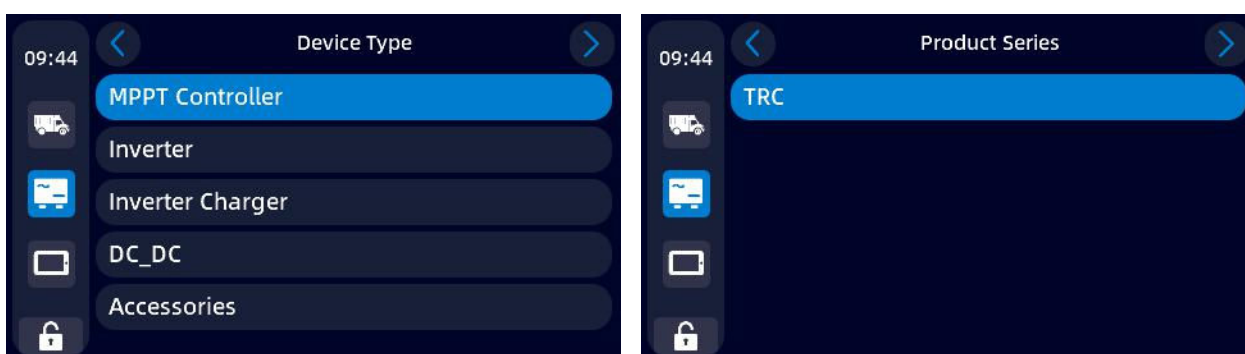
Input Output Type	Input Output Channel	Input Output Function	Function Description
CH1-7	CH1-CH7	Light/Pump	Supports 10A load
CH9-11	CH9-CH11	Light/Pump	Supports 20A load
DO1-4	DO1-DO4	Light/Pump	Provides dry contact output
Tank1-4	Tank1-Tank4	Fresh water tank (FWT) Grey water tank (GWT) Black water tank (BWT)	For connecting water tank level sensors

3.3.2 Adding power device

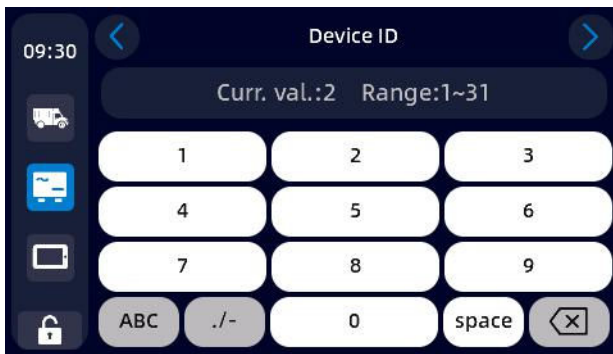
During first-time use, power devices must be added first. Tap/select the power device icon  on the Home screen, then tap/select  in the upper-right corner to enter the device list screen.



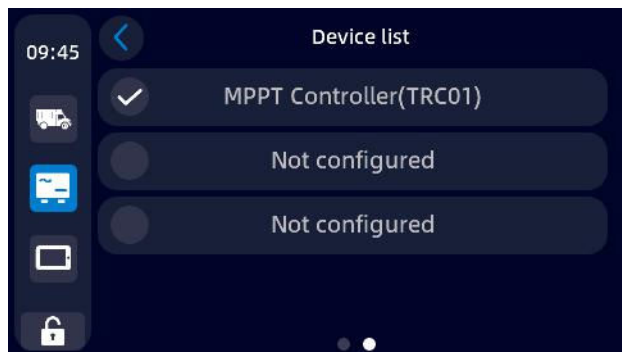
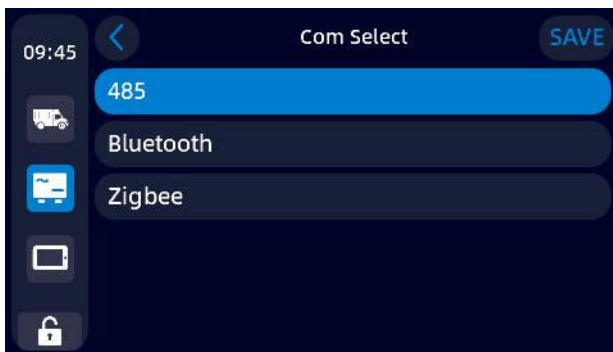
Choose “Not configured” option to enter the “Device Type” interface. Power device types include: Controllers, Inverters, Inverter/chargers, DC-DC converters, and accessories.



Select the type corresponding to the device to be added, then tap/select  to enter the product series selection screen. Select the corresponding product series, then tap/select  to enter the device ID setting screen.



On the “Device ID” screen, input the same ID as the device to be added (**Note:** Device ID in the device list must be unique, range: 1–31.). Tap/select  to enter the device name setting screen, then input the desired display name (default is "Series name + number", but custom names are also allowed). Tap/select  to enter the communication methods selection screen.



On the “Com Select” screen, select the corresponding communication method, and tap/select “SAVE” to complete the settings, then the screen will return to the device list screen. Tap/select  to taggle the newly added device. When communication is normal, the device data can be viewed. Communication methods include: 485 (wired), Bluetooth (wireless), Zigbee (wireless).

NOTICE

- On any of the screens mentioned above, tapping the icon  will return to the previous screen.
- The procedure for modifying an already added device is the same as for adding a new device.
- Zigbee communication is supported only by displays with built-in Zigbee module (MTS43-RVZ, MTS43-PZ).
- Bluetooth communication is supported only by displays with optional built-in Bluetooth module.

Description for power devices:

No.	Device Type	Product Series
1	Controller	TRC/TIS/TEP/Tracer_BPL Series
2	Inverter	IPR Series, IPower_PLUS Series
3	Inverter/charger	ICR Series

4	DC_DC converter	DUC Series
5	Accessories	RTS

NOTICE

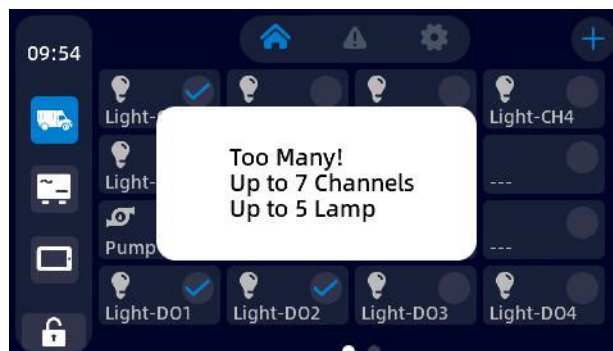
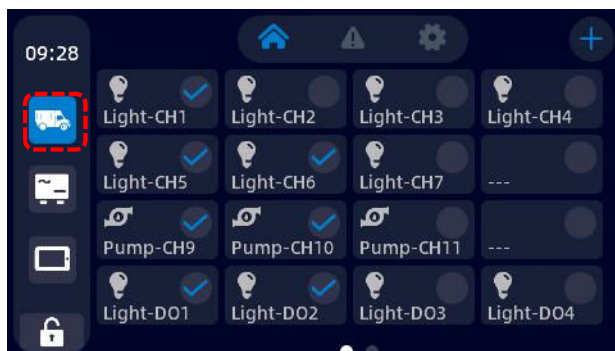
- The RV central control display is compatible exclusively with the TRC series controller and the IPR series inverter.
- The RTS ID must be configured as 29 upon connection; any other ID setting will not be recognized.
- The product series supported by the multi-device monitoring system are subject to the actual display on the screen.

3.4 View real-time data

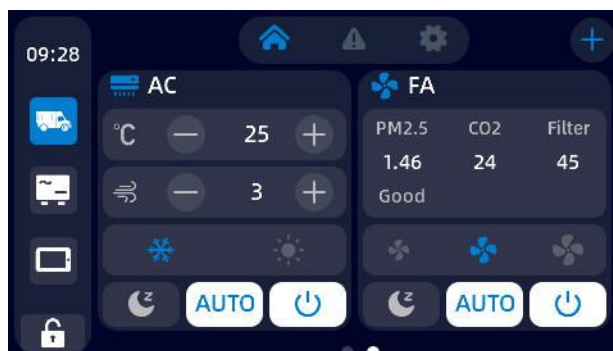
3.4.1 On-board equipment

Note: The "3.4.1 On-board equipment" content is available only on the RV central control display.

Tap/select the on-board equipment icon  to view the real-time status of added on-board devices. On this screen, you can turn lights, pumps, and other devices on or off. Devices selected on this screen ( checked with) will be displayed on the lock screen. Max 7 devices total, with no more than 5 lights. Exceeding limits triggers the pop-up prompt.



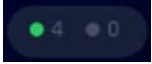
Swipe left or right on the current page to turn pages. On the real-time status screen of the air conditioner and fresh air system, you can turn the devices on/off and adjust their parameters.

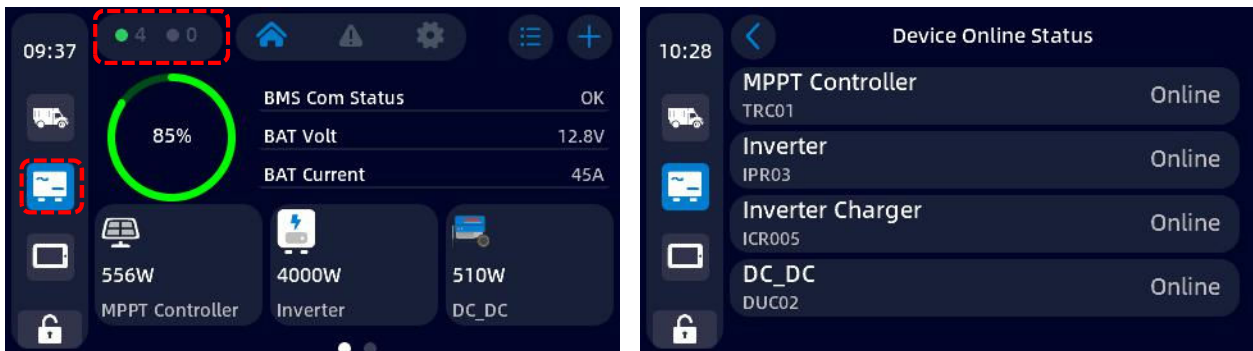


On the air conditioner and ventilation system real-time status screens, you can turn these devices on/off and adjust their parameters.

3.4.2 Power devices

a) Online status checking

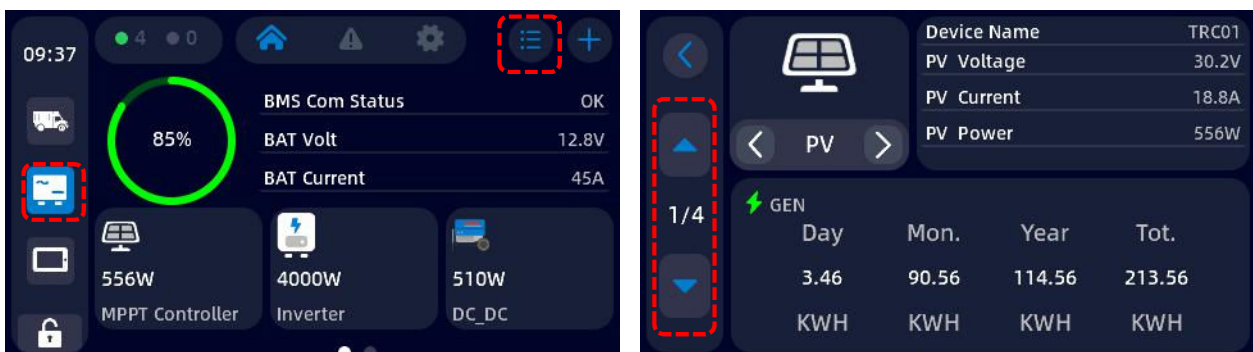
Tap the power device  icon to enter the main screen, then select the  icon on the upper left corner to view the online status of selected power devices.



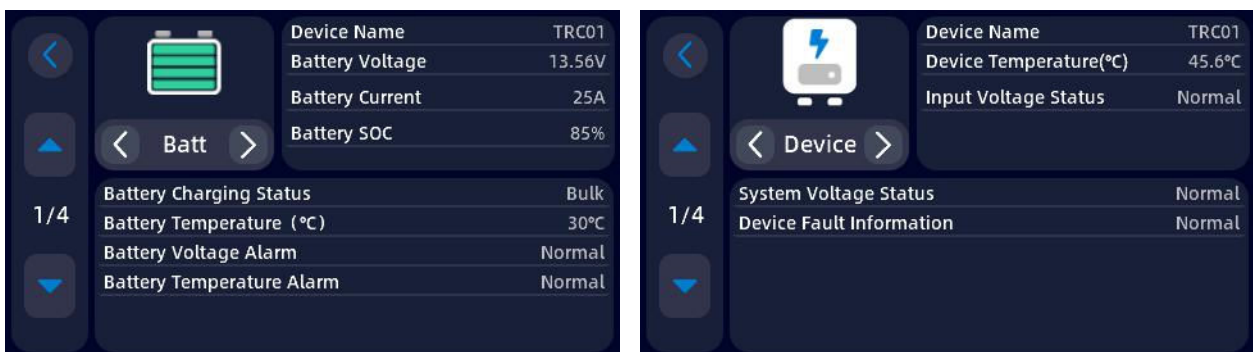
b) Real-time data

The TRC series is used as an example (other series may vary based on actual display). Tap/select the power device icon , then tap/select  to enter the PV real-time parameters screen.

On the real-time parameters screen, select  /  in the left navigation bar to switch between different power devices.



On the PV real-time data screen, select  to enter the battery real-time parameters screen.



On the battery real-time parameters screen, select  to enter the device parameters screen.

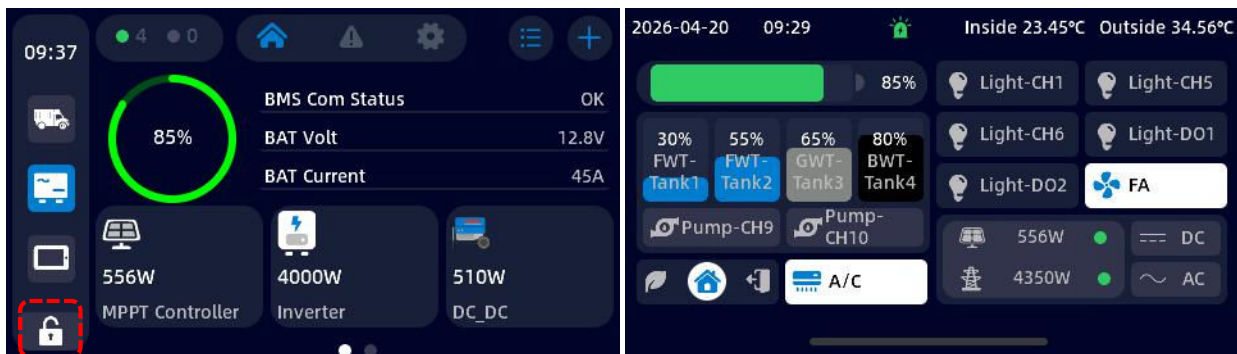
On the device parameters screen, select  to enter the product information screen.



3.4.3 Lock screen

Note: The "3.4.3 Lock screen" content is available only on the RV central control display.

Select the lock screen icon  to view real-time parameter status on the lock screen.



Read-only data on the lock screen: System alarm status, indoor and outdoor temperature, RV house battery SOC percentage, water tank level, power device (MPPT and AC source supply) charging status and power display.

Operable controls on the lock screen: RV system operating mode, switchable devices selected on the on-board equipment screen, air conditioner, ventilation system, DC load master switch, and AC load master switch.

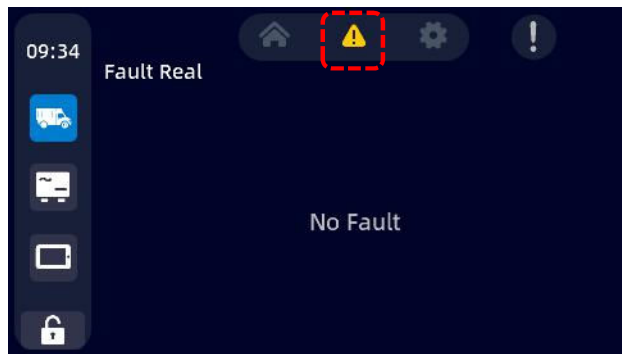
3.4.4 Real-time faults and events

a) On-board equipment

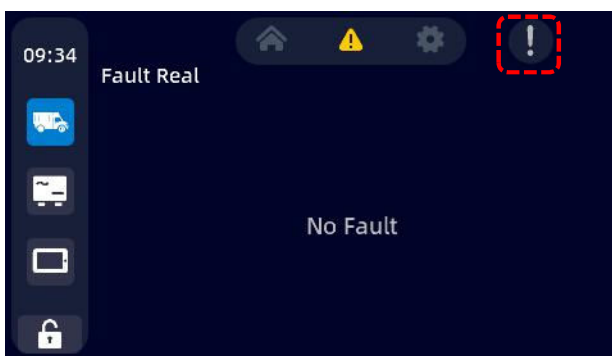
Note: The content is available only on the RV central control display.

When  is selected in the left navigation bar, the title bar  indicates the fault status of on-board equipment:  indicates no fault, the icon  flashes indicates fault detected.

Select  to enter the real-time fault information screen for on-board equipment. Swipe left or right to navigate between pages. Fault information is cleared only after the fault is resolved.



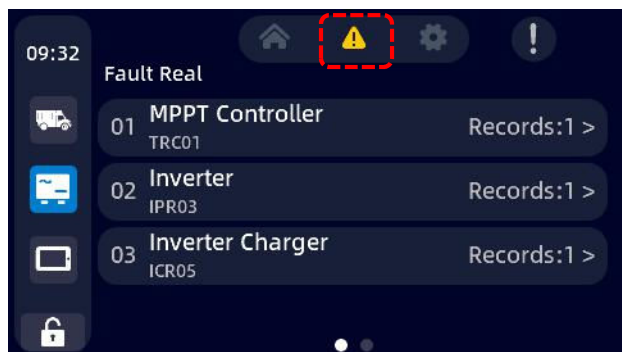
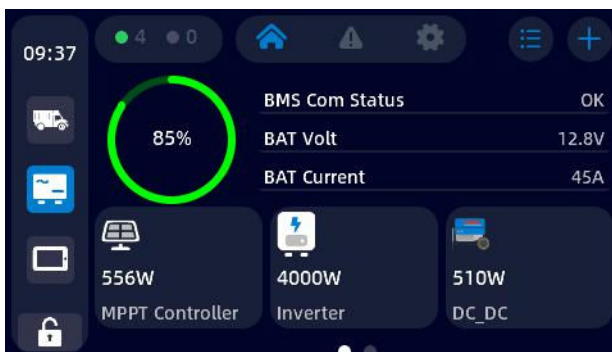
On the real-time fault list screen, tap  to view real-time event information for on-board equipment. Swipe left or right to navigate between pages on the event information screen. Event information is cleared only after the event is resolved.



b) Power device

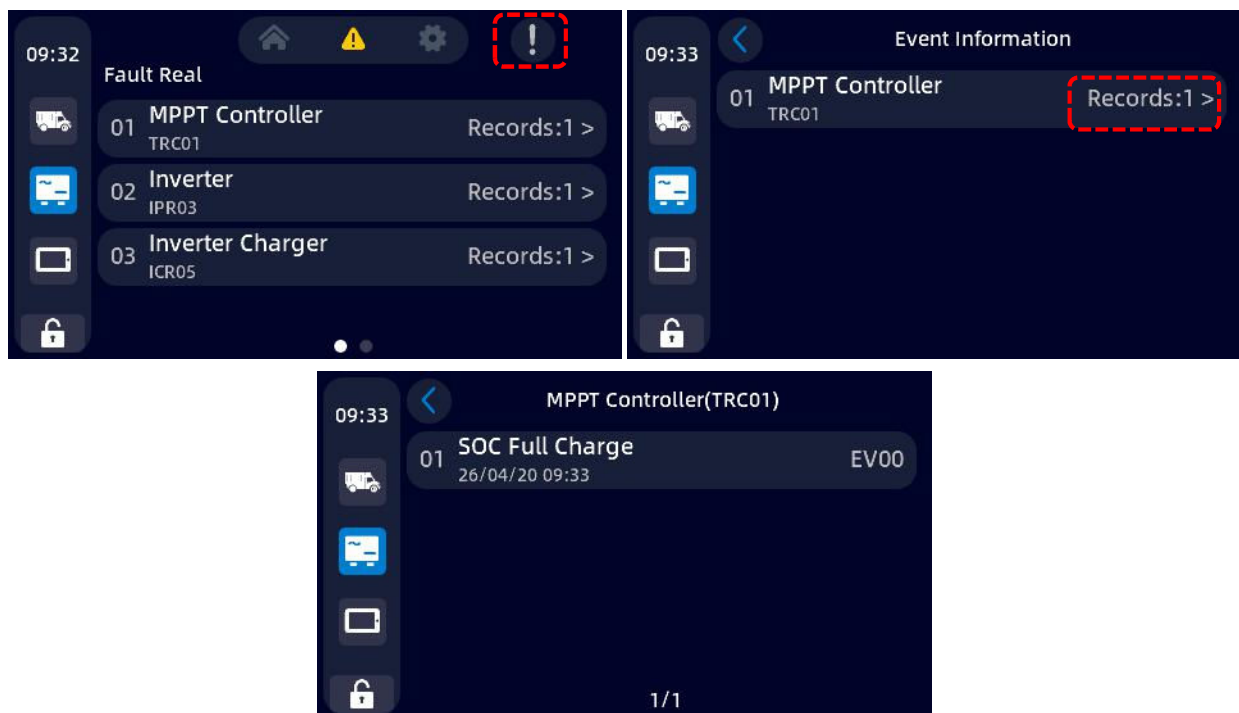
When  is selected in the left navigation bar, the title bar  indicates the fault status of on-board equipment:  indicates no fault, the icon  flashes indicates fault detected.

Select  to enter the power device real-time fault list. The screen displays the current fault count for each added device. Select a device to view its current fault information. Swipe left or right to navigate between pages. Fault information is cleared only after the fault is resolved.





On the real-time fault list screen, select  to view real-time event information for power devices. The main screen shows the current event records for each added device. Select a device to view its current event information. Swipe left or right to navigate between pages on the event list screen. Event information is cleared only after the event is resolved.

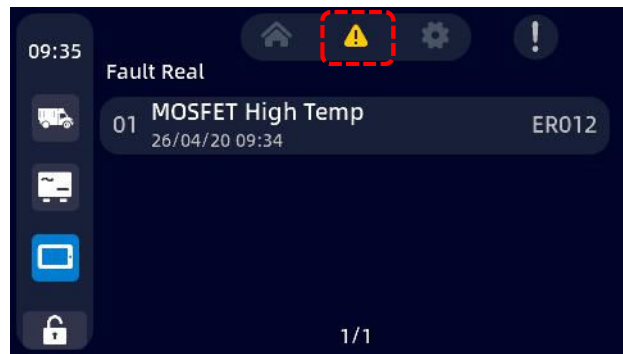
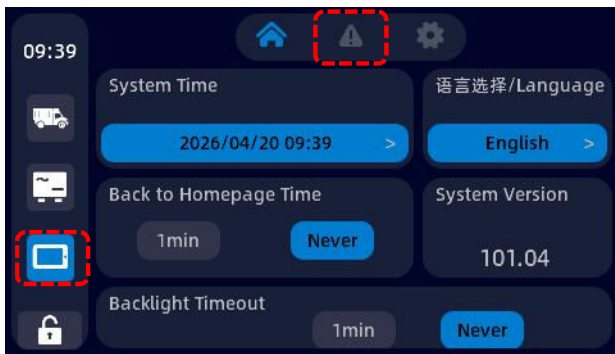


c) LCD

When  is selected in the left navigation bar, the title bar  indicates the fault status of the LCD:  indicates no fault, the icon  flashes indicates fault detected.

Real-time Fault

Select  to enter the LCD real-time fault information screen. Swipe left or right to navigate between pages. Fault information is cleared only after the fault is resolved.



Real-time Event

On the real-time fault list screen, select  to view real-time event information for the LCD. Swipe left or right to navigate between pages on the event information screen. Event information is cleared only after the event is resolved.

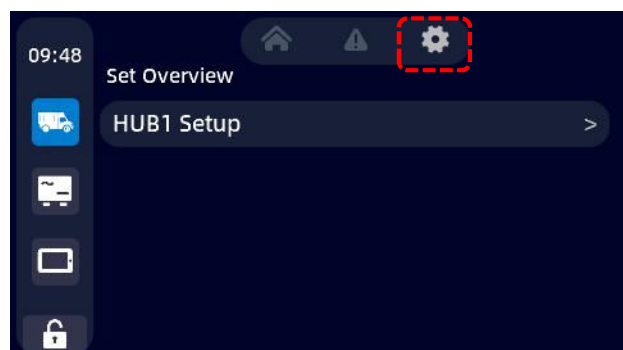
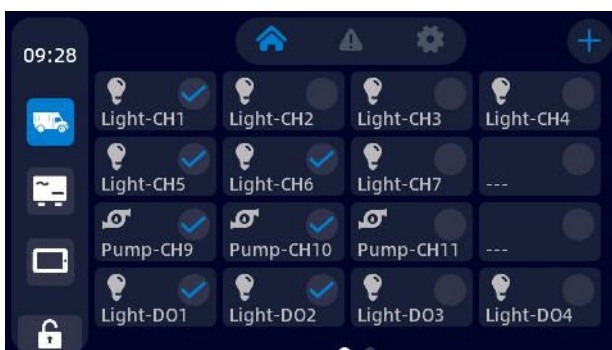


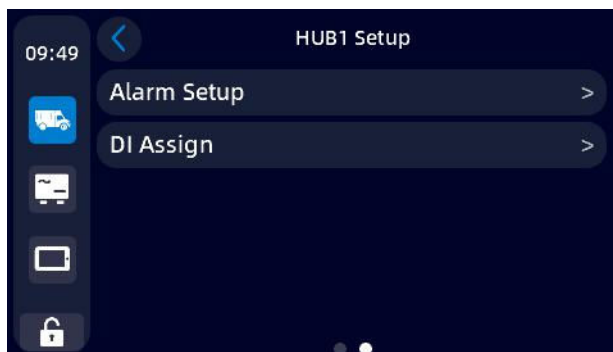
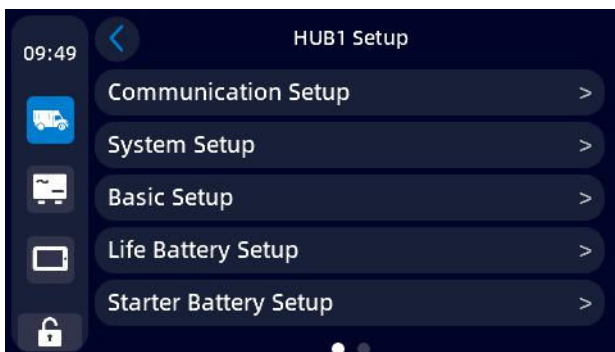
3.5 Parameter settings

3.5.1 On-board equipment parameters

Note: The content is available only on the RV central control display.

Select  to enter the On-board equipment screen. Select  to enter the “Set Overview” screen, and Click “HUB1 Setup” to enter the parameter setting screen, including setups of communication, system, basic parameter, house battery, starter battery, alarm and DI binding.





a) Communication Setup

Click “Communication Setup” on the “HUB1 Setup” page. Communication parameter default values and setting ranges:

Parameter	Default	Instructions
Valid	Enable	User define: Enable; Disable
Device ID	4	User define: 1–31
Communication interface	485	User define: 485, Bluetooth, Zigbee



: Enable;



: Disable

NOTICE

- The monitoring unit can communicate with the on-board devices only after the communication settings have been set to Enable.
- The HUB device ID and power device ID must not be the same; otherwise, communication will fail.
- Zigbee communication is supported only by displays with built-in Zigbee module (MTS43-RVZ, MTS43-PZ).
- Bluetooth communication is supported only by displays with optional built-in Bluetooth module.

Tip

The settings described in following items b) through g) are only available after the HUB device has been successfully connected.

b) System Setup

Click “System Setup” on the “HUB1 Setup” page. System parameter default values and setting ranges:

Parameter	Default	Instructions
Time Clock	2000-01-01 00:00	User define: 2000-01-01 00:00 to 2099-12-31 23:59

Max Load Current	80A	User define: 1A–106A
------------------	-----	----------------------

NOTICE

When the HUB device is powered off and then back on, the clock retains the time prior to the power outage.

c) Basic Setup

Click “Basic Setup” on the “HUB1 Setup” page. Basic parameter default values and setting ranges:

Parameter	Default	Instructions
Restore to Factory	--	Restore the LCD settings to the factory defaults.
Clear Accumulated Energy	--	Clear the cumulative energy data.
Clear Fault	--	Clear the active faults.

d) Life Battery Setup

Click “Life Battery Setup” on the “HUB1 Setup” page. Battery parameter default values and setting ranges:

Parameter	Default	Instructions
Overvoltage Disconnect	16.0V	User define: 9-68V
Overvoltage Recovery	15.0V	
Low Voltage Disconnect	10.8V	
Low Voltage Recovery	12.5V	

NOTICE

The battery parameters must be configured in accordance with the following voltage hierarchy. Failure to do so will result in invalid settings: Overvoltage Disconnect (OVD) > Overvoltage Recovery (OVR) > Low Voltage Disconnect (LVD) > Low Voltage Recovery (LVR)

e) Starter Battery Setup

Click “Starter Battery Setup” on the “HUB1 Setup” page. Battery parameter default values and setting ranges:

Parameter	Default	Instructions
Overvoltage Alarm Voltage	16.0V	User define: 9-68V
Overvoltage Alarm Recovery Voltage	15.0V	

Undervoltage Alarm Voltage	11.1V	
Undervoltage Alarm Recovery Voltage	12.6V	

NOTICE

The battery parameters must be configured in accordance with the following voltage hierarchy. Failure to do so will result in invalid settings: Overvoltage Alarm Voltage > Overvoltage Alarm Recovery Voltage > Undervoltage Alarm Voltage > Undervoltage Alarm Recovery Voltage

f) Alarm Setup

Click “Alarm Setup” on the “HUB1 Setup” page. Alarm parameter default values and setting ranges:

Parameter	Default	Instructions
TANK1 Warning Up Limit	90%	User define: 0-100%
TANK1 Warning Down Limit	10%	
TANK2 Warning Up Limit	90%	
TANK2 Warning Down Limit	10%	
TANK3 Warning Up Limit	90%	
TANK3 Warning Down Limit	10%	
TANK4 Warning Up Limit	90%	
TANK4 Warning Down Limit	10%	
Temperature 1 High Limit	85°C	User define: -40°C to 100°C
Temperature 1 Low Limit	-40°C	
Temperature 2 High Limit	85°C	
Temperature 2 Low Limit	-40°C	

NOTICE

Temperature 1 alarm = Indoor temp (lock screen); Temperature 2 alarm = Outdoor temp (lock screen).

g) DI Assign

Click “DI Assign” on the “HUB1 Setup” page.

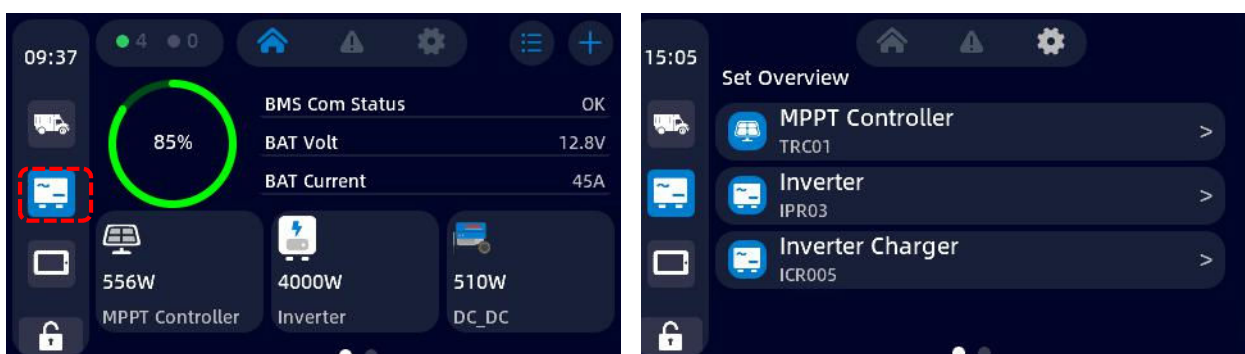
Item	Settings	Description
CH1-CH7	Unbind	This setting binds the mechanical switch at the DI input port to the output load switches (CH channels and DO channels), enabling the mechanical switch to turn the corresponding load on or off. Note: Once a channel is bound to a DI, it can only be controlled via the bound mechanical switch and cannot be operated from the central control display.
CH9-CH11	Bind to DI1	
	Bind to DI2	
	Bind to DI3	
DO1-DO4	Bind to DI4	
	Bind to DI5	
	Bind to DI6	

NOTICE

Each DI can be bound to a single CH or DO channel only. If DI1 is bound to CH1, it cannot be bound to any other channel.

3.5.2 Power device parameters

Select  to enter the Power device screen. Select  to enter the "Set Overview" screen.



The screen displays setting options for all added devices. Select the parameter settings for the desired device to enter its parameter setting list.

Setting options vary by product series. For specific parameters, refer to the actual display on the screen. On the current screen, select the parameter you wish to configure, then navigate to the corresponding setting screen to make changes.

NOTICE

- Power device parameter settings are for maintenance and technical support personnel only.
- For parameter settings of different power devices, please refer to the corresponding device manual.
- Certain device parameters are for viewing purposes only and are not user-configurable (e.g., "Charging Mode" under "System Settings" for the ICR series).

3.5.3 LCD parameters

Select  to enter the LCD real-time parameters screen. This screen includes: “Sys Time” setting, “Language” setting, “Back to Homepage Time” screen, “System Version”, and “Backlight Timeout”. Select  to enter the LCD “Set Overview” screen.



Parameter settings include “Basic Setup”, “System Setup”, “Battery Setup”, “Battery Control Parameter”, and “BMS Setup”.

a) Battery Setup

Click the “Battery Setup” on the “Set Overview” interface of the LCD settings. Default values and instructions:

Parameter	Default	Instructions
Battery Rated Voltage	12V	User define: 12V/24V/48V Note: Restarting the monitoring unit is required.
Battery Type	LFP4S	<u>12V system:</u> User define: AGM/GEL/FLD/LFP4S
	LFP8S	<u>24V system:</u> User define: AGM/GEL/FLD/LFP8S
	LFP15S	<u>48V system:</u> User define: AGM/GEL/FLD/LFP15S/LFP16S
T/C mV/°C/2V	3	User define: 0-9
Max Charge Current	50A	User define: 0-500A
Bulk Time	10Min	User define: 0-180 minutes
Equalize Time	10Min	User define: 0-180 minutes
Equalize Date	0	User define: 0-28

Manual Equalize	Disable	User define: Disable; Enable
BAT Over Temperature	60°C	User define: (BAT Over Temperature Recovery plus 5°C) to 65°C
BAT Over Temperature Recovery	55°C	User define: 30°C to (BAT Over Temperature minus 5°C)
Li-ion LTP (Low Temperature Protection)	Enable	User define: Disable; Enable
Li-ion Charging LTP (Low Temperature Charging Limit)	-5°C	User define: -40°C to 10°C Note:
Li-ion Discharging LTP (Low Temperature Discharging Limit)	-20°C	User define: -40°C to 10°C Note:

 : Enable;  : Disable

NOTICE

- For battery types AGM, GEL, and FLD, both the bulk time and the equalize time default to 120 minutes.
- If the equalize date is set to 0, automatic equalization is disabled. If set to a value from 1 to 28, the system will automatically trigger equalization on the specified date.
- Lithium battery low-temp protection applies to non-communicating batteries only. Enable it via the "Low Temperature Protection" setting.

b) Battery Control Parameter (refer to Subsection 3.5.4 Battery voltage control parameters for detailed value)

Click the "Battery Control Parameter" on the "Set Overview" interface of the LCD settings. Default values and instructions:

Parameter	Default	Instructions
Overvoltage Disconnect	14.5V	User define: 10.5V-17V
Charging Voltage Limit	14.3V	
Overvoltage Recovery	14.3V	
Equalize Charging	14.2V	
Bulk Charging	14.2V	

Float Charging	13.3V	
Bulk Charging Recovery	13.0V	
LVD Recovery	12.8V	
Under Voltage Recovery	12.2V	
Under Voltage Alarm	12.0V	
Low Volt Disconnect(LVD)	11.3V	
Discharging Limit	11.0V	

c) BMS Setup

Click the “BMS Setup” on the “Set Overview” interface of the LCD settings. Default values and instructions:

Parameter	Default	Instructions
BMS Enable	Enable	User define: Disable; Enable
BMS Protocol ID	27	User define: 0-240
Full Disconnect SOC	100%	User define: (Full Disconnect Recovery SOC plus 5%)-100%
Full Disconnect Recovery SOC	90%	User define: 80%-(Full Disconnect SOC minus 5%)
Low Energy Disconnect SOC	20%	User define: 0%-(Low Energy Disconnect Recovery SOC minus 5%)
Low Energy Disconnect Recovery SOC	40%	User define: (Low Energy Disconnect SOC plus 5%)-40%



: Enable;



: Disable

NOTICE

When connecting a lithium battery without communication or a lead-acid battery, ensure that "BMS Enable" is set to "Disabled".

d) Basic Setup

Click the “Basic Setup” on the “Set Overview” interface of the LCD settings. Default values and

instructions:

Parameter	Default	Instructions
System Time	2000-01-01 00:00	User define: 2000-01-01 00:00 to 2099-12-31 23:59
Language	ENGLISH	User define: ENGLISH, 中文
Backlight Timeout	Never	User define: 1min; Never
Back to Homepag	Never	User define: 1min; Never
Dry Contact	Disable	User define: Enable; Disable



: Enable;



: Disable

NOTICE

The dry contact interface is a relay with normally open contacts and can be used as a remote control switch. When set to "Enable", the relay closes; when set to "Disable", the relay opens.

e) System Setup

Click the "System Setup" on the "Set Overview" interface of the LCD settings. Default values and instructions:

Parameter	Default	Instructions
Reset to Factory	--	Restores LCD settings to factory defaults, including the selected on-board equipment.
Authorization	--	For maintenance and technical support only.

NOTICE

- A restart of the monitoring unit is required after performing a factory reset; failure to do so may result in some parameters not being fully restored to their default values.
- The following parameters are preserved during a factory reset and remain unchanged: System Time, and Rated Voltage Level.

3.5.4 Battery voltage control parameters

a) Lead-acid battery parameters

The following table shows the voltage control parameters of 12V system at 25 °C.

Battery Type Voltage Control Parameters	AGM	GEL	FLD	User Define
Overvoltage Disconnect Voltage	16.0V	16.0V	16.0V	10.8–16V
Charging Limit Voltage	15.0V	15.0V	15.0V	10.8–16V
Overvoltage Recovery Voltage	15.0V	15.0V	15.0V	10.8–16V
Equalization Charging Voltage	14.6V	14.2V	14.8V	10.8–16V
Bulk Charging Voltage	14.4V	14.2V	14.6V	10.8–16V
Float Charging Voltage	13.8V	13.8V	13.8V	10.8–16V
Bulk Recovery Voltage	13.2V	13.2V	13.2V	10.8–16V
Low Voltage Recovery Voltage	12.6V	12.6V	12.6V	10.8–16V
Undervoltage Alarm Recovery Voltage	12.2V	12.2V	12.2V	10.8–16V
Undervoltage Alarm Voltage	12.0V	12.0V	12.0V	10.8–16V
Low Voltage Disconnect Voltage	11.1V	11.1V	11.1V	10.8–16V
Discharging Limit Voltage	10.8V	10.8V	10.8V	10.8–16V

The following table shows the voltage control parameters of 24V system at 25 °C.

Battery Type Voltage Control Parameters	AGM	GEL	FLD	User Define
Overvoltage Disconnect Voltage	32.0V	32.0V	32.0V	21.6–32V
Charging Limit Voltage	30.0V	30.0V	30.0V	21.6–32V
Overvoltage Recovery Voltage	30.0V	30.0V	30.0V	21.6–32V
Equalization Charging Voltage	29.2V	28.4V	29.6V	21.6–32V
Bulk Charging Voltage	28.8V	28.4V	29.2V	21.6–32V

Float Charging Voltage	27.6V	27.6V	27.6V	21.6-32V
Bulk Recovery Voltage	26.4V	26.4V	26.4V	21.6-32V
Low Voltage Recovery Voltage	25.2V	25.2V	25.2V	21.6-32V
Undervoltage Alarm Recovery Voltage	24.4V	24.4V	24.4V	21.6-32V
Undervoltage Alarm Voltage	24.0V	24.0V	24.0V	21.6-32V
Low Voltage Disconnect Voltage	22.2V	22.2V	22.2V	21.6-32V
Discharging Limit Voltage	21.6V	21.6V	21.6V	21.6-32V

The following table shows the voltage control parameters of 48V system at 25℃.

Battery Type Voltage Control Parameters	AGM	GEL	FLD	User Define
Overvoltage Disconnect Voltage	64.0V	64.0V	64.0V	43.2-64V
Charging Limit Voltage	60.0V	60.0V	60.0V	43.2-64V
Overvoltage Recovery Voltage	60.0V	60.0V	60.0V	43.2-64V
Equalization Charging Voltage	58.4V	56.8V	59.2V	43.2-64V
Bulk Charging Voltage	57.6V	56.8V	58.4V	43.2-64V
Float Charging Voltage	55.2V	55.2V	55.2V	43.2-64V
Bulk Recovery Voltage	52.8V	52.8V	52.8V	43.2-64V
Low Voltage Recovery Voltage	50.4V	50.4V	50.4V	43.2-64V
Undervoltage Alarm Recovery Voltage	48.8V	48.8V	48.8V	43.2-64V
Undervoltage Alarm Voltage	48.0V	48.0V	48.0V	43.2-64V
Low Voltage Disconnect Voltage	44.4V	44.4V	44.4V	43.2-64V
Discharging Limit Voltage	43.2V	43.2V	43.2V	43.2-64V

The following logic must be followed when configuring the battery voltage control parameters:

- A. Overvoltage Disconnect Voltage > Charging Limit Voltage ≥ Equalization Charging Voltage ≥ Bulk Charging Voltage ≥ Float Charging Voltage > Bulk Recovery Voltage;

- B. Overvoltage Disconnect Voltage > Overvoltage Recovery Voltage;
- C. Low Voltage Recovery Voltage > Low Voltage Disconnect Voltage ≥ Discharging Limit Voltage;
- D. Undervoltage Alarm Recovery Voltage > Undervoltage Alarm Voltage ≥ Discharging Limit Voltage;
- E. Bulk Recovery Voltage > Low Voltage Recovery Voltage.

b) Lithium battery parameters

Voltage Control Parameters \ Battery Type	LFP			
	12V System		24V System	
	LFP4S	User Define	LFP8S	User Define
Overvoltage Disconnect Voltage	14.5V	10.5–17V	29.0V	21.0–34V
Charging Limit Voltage	14.3V	10.5–17V	28.6V	21.0–34V
Overvoltage Recovery Voltage	14.3V	10.5–17V	28.6V	21.0–34V
Equalization Charging Voltage	14.2V	10.5–17V	28.4V	21.0–34V
Bulk Charging Voltage	14.2V	10.5–17V	28.4V	21.0–34V
Float Charging Voltage	13.3V	10.5–17V	26.6V	21.0–34V
Bulk Recovery Voltage	13.0V	10.5–17V	26.0V	21.0–34V
Low Voltage Recovery Voltage	12.8V	10.5–17V	25.6V	21.0–34V
Undervoltage Alarm Recovery Voltage	12.2V	10.5–17V	24.4V	21.0–34V
Undervoltage Alarm Voltage	12.0V	10.5–17V	24.0V	21.0–34V
Low Voltage Disconnect Voltage	11.3V	10.5–17V	22.6V	21.0–32V
Discharging Limit Voltage	11.0V	10.5–17V	22.0V	21.0–32V

Voltage Control Parameters \ Battery Type	LFP		
	48V System		
	LFP15S	LFP16S	User Define
Overvoltage Disconnect Voltage	54.7V	58.4V	42.0–68V

Charging Limit Voltage	53.6V	57.2V	42.0–68V
Overvoltage Recovery Voltage	53.6V	57.2V	42.0–68V
Equalization Charging Voltage	53.3V	56.8V	42.0–68V
Bulk Charging Voltage	53.3V	56.8V	42.0–68V
Float Charging Voltage	50.0V	54.0V	42.0–68V
Bulk Recovery Voltage	49.7V	52.0V	42.0–68V
Low Voltage Recovery Voltage	48.0V	51.2V	42.0–68V
Undervoltage Alarm Recovery Voltage	45.7V	48.8V	42.0–68V
Undervoltage Alarm Voltage	45.0V	48.0V	42.0–68V
Low Voltage Disconnect Voltage	42.5V	45.2V	42.0–68V
Discharging Limit Voltage	41.5V	44.0V	42.0–68V

The following logic must be followed when configuring the battery voltage control parameters:

- A. Overvoltage Disconnect Voltage < Over Charging Protection Voltage (Protection Circuit Modules(BMS)) minus 0.2V;
- B. Overvoltage Disconnect Voltage > Overvoltage Recovery Voltage = Charging Limit Voltage ≥ Equalization Charging Voltage = Bulk Charging Voltage ≥ Float Charging Voltage > Bulk Recovery Voltage;
- C. Low Voltage Recovery Voltage > Low Voltage Disconnect Voltage ≥ Discharging Limit Voltage;
- D. Undervoltage Alarm Recovery Voltage > Undervoltage Alarm Voltage ≥ Discharging Limit Voltage;
- E. Bulk Recovery Voltage > Low Voltage Recovery Voltage;
- F. Low Voltage Disconnect Voltage ≥ Over Discharging Protection Voltage (BMS) plus 0.2V.

NOTICE

- The lithium battery parameters must be set according to its BMS voltage parameters.
- It is required that the BMS accuracy of the lithium battery installed in the system is less than or equal to 0.2V, if it is higher than 0.2V, EPEVER shall not be liable for any system error.

4 Maintenance

To maintain long-term and reliable performance, it is recommended to perform the following checks twice a year.

- Ensure that airflow around the monitoring unit is not obstructed. Remove any dirt or debris from the surface of the unit.
- Inspect exposed wires for insulation damage caused by sunlight exposure, friction with surrounding objects, dry rot, insects, or rodent damage. Repair or replace wires as necessary. Repair or replace some wires if necessary.
- Inspect terminals for signs of corrosion, insulation damage, high temperature, or burning/discoloration. Tighten terminal screws.
- Check for dirt, insect nesting, and corrosion. Clean as required.



DANGER

Electric shock hazard! Before performing any of the above operations, ensure that the power to the monitoring unit is completely disconnected. Then proceed with the inspection or maintenance.

5 Troubleshooting

5.1 LCD fault

Fault Code	Fault	Instruction
ER000	BMS Comm Error	1. Verify that the BMS protocol number matches the lithium battery; check the communication cable connections. 2. When connecting a lithium battery without communication or a lead-acid battery, set "BMS Enable" to "Disabled".
ER001	Cell Under Voltage	Stop discharging and switch to charging to prevent over-discharge of the lithium battery.
ER003	Cell Over Voltage	
ER002	Pack Under Voltage	Stop charging and switch to discharging to prevent overcharge of the lithium battery.
ER004	Pack Over Voltage	
ER005	Charge Over Current	Reduce the charging current to prevent damage to the lithium battery due to overcurrent.
ER006	Discharge Over Current	Reduce the discharging current to prevent damage to the lithium battery due to overcurrent.
ER007	Discharge Short Circuit	Stop discharging immediately and inspect the lithium battery terminals and connected devices for any damage. Resume discharging only after the fault is cleared.
ER008	Charge High Temp	Ensure adequate heat dissipation and install the lithium battery in a cool, well-ventilated location if the temperature is too high.
ER010	Discharge High Temp	
ER012	MOSFET High Temp	
ER009	Charge Low Temp	Check the ambient temperature at the installation site if the lithium battery temperature is too low for operation.
ER011	Discharge Low Temp	
ER016	Temperature Comm Error	RTS-D47K has been added and selected in the power device list, but the sensor is not actually connected.
ER017	SOC Low	The lithium battery SOC has dropped below the set discharge protection threshold. Charging is required.

For instructions on viewing LCD faults, refer to Subsection [3.4.4 Real-time faults and events](#).

5.2 LCD event

Event Code	Event	Instruction
EV01	Cell Under Voltage Alarm	Stop discharging and switch to charging to prevent over-discharge of the lithium battery.
EV03	Pack Under Voltage Alarm	
EV02	Cell Over Voltage Alarm	Stop charging and switch to discharging to prevent overcharge of the lithium battery.
EV004	Pack Over Voltage Alarm	
EV05	Charge Over Current Alarm	Reduce the charging current to prevent damage to the lithium battery due to overcurrent.
EV06	Discharge Overcurrent Alarm	Reduce the discharging current to prevent damage to the lithium battery due to overcurrent.
EV08	Cell Low Temp Alarm	Check the ambient temperature at the installation site if the lithium battery temperature is too low for operation.
EV10	Equalize Low Temp Alarm	
EV12	Ambient Low Temp Alarm	
EV09	Cell High Temp Alarm	Ensure adequate heat dissipation and install the lithium battery in a cool, well-ventilated location if the temperature is too high.
EV11	Equalize High Temp Alarm	
EV13	Ambient High Temp Alarm	
EV14	MOSFET High Temp Alarm	

For instructions on viewing LCD events, refer to Subsection [3.4.4 Real-time faults and events](#).

For troubleshooting other devices, refer to the corresponding product manuals.

6 Technical Specifications

Parameter	MTS43
Screen Size	4.3 inches
Power Supply Voltage Range	8–60VDC
Display	TFT
Resolution	480 × 272
Communication Method	RS485 (Zigbee supported on MTS43-RVZ and MTS43-PZ)
System Memory (Flash)	2M
Operating Temperature	-20°C to 50°C
Ingress Protection	IP20
Humidity	95% (N.C.)
Dimensions	144mm × 74mm × 35mm
Weight	0.208kg
Installation Method	Flush mounting (wall mount with cutout)

7 Technical Support

For technical inquiries regarding our products, please contact us through the following channels:

Service Hotline: 010-82894896/82894112

0752-3889706

0755-89236770

Email: support@epever.com

For more product information, please visit our official website: www.epever.com.

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