# USER MANUAL


# Inverter/charger

**HP5542-AH1050P65C**

EN

## Table of Contents

## Important Safety Instructions

**Please keep this manual for future reference.**

This manual contains all the safety, installation, and operation instructions for the HP-AHP65C series inverter/charger (hereinafter referred to as "inverter/charger").

### 1. Explanation of symbols

To ensure the user's personal and property safety while using this product, relevant information is provided in the manual and highlighted with the following symbols. Please read the relevant texts carefully when you encounter the following symbols in the manual.

**⚠ 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. |

### 2. Requirements for professional and technical personnel

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

## 3. Operations for professional and technical personnel

- Install the inverter/charger to a specified location.
- Conduct test operations for the inverter/charger.
- Operate and maintain the inverter/charger.

## 4. Safety precautions before installation

**⚠ DANGER**

- Keep the inverter/charger out of the reach of children.
- When installing the inverter/charger, end-users must evaluate whether the operation area exists arc danger.

**NOTICE**

- When receiving the inverter/charger, please check if there is any damage or scratches on the package and thoroughly verify the product model and the accessory list for completeness. If any anomalies (e.g., physical damage, model discrepancies, missing parts) are found, do not unpack the equipment. Please contact your authorized distributor immediately for instructions.
- When installing or moving the inverter/charger, follow the instructions in the manual.

## 5. Safety precautions for mechanical installation

**⚠ DANGER**

Before installation, confirm the inverter/charger has no electrical connection.

**NOTICE**

Ensure enough heat dissipation space for the inverter/charger before installation. Do not install the inverter/charger in flammable, explosive, dust accumulative, or other severe environments.

## 6. Safety precautions for electrical connection

**DANGER**

- Do not put the inverter/charger close to the flooded lead-acid battery because the spark in the terminals may ignite the hydrogen released by the battery.
- Both the utility input and AC output are of high voltage, do not touch the wiring to avoid electric shock.

**WARNING**

- Ensure all wirings are secure to prevent overheating due to loose connections.
- The inverter/charger shell should be connected to the ground, and the cross-sectional area of the wire connecting the ground terminal to the earth should not be less than $4mm^2$.
- A fast-acting fuse or breaker should be used between the battery and inverter/charger; whose rated current should be twice of the inverter/charger rated input current.

**NOTICE**

- The AC output terminal is only for the load connection. Do not connect it to another power source or Utility. Otherwise, the inverter will be damaged. When it connects to the load, the inverter/charger needs to stop working.
- It is strictly forbidden to connect a transformer or a load with a surge power (VA) exceeding the overload power at the AC output port. Otherwise, the damage will be caused to the inverter/charger.

## 7. Safety precautions for inverter/charger operation

**WARNING**

- The inverter/charger generates much heat during operation with a high cabinet temperature. Do not touch the unit and keep it far away from the materials and devices that are sensitive to high temperature.
- When the inverter/charger is working, do not open the inverter/charger shell for any operation.
- When eliminating the fault that affects the safety performance of the inverter/charger, please first disconnecting the DC input circuit breaker and AC output circuit breaker, and turn off the inverter/charger switch. Then, operate it after the LCD is completely OFF.

## 8. Dangerous operations causing an electric arc, fire, or explosion

- Touch the uninsulated ends of potentially live cables.
- Touch the live wiring copper busbars, terminals, or internal components of the device.
- Loose connection of power cables.
- Accidental dropping of screws or other components inside the inverter/charger.
- Improper operations by untrained non-professional or technical personnel.

**⚠ DANGER**

Once an accident occurs, it must be handled by professionals. Improper operation would cause a more serious accident.

## 9. Safety precautions for stopping the inverter/charger

- Turn off the AC output and disconnect the utility input breakers. Then, turn off the DC switch.
- After the input and output wires are disconnected for ten minutes, the internal conductive modules can be touched.
- The inverter/charger does not contain repair parts internally. If any maintenance service is required, please get in touch with our after-sales service personnel.

**⚠ CAUTION**

Do not touch or open the shell after the inverter/charger is powered off within ten minutes.

## 10. Safety precautions for inverter/charger maintenance

- It is recommended to check the inverter/charger with testing equipment to ensure there is no voltage or current on the terminals and cables.
- 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.
- Improper maintenance of the inverter/charger may cause personal injury or equipment damage;
- It is recommended to wear an antistatic wrist strap or avoid unnecessary contact with the circuit board.

**⚠ CAUTION**

The safety mark, warning label and rating plate on the inverter/charger should be clearly visible, not removed or covered.

## 11. Working temperature

- Ambient temperature: -20℃ to +55℃ (when the working temperature exceeds 35℃, the charging power and load power will be reduced appropriately.)
- Storage temperature: -25℃ to +60℃ (No sharp temperature changing)
- Relative humidity: < 100% (Non-condensing)
- Altitude: < 4,000 meters (If the altitude exceeds 2,000 meters, the actual output power is reduced appropriately.)

## Disclaimers

**The warranty does not apply to the following conditions:**

- Damage caused by improper use or inappropriate environment (such as the flammable, explosive, dust accumulative, or other severe environments).
- The actual current/voltage/power exceeds the limit value of the inverter/charger.
- Damage caused by working temperature exceeding the rated range.
- Arc, fire, explosion, and other accidents caused by failure to follow the inverter/charger stickers or manual instructions.
- Unauthorized dismantling or attempted repair.
- Damage caused by force majeure such as lightning, power grid surges, floods, earthquakes, etc.
- Damage occurred during transportation or handling.

# 1 General Information

## 1.1 Overview

The HP-AHP65C series is an IP65 high protection level product. It supports utility charging, oil generator charging, solar charging, utility output, inverter output, and energy management. It supports parallel operation for multiple units (12 units in standard application, more than 12 units need to be customized) in single phase and three phase, with 220VAC single phase or 380VAC three phase AC output.

Advanced DSP chip with its control algorithm ensures high response speed, reliability, and conversion efficiency. Meanwhile, Three-stage charging method (Bulk Charging, Constant Charging, and Float Charging) are adopted to ensure battery safety. The 3.5-inch lattice LCD screen shows the operational status and full parameters.

The communication interface with the standard Modbus protocol allows end-users to expand their applications and is suitable for different monitoring requirements. The new optimized MPPT tracking technology can fast-track the PV array's max. power point in various situations and obtain the maximum energy in real time. Two PV input (connect separately or connect in parallel) is supported, which improves the PV utilization.

Adopting the advanced control algorithm, the AC to DC charging process brings the full digital PFC and dual closed-loop voltage-current control. It enables the input power factor close to 1 and improves the control accuracy. The fully smart digital DC to AC inverting process adopts the advanced SPWM technology, and converts the DC power to AC power ( a pure sine wave). It is suitable for household appliances, power tools, industrial equipment, audio systems, and other electronics.

Customers can achieve efficient energy utilization by flexibly using solar energy or utility power via customized settings. This high-quality product ensures stable power supply and is suitable for hybrid power generation systems that combine solar, utility, and oil engine, it meets outdoor power supply requirements in harsh environments such as salt spray, dust, moisture and fog.

### Features

- IP65 high protection level fits in harsh environments such as salt spray, dust, moisture and fog
- Pure sine wave output
- Support battery or non-battery mode
- Lithium battery communication port to perform the safe charging and discharging
- Lithium battery self-activation
- Parallel operation in single phase or three phase for 12 units in standard application(1)
- PFC technology reduces the demand on the power grid capacity

- Advanced MPPT technology, with maximum energy conversion efficiency higher than 99.5%
- Some models support two PV inputs to improve PV utilization[2]
- Supporting charging from multiple types of generators[3]
- Total battery charging/discharging current settings to be compatible with different batteries
- Maximum utility charging current settings to flexibly configure utility charging power
- With the function of historical data recording[4], up to 25,000 records. Upon reaching full capacity, the storage chip sectors (4,096 records per sector) are cyclically overwritten. The interval for recording historical data is configurable
- Multiple LED indicators show system status in real-time
- One-button control of AC output
- The 3.5-inch touchable color LCD for better status monitoring in real-time
- RS485 communication interface with optional WiFi and Bluetooth modules for remote monitoring
- Comprehensive electronic protections
- Noise reduction design, with noise less than 45dB.
- -20℃ to 55℃ operating temperature range to meets more environment requirements

(1) If more than 12 units are connected in parallel, please contact our sales personnel for customization.

(2) Only the HP5542-AH1050P65C supports two PV inputs for single MPPT tracking or two parallel MPPTs tracking, and increasing the PV maximum input current. When two PV arrays are independently input, set the "PVMode" as "Single." When two PV arrays connected in parallel to one access to the inverter/charger (the PV terminals of the inverter/charger need to be paralleled externally), set the "PVMode" as "Parallel." When there is only one PV array, set the "PVMode" as "Single" (The "Parallel" mode is invalid).

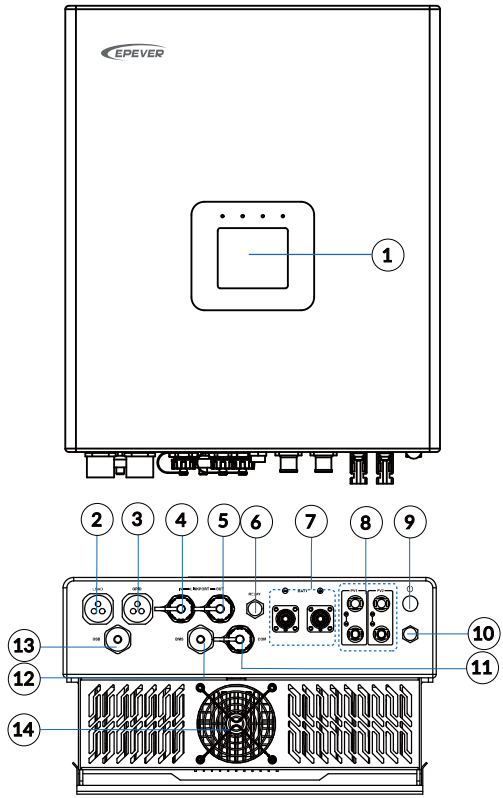
(3) When connecting a non-inverter generator, the charging current may not reach the rated power. It is recommended to connect an inverter generator. And when using the generator, the "ACmode" needs to be set to "Oil." For specific settings, please refer to Subsection 2.5.1 Parameters list > 5. System (System parameter settings). To reduce the probability of overvoltage protection triggered by generator voltage waveform distortion when using the generator, it is recommended that the generator power is greater than 1.5 times the rated power of the inverter/charger.

(4) Each historical record includes: Year, Month, Day, Hour, Minutes, Seconds, PV Maximum Voltage (V), PV Power (W), Utility Voltage (V), Utility Current (A), Utility Frequency (Hz), Utility Power (W), Load Voltage (V), Load Current (A), Load Power (W), Inverter Frequency (Hz), Battery Voltage (V), Battery Current (A), Battery SOC (%), Battery Temperature (℃), PV

Module Temperature (℃), Transformer Temperature (℃), Maximum BAT Volt (V) and Minimum BAT Volt (V).

## 1.2 Appearance

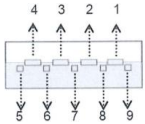
- **HP5542-AH1050P65C**




| No. | Instruction | No. | Instruction |
|---|---|---|---|
| 1 | Color LCD (see Chapter 2) | 8 | PV terminals |
| 2 | AC output port | 9 | Power switch |
| 3 | AC input port | 10 | Air hole |

| | | | |
|---|---|---|---|
| 4 | Parallel connection input interface(1) | 11 | RS485 communication port (USB-A 3.0, with isolation design)(3), 5VDC/1.2A |
| 5 | Parallel connection output interface(1) | 12 | BMS port (RJ45, with isolation design)(4) |
| 6 | Dry contact interface(2) | 13 | USB port(5) |
| 7 | Battery terminals | 14 | Cooling fan (HP5542-AH1050P65C) |

(1) Pin definition for the parallel connection interface (USB-A 3.0 female connector):



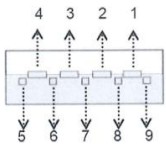


| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | NC | 6 | NC |
| 2 | PFS-BUS | 7 | NC |
| 3 | PS-GND | 8 | NC |
| 4 | CAN-L | 9 | NC |
| 5 | CAN-H | | |

(2) Dry contact specification: 1A@125VAC, 2A@30VDC.

Function: The dry contact interface is connected with the generator switch to turn on/off the generator.

(3) Connected with the RS485 communication port, an optional WiFi and Bluetooth modules can remotely control the inverter/charger. Pin definition for the RS485 communication port (USB-A 3.0 female connector):

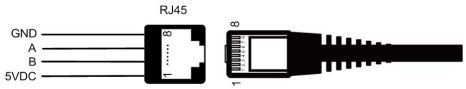




| Pin | Definition | Colour | Instruction |
|---|---|---|---|
| 1 | VBUS | Red | Power (5VDC/1.2A) |
| 2 | D- | White | Data transmission (D-) |

| | | | |
|---|---|---|---|
| 3 | D+ | Green | Data transmission (D+) |
| 4 | GND | Black | Power ground |
| 5 | RS485-A1 | Blue | RS485-A1 (to transfer data with cloud platform, APP, PC software, display screen and so on) |
| 6 | RS485-B1 | Yellow | RS485-B1 (to transfer data with cloud platform, APP, PC software, display screen and so on) |
| 7 | GND2 | Brown | Reserved |
| 8 | RS485-A2 | Purple | Reserved |
| 9 | RS485-B2 | Orange | Reserved |

(4) This inverter charger integrates BMS-Link module. Connect the lithium battery to the BMS communication port directly, and set the BMS protocol number, the BMS protocols of different lithium battery manufacturers can be converted into our company's standard ones, which can realize the communication between the inverter/charger and the BMS of other manufacturers. Pin definition for the BMS port (RJ45):

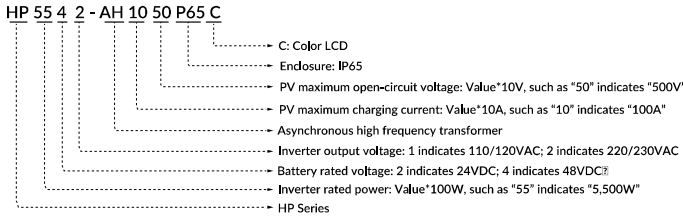



| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | +5VDC | 5 | RS485-A |
| 2 | +5VDC | 6 | RS485-A |
| 3 | RS485-B | 7 | GND |
| 4 | RS485-B | 8 | GND |

| | |
|---|---|
| **Tip** | Please go to EPEVER official website to check or download the currently supported BMS manufacturers and the BMS parameters. |

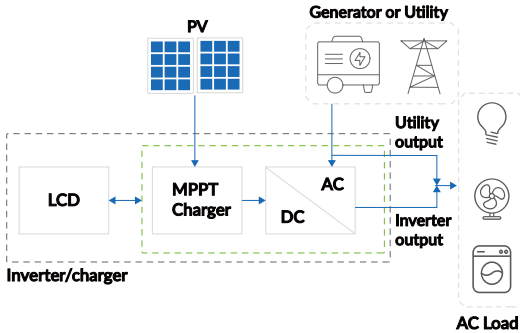
(5) Update the inverter/charger's software after connecting the inverter/charger with a computer by a standard USB communication cable (**Note:** This port is reserved for engineer debugging only and is not available to the end-user).

## 1.3 Naming rules

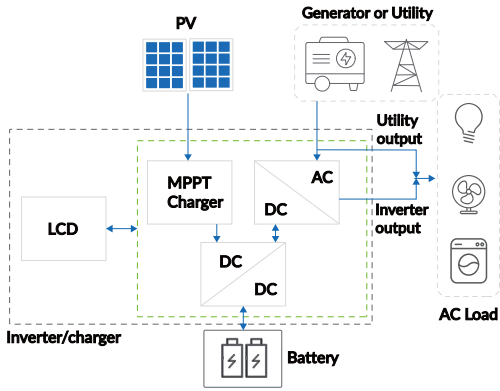



## 1.4 Connection diagram

- **No battery mode**




- **Battery mode**



**NOTICE**

- AC loads shall be determined according to the output power of the inverter/charger. The load exceeding the maximum output power may damage the inverter/charger.
- For different battery types, confirm the relevant parameters before power on.
- There are various types of oil generators with complex output situations. It is recommended to use the variable frequency oil generator. If a non-variable frequency oil generator is used, actual testing is required before use.

## 2 Interface


| | |
|---|---|
| **Tip** | The display screen can be viewed clearly when the angle between the end-user's horizontal sight and the display screen is within 90°. If the angle exceeds 90°, the information on the display screen cannot be viewed clearly. |

### 2.1 Indicator

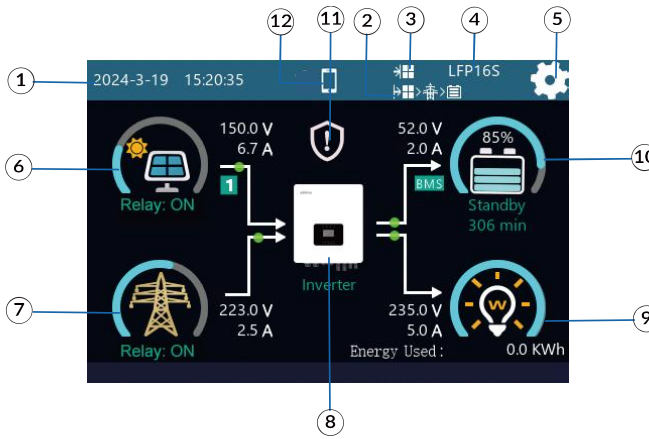
| Indicator | Status | Description |
|---|---|---|
| PV | OFF | No PV input |
| | Solid green | PV normal |
| | Solid red | PV charging fault (PV1/PV2 overvoltage) |
| LOAD | OFF | No inverter output |
| | Solid green | Inverter, charging, and bypass are normal |
| | Solid red | Inverter fault (inverter overcurrent/overvoltage/ undervoltage, output short-circuit, and over load) |
| GRID | OFF | No utility input |
| | Solid green | Utility normal |
| | Flashing green (0.5Hz) | Oil generator charging |

| | | |
|---|---|---|
| | Solid red | Utility charging fault (Utility overvoltage/ overcurrent/undervoltage/frequency abnormal) |
| RUN | Flashing green (0.5Hz) | Normal communication |
| | Solid red | Communication fault |

## 2.2 Buttons

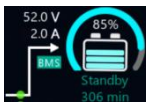
| Buttons | Operation | Instruction |
|---|---|---|
|  | Click | Exit the current interface and return to home page. |
|  | Click | Turn ON/OFF the load switch.<br>Short press this button to pop up the following prompt message. Click ON/OFF to turn on/off the load switch. If set to "OFF", it will automatically return to "ON" after restarting.<br>  |

## 2.3 Home page



| No. | Instruction | |
|---|---|---|
| 1 |   | Displays the system time. Please set the system time correctly before use. |
| 2 |  | Displays the battery discharge mode. For specific parameter settings, please refer to Subsection 2.5.1 Parameters list > 5. System (System parameter setting).<br>  PV > BP > BT<br>  PV > BT > BP<br>  BP > PV > BT |
| 3 |  | Displays the battery charge mode. For specific parameter settings, please refer to Subsection 2.5.1 Parameters list > 5. System (System parameter setting).<br>  means **Solar** mode;<br>  means **Solar > Grid (Solar prior)** mode;<br>  means **Solar + Grid** mode;<br>  means **Grid > Solar (Grid prior)** mode; |
| 4 |   | Displays the current battery type. For specific parameter settings, please refer to Subsection 2.5.1 Parameters list > 5. System (System parameter setting). |
| 5 |  | Parameter setting icon, click to enter the password input interface, and you can customize the system parameters after entering the password correctly. For specific operations, please refer to Subsection 2.5.1 Parameters list. |
| 6 |   | • Display PV input voltage, PV input current. The direction of the arrow shows the energy flow state of the PV input (the number icon  or  on the line represents the current status of corresponding PV module 1 or 2)<br>• The arc  represents the percentage of the current PV generation power to the rated PV power generation.<br>• Display whether the PV module is working:  indicates that the PV module is working normally,  indicates that the PV |

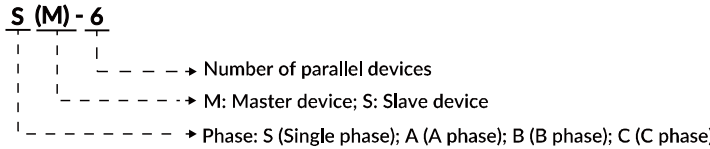
| | | |
|---|---|---|
| | | module is not working).<br>• Display whether the MPPT of the current PV is working: "Relay: ON" means it is working normally, "Relay: OFF" means it is not working.<br>Click the PV icon to enter the PV real-time data interface. For specific operations, please refer to Subsection 2.4.1 PV. |
| 7 |  | • Display utility input voltage and utility input current. The direction of the arrow shows the energy flow state of the utility input. The arc  represents the percentage of current utility consumption power to rated AC output power.<br>• Display whether the utility is working normally:  indicates that the utility is working normally,  indicates that the utility is not working.<br>• Display the utility relay status: "Relay: ON" means the utility relay is connected, "Relay: OFF" means the utility relay is disconnected.<br>Click the utility icon to enter the utility real-time data. For specific operations, please refer to Subsection 2.4.2 Utility. |
| 8 |  | • Display the inverter/charger working status: "Inverter" indicates the inverter working status, "Grid" indicates the utility charging and utility bypass status).<br>• Display the parallel status icon (it will be displayed when there are more than 2 inverter/chargers with successful parallel communication, and will not be displayed on a single inverter/charger).★<br>Click the inverter/charger icon to enter the inverter/charger information interface. For specific operations, please refer to Subsection 2.4.3 Inverter/charger. |

| | | |
|---|---|---|
| 9 |  | • Display the output voltage and output current of the load. The arrow direction indicates the energy flow state of the load. The arc  represents the percentage of the current load power to the rated load power.<br>• Display the load status:  indicates that the load is on,  indicates that the load is off.<br>• "Energy Used" indicates the total power consumption of the load (that is, the cumulative power consumption of the load since the inverter/charger was first turned on. If the data is cleared, it will be counted again).<br>Click the load icon to enter the load real-time interface. For specific operations, please refer to Subsection 2.4.4 Load. |
| 10 |  | • Display the battery voltage and current in charging and discharging state. The arrow direction indicates the energy flow direction of the battery.<br>• Display the working status of the battery:  indicates that the battery is charging and discharging normally,  indicates that working in battery-free mode.  indicates that the BMS communication is normal,  indicates that BMS fault occurs. If the BMS communication is abnormal or the BMS is not connected, this icon is not displayed, and the "BMS communication abnormal" fault is displayed.<br>• Display battery SOC percentage value. The arc  represents the battery SOC percentage.<br>• Display charging status: "Standby, Equalizing, Floating, and Boosting".<br>• Display time: If it is charging or the remaining available discharging time is greater than 999 minutes, MAX is displayed. If the remaining available discharging time is less than or equal to 999 minutes, the specific number of minutes is displayed.<br>Click the battery icon to enter the battery real-time interface. For specific operations, please refer to Subsection 2.4.5 Battery. |
| 11 |  | The current system shows no fault. |

| | | |
|---|---|---|
| |  | The current system has a fault. Click on the icon to view the detailed real-time errors. For specific operations, please refer to Subsection 2.4.6 Error code. |
| 12 |  |  indicates turning on the 5V power supply of the inverter/charger's COM port, which can be connected to an external Bluetooth or WIFI module. |

**Note:** When PV or utility is charging, the battery will be balanced by default at 06:00 on the 28th of each month (the date can be modified).

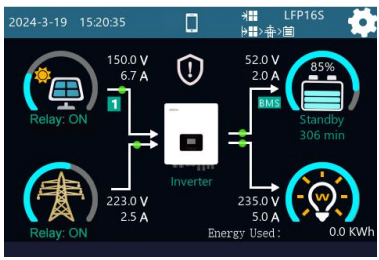
★ Parallel status icon name rule:

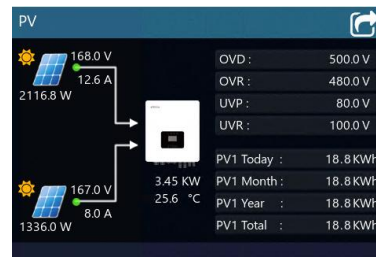



**Note:** The master and slave units are randomly defined.

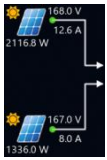
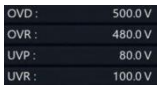
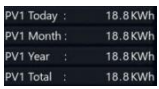
## 2.4 Real-time data interface

### 2.4.1 PV

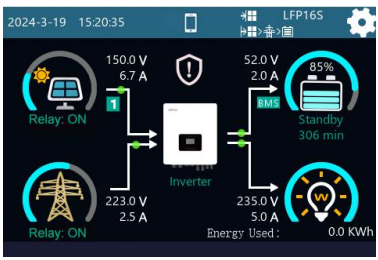



Touch  on the home page to enter the PV real-time data interface. The instructions of the interface are as follows:

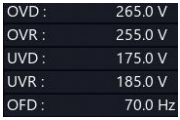
| Icon | Instruction |
| --- | --- |
|  | 1. PV input voltage, PV input current<br>2. PV energy flow indication<br>3. PV real-time power<br>**Note:** If there is only one PV input, only one PV icon will be displayed here. |
|  | 1. Total PV generation (not displayed if there is only one PV input)<br>2. PV module temperature (temperature sampling by the PV internal heat sink (DC/DC heat sink) |
|  | Swipe up and down in this area to view all the settable parameters of the PV module.<br>Refer to Subsection 2.5.1 Parameters list > 1. PV (PV parameter setting) to view the default values and setting range of the PV module. |
|  | To slide up and down in this area to view the daily, monthly, annual and total power generation statistics of the PV module. |

## 2.4.2 Utility

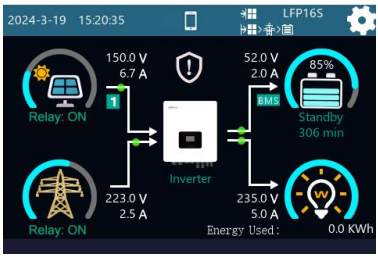




Touch  on the home page to enter the Utility real-time data interface. The instructions of the interface are as follows:

| Icon | Instruction |
| --- | --- |
|  | 1. Utility input voltage, current, frequency<br>2. Utility energy flow instructions<br>3. Utility consumption power (the arrow points to the inverter/charger.) |
|  | Swipe up and down in this area to see all the settings of the Utility.<br>Refer to Subsection 2.5.1 Parameters list > 3. Grid (Grid parameter setting) to view the default values and setting range of Utility parameters. |
|  | Display the daily, monthly, yearly, and total electricity consumption statistics of the Utility. |

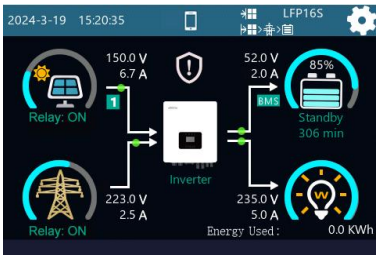
## 2.4.3 Inverter/charger

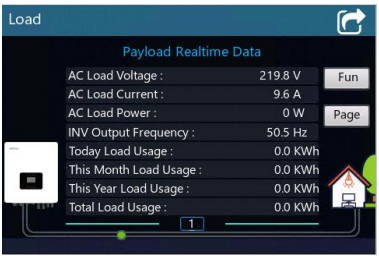




Touch  on the home page to enter the inverter/charger real-time data interface, and the interface will display the current product series, product model, SN, LCD PCB version, LCD firmware version and other product information. Click  to show other parameters.

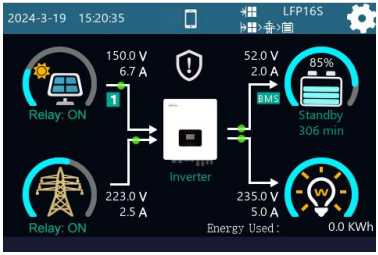
## 2.4.4 Load

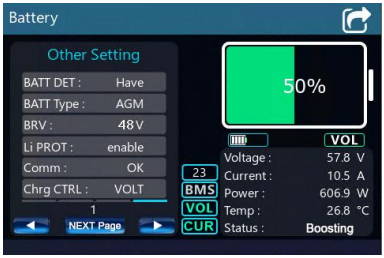


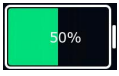
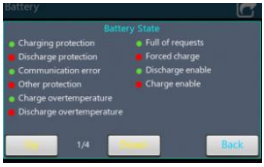
- On the home page, touch  to enter the load real-time data interface.
- Click **Fun** to display the Payload Real-time Data, Setting Parameters To Display page, and Parallel Real-Time Data page.
- Click **Page** to display all the information for the current page.

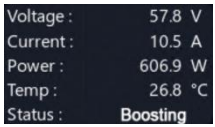
### 2.4.5 Battery



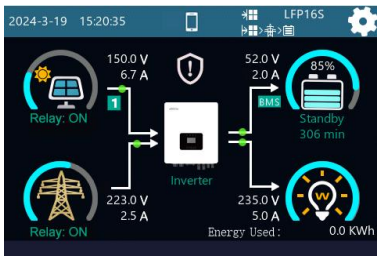




Touch  on the home page to enter the battery real-time data interface. The instructions of the interface are as follows:

| Icon | Instruction |
|---|---|
|   | 1. Click  to turn to the next interface and display the Other Setting, BMS Data, Voltage Setting, and SOC Setting one by one.<br>2. Click  to view all the information for the current page. |
|   | Display the SOC value of the battery. Click this icon to display the following BMS State interface, see Battery state instruction in Appendix 2 for details.<br>  <br>Click **Up/Down** to view other page, and click **Back** to return to the battery real-time data interface. |

| | |
|---|---|
|  | 1. Indicate whether the currently battery protocol supports high current.  indicates that the battery protocol does not support high current.  indicates that the protocol supports high current.<br>2. Indicate the setting value of BCCMode.  indicates that "BCCMode" is set to "VOL."  indicates that "BCCMode" is set to "SOC." |
|  | Displays real-time data of the battery: voltage, current, power, battery temperature, charging state. |
|  | 1. The number 23 indicates the currently battery protocol.<br>2. BMS indicates the set value of "BMS (BMS Enable)," gray indicates disable, and green indicates enable.<br>3. VOL indicates the setting value of "BMSVolt (BMS Voltage Control)," gray indicates disable, and green indicates enable.<br>4. CUR indicates the setting value of "BMSCurr (BMS Current Control)," gray indicates that the parameter is set to "Invalid", green indicates that the parameter is set to "BMS." |

### 2.4.6 Error code





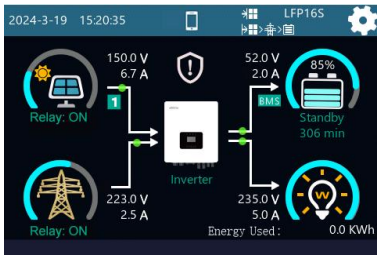
-  will be displayed on the home page when no fault occurs in the current system.
-  will be displayed on the home page when a fault occurs in the current system. Touch this icon to enter the real-time error code interface.
- Click **Fun** to display "Real-time Error Code, Historical Error Code" in order.
- Click **Clear** to clear the current fault list (the fault information will be cleared only after the

system fault is cleared; otherwise, the real-time fault list will not be cleared).

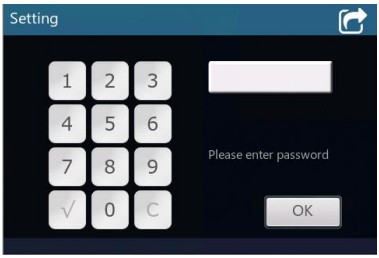
- If there are **Up** and **Down** on the current page, click the button to display the previous page and next page.

## 2.5 Parameters setting

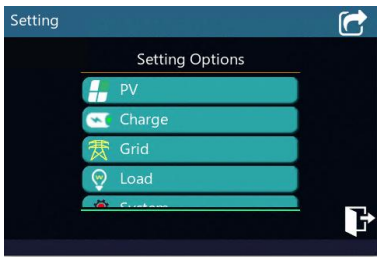
### 2.5.1 Parameters list

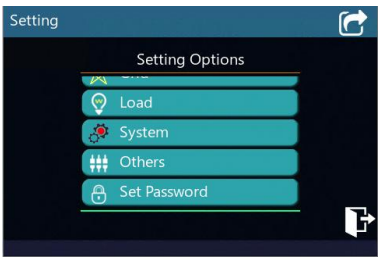



1. Click  in the upper right corner of the home page to enter the password input interface.




2. Enter the correct password (default is 000000) on the input interface, and click OK or √ to enter the "Setting Options" interface.

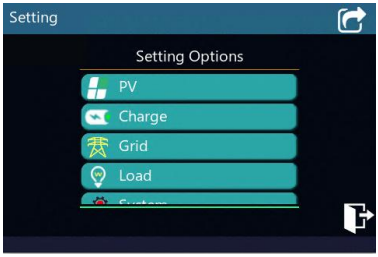


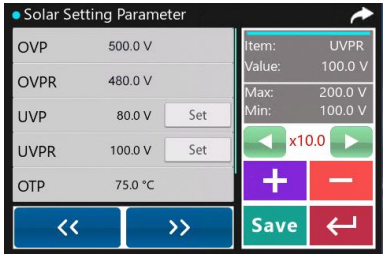




- The parameter setting interface includes: PV (PV parameter setting), Charge (battery charge control parameter setting), Grid (Grid parameter setting), Load (Load parameter setting), System (System parameter setting), Others (Other parameters setting) and password setting.
- On the current interface, swipe up and down to select the parameter item to be set, and click it to enter the parameter setting interface.
- Click  to exit the current interface and return to the home page (after exiting in this way, if you enter the parameter setting interface again within 5 minutes, you do not need to enter the password; if it exceeds 5 minutes, you need to re-enter the password).

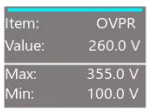
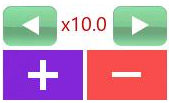
- Click  to safety exit the current interface to return to the home page (after exiting in this way, you will need to re-enter the password to enter the parameter setting interface).

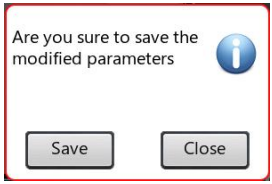
**1) PV (PV parameter setting)**




Click **PV** on the setting interface to enter the PV parameter configuration. The instructions of the interface are as follows:

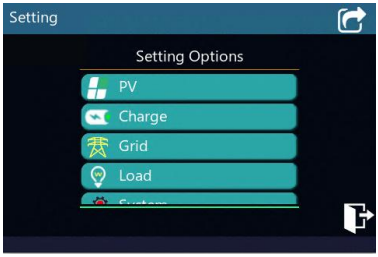
| Icon | Instruction |
|---|---|
|   | Default values and settable ranges of PV parameters. Swipe up and down to view all the parameters on the current page.<br>Set indicates that the parameter value can be customized (If the parameter is read-only, there is no Set icon). |
|  | Click to display the interface that can be set in addition to the current interface.<br>**Note:** The PV configurable parameters are only on the current interface, and clicking the button does not respond. |
|   | Click Set button to display the parameter name, default value, maximum value and minimum value that can be set. |
|   | x10.0 indicates the times of step size, which can be selected as 0.1 times, 0.5 times, 1 times, and 10 times. It varies with different parameters, the real display shall prevail.<br>After the times of step size is set, click this button + − to increase or decrease the current parameter. |

| | |
|---|---|
| Save | After the parameter setting is complete, click to confirm the set value.<br>After all the parameters on the current page are set, click Save to issue new parameter value, and the following message box will pop up:<br>  <br>Click **Save** to complete the parameter issue. |

**Default value and setting range for PV parameters as shown in the below:**

| Parameters | Default | User Define |
|---|---|---|
| Solar Setting Parameter | | |
| OVP | 500.0V | Read-only. |
| OVPR | 480.0V | Read-only. |
| UVP | 80.0V | User define: 80.0V to ( Undervoltage Recovery Voltage minus 5V) |
| UVPR | 100.0V | User define: 100.0 to 200.0V, or (Undervoltage Protection Voltage plus 5V) to 200.0V<br>**Note:** Take the maximum value between 100.0V and (Undervoltage Protection Voltage plus 5V). |
| OTP | 70.0℃ | Read-only. |
| OTPR | 65.0℃ | Read-only. |

**2) Charge (Battery charge control parameter setting)**





Click **Charge** on the parameter setting interface to enter the battery charge control parameter setting interface. The instructions of the interface are as follows:

| Icon | Instruction |
|---|---|
|  | Default values and settable ranges for battery voltage/SOC control parameters. Swipe up and down to view all the parameters on the current page.<br>Set indicates that the parameter value can be customized (If the parameter is read-only, there is no Set icon). |
|  | Click to display the interface of Voltage Control Strategy and SOC Control Strategy. |

**Note:** For the content and operation methods of the parameter setting area on the right, please refer to the introduction of "1. PV (PV parameter setting)".

**Default value and setting range for battery charge control parameters as shown in the below:**

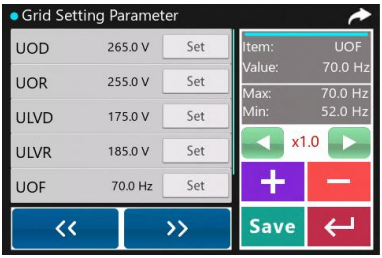
| Parameters | Default | User Define |
|---|---|---|
| 1. Voltage Control Strategy | | |
| OVD | 64.0V<br>(48V system) | User define: (Overvoltage Recovery Voltage plus 0.1*N) ≤ Overvoltage Disconnect Voltage ≤ 16*N<br>**Note:** N = Rated battery voltage/12. |
| CLV | 60.0V<br>(48V system) | User define: Equalization Charging Voltage < Charging Limit Voltage < Overvoltage Disconnect Voltage |
| OVR | 60.0V<br>(48V system) | User define: 42.8V ≤ Overvoltage Recovery Voltage ≤ (Overvoltage Disconnect Voltage minus 0.1*N)<br>**Note:** N = Rated battery voltage/12. |

| | | |
|---|---|---|
| ECV | 58.4V<br>(48V system) | User define: 21.4V ≤ Overvoltage Recovery Voltage < Overvoltage Disconnect Voltage minus 0.1*N<br>**Note:** N = Rated battery voltage/12. |
| BCV | 57.6V<br>(48V system) | User define: Float Charging Voltage ≤ Bulk Charging Voltage ≤ Equalization Charging Voltage |
| FCV | 55.2V<br>(48V system) | User define: Bulk Voltage Recovery Voltage < Float Charging Voltage ≤ Bulk Charging Voltage |
| BVR | 52.8V<br>(48V system) | User define: Low Voltage Recovery Voltage < Bulk Voltage Recovery Voltage < Float Charging Voltage |
| LVR | 50.4V<br>(48V system) | User define: Low Voltage Disconnect Voltage < Low Voltage Recovery Voltage < Bulk Voltage Recovery Voltage |
| UVWR | 48.8V<br>(48V system) | User define: 42.8 ≤ Undervoltage Alarm Recovery Voltage ≤ (Overvoltage Recovery Voltage minus 0.1*N)<br>**Note:** N = Rated battery voltage/12. |
| UVW | 48.0V<br>(48V system) | User define: 42.8V ≤ Undervoltage Alarm Voltage ≤ (Undervoltage Alarm Recovery Voltage minus 0.1*N) |
| LVD | 44.4V<br>(48V system) | User define: Discharging Limit Voltage < Low Voltage Disconnect Voltage < Low Voltage Recovery Voltage |
| DLV | 42.4V<br>(48V system) | Read-only. |
| AUX OFF | 56.0V<br>(48V system) | Under the charging mode of "Solar > Grid," the utility will stop charging the battery if the battery voltage exceeds this value.<br>User define: (Auxiliary Charging ON Voltage plus 0.2*N) ≤ Auxiliary Charging OFF Voltage ≤ Charging Limit Voltage<br>**Note:** N = Rated battery voltage/12. |
| AUX ON | 51.0V<br>(48V system) | Under the charging mode of "Solar > Grid," the utility will stop charging the battery if the battery voltage exceeds this value.<br>User define: (Auxiliary Charging ON Voltage plus 0.2*N) ≤ Auxiliary Charging OFF Voltage ≤ Charging Limit Voltage<br>**Note:** N = Rated battery voltage/12. |
| **2. SOC Control Strategy** | | |

| | | |
|---|---|---|
| FCP | 100% | It takes effect after the “BCCMode” is set as “SOC.” When the battery SOC is higher than or equals to this value, the inverter/charger will stop charging the battery.<br>User define: (Full Charge Protection Recovery SOC plus 5%) to 100%, or 80% to 100%<br>**Note:** Take the maximum value between (Full Charge Protection Recovery SOC plus 5%) and 80%. |
| FCPR | 95% | It takes effect after the “BCCMode” is set as “SOC.” When the battery SOC is lower than this value, the inverter/charger will charge the battery.<br>User define: 60% to (Full Charge Protection SOC minus 5%) |
| LPAR | 40% | It takes effect after the “BCCMode” is set as “SOC.”<br>It cannot be set separately (equals the "Discharging Protection Recovery SOC"). |
| LPA | 25% | It takes effect after the “BCCMode” is set as “SOC.”<br>User define: 10% to 35%, or 10% to (Discharging Protection Recovery SOC minus 5%)<br>**Note:** Take the minimum value between (Discharging Protection Recovery SOC minus 5%) and 35%. |
| DPR | 40% | It takes effect after the “BCCMode” is set as “SOC.”<br>User define: (Discharging Protection SOC plus 5%) to 60%, or 20% to 60%<br>**Note:** Take the maximum value between (Discharging Protection SOC plus 5%) and 20%. |
| DP | 10% | It takes effect after the “BCCMode” is set as “SOC.” When the battery SOC is lower than this value, the battery will stop discharging.<br>User define: 0 to 30%, or 0 to (Discharging Protection Recovery SOC minus 5%)<br>**Note:** Take the minimum value between (Discharging Protection Recovery SOC minus 5%) and 30%. |
| UAC ON | 30% | It takes effect after the “BCCMode” is set as “SOC.”<br>User define: 20% to 50%, or 20% to (Utility Auxiliary Charging OFF SOC minus 10%)<br>**Note:** Take the minimum value between 50% and (Utility Auxiliary Charging OFF SOC minus 10%). |

| | | |
|---|---|---|
| UAC OFF | 60% | It takes effect after the “BCCMode” is set as “SOC.”<br>User define: (Utility Auxiliary Charging ON SOC plus 10%) to 100%, or 40% to 100%<br>**Note:** Take the maximum value between (Utility Auxiliary Charging ON SOC plus 10%) and 40%. |
| Set SOC | 45% | Read-only.<br>When the BMS is valid and the communication is normal, the real-time SOC value is automatically uploaded to the inverter/charger. |

**3) Grid (Grid parameter setting)**


Click **Grid** on the parameter setting interface to enter the grid parameter setting scree. The instructions of the interface are as follows:

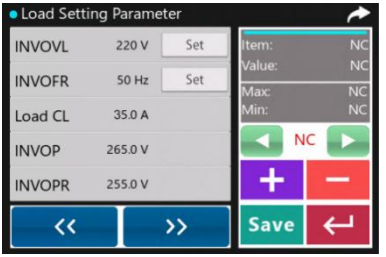
| Icon | Instruction |
|---|---|
|  | Default values and settable ranges for grid setting parameters.<br>Swipe up and down to view all the parameters on the current page.<br>Set indicates that the parameter value can be customized (If the parameter is read-only, there is no Set icon). |
|  | Click to display the interface that can be set in addition to the current interface.<br>**Note:** The Grid configurable parameters are only for the current interface, and there is no response when you click the button. |

**Note:** For the content and operation methods of the parameter setting area on the right, please refer to the introduction of "1. PV (PV parameter setting)".

**Default value and setting range for Grid parameters as shown in the below:**

| Parameter | Default | User Define |
|---|---|---|
| 1. Grid Setting Parameter | | |
| UOD | 265.0V | User define: (Utility Overvoltage Recovery Voltage plus 10V) to 285.0V |
| UOR | 255.0V | User define: 220.0V to (Utility Overvoltage Disconnect Voltage minus 10V) |
| ULVD | 175.0V | User define: 90.0V to (Utility Low Voltage Recovery Voltage minus 10V) |
| ULVR | 185.0V | User define: (Utility Low Voltage Disconnect Voltage plus 10V) to 220.0V |
| UOF | 70.0Hz | In the bypass state, when the actual utility input frequency is higher than this value, the inverter/charger will be switched to the inverter output state.<br>User define: 52.0 to 70.0Hz, or (Utility Underfrequency Disconnect Frequency plus 0.5Hz) to 70.0Hz.<br>**Note:** Take the maximum value between 52.0Hz and (Utility Underfrequency Disconnect Frequency plus 0.5Hz). |
| UFD | 40.0Hz | In the bypass state, when the actual utility input frequency is lower than this value, the inverter/charger will be switched to the inverter output state.<br>User define: 40.0Hz to 58.0Hz, or 40.0Hz to (Utility Overfrequency Disconnect Frequency minus 0.5Hz).<br>**Note:** Take the minimum value between 58.0Hz and (Utility Overfrequency Disconnect Frequency minus 0.5Hz). |

### 4) Load (Load parameter setting)


Click **Load** on the parameter setting interface to enter the load parameter setting interface. The instructions of the interface are as follows:

| Icon | Instruction |
|---|---|
|  | Default values and settable ranges for load setting parameters.<br>Swipe up and down to view all the parameters on the current page.<br>Set indicates that the parameter value can be customized (If the parameter is read-only, there is no Set icon). |
|  | Click to display the interface that can be set in addition to the current interface.<br>**Note:** The load configurable parameters are only for the current interface, and there is no response when you click the button. |

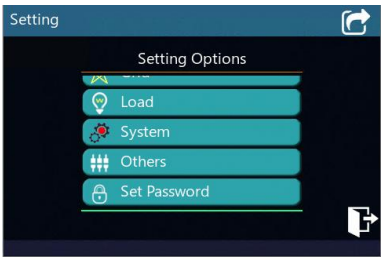
**Note:** For the content and operation methods of the parameter setting area on the right, please refer to the introduction of "1. PV (PV parameter setting)."

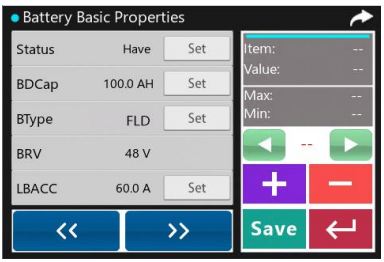
**Default value and setting range for load parameters as shown in the below:**

| Parameter | Default | User Define |
|---|---|---|
| 1. Load Setting Parameter | | |
| INVOVL | 220V | User define: 220V/230V |
| INVOFR | 50Hz | User define: 50Hz/60Hz<br>**Note:** When the Utility power is connected and the Utility frequency is detected, the output frequency will be in accordance with the Utility frequency in the Utility bypass mode. For single inverter/charger, it will take effect immediately after the "INVOFR" is changed. For |

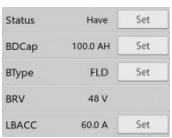
| | | |
|---|---|---|
| | | the parallel connection, you must shut down the inverter/charger for 10s and then restart it for the modification to take effect (Enter into the "Load Setting Parameter" interface again to check if the change has been changed). |
| Load CL | 42.0A | Read-only. |
| INVOP | 265.0V | Read-only. |
| INVOPR | 255.0V | Read-only. |
| TempUL | 85.0℃ | Read-only. |
| TempULR | 80.0℃ | Read-only. |

**5) System (System parameter setting)**




Click **System** on the parameter setting interface to enter the system parameter setting interface. The instructions of the interface are as follows:

| Icon | Instruction |
|---|---|
|  | Default values and settable ranges for system setting parameters.<br>Swipe up and down to see all the parameters on the current page.<br>Set indicates that the parameter value can be customized (If the parameter is read-only, there is no Set icon). |
|  | Click to display the setting interface of "Battery Basic Properties, Advanced Battery Properties, Charge and Discharge Management, System Time Setting, and Local Parameters." |

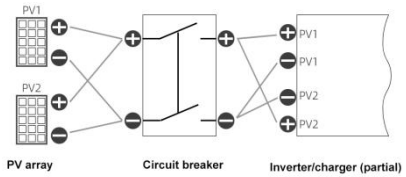
| | |
|---|---|
|  | Option-based parameter setting method: Click + − to switch options, and a green dot flashes in front of the parameter to indicate that the current parameter is selected. Click ↵ to confirm, and click Save to issue new parameter value.<br>For details on setting numerical parameters, refer to the introduction of "1. PV (PV parameter setting)." |

**Default value and setting range for system parameters as shown in the below:**

| Parameter | Default | User Define |
|---|---|---|
| **1. Battery Basic Properties** | | |
| Status | Have | User define: Have, NO<br>**Note:** When the parameter value is changed (i.e., the value is changed from "Have" to "NO", or from "NO" to "Have"), the AC output will be cut off for about 3 seconds before resuming normal output. |
| BDCap | 100.0 AH | User define: 10.0AH to 2400.0AH |
| BType | AGM | **48V battery type:** AGM, GEL, FLD, LFP15S, LFP16S, LNCM13S, LNCM14S |
| BRV | 48 V | Read-only. |
| LBACC | 100.0 A | User define: 5.0A to100.0A for HP5542-AH1050P65C<br>Namely, the maximum allowable charge current on battery side. |
| LBADC | 250.0A | User define: 10.0A to 250.0A for HP5542-AH1050P65C<br>Namely, the maximum allowable discharge current on battery side. |
| BECT | 120 m | User define: 10minutes to 180 minutes |
| BECD | 28D | User define: 1–28 |
| BBCT | 120m | User define: 10minutes to 180 minutes |
| BTCC | 3 mV/℃/2V | User define: 0–9<br>**Note:** This option is reserved, which is invalid currently. |

| 2. Advanced Battery Properties | | |
|---|---|---|
| Li PROT | Disable | User define: Disable, Enable<br>Set this value as "Enable," the charge/discharge low temperature limit function is effective. |
| LTSChrg | 0℃ | User define: -20℃ to 0℃<br>When the environment or the battery temperature is lower than this value,the inverter/charger will stop charging the battery. |
| LTSDischrg | 0℃ | User define: -20℃ to 0℃<br>When the environment or the battery temperature is lower than this value, the inverter/charger will stop discharging. |
| BATT OTP | 50.0℃ | User define: (Battery Over Temperature Protection Recovery plus 5℃) to 60℃ |
| BATT OTPR | 45.0℃ | User define: 30.0℃ to (Battery Over Temperature Protection minus 5℃) |
| Chrg | Enable | Read-only. |
| Dischrg | Enable | Read-only. |
| PCUP | Disable | User define: Disable, Enable<br>**Note:** The parameter will only take effect when used in three phase. After the setting value was changed, the factory reset cannot be restored to the default value, it must be set by manually. |
| INVPSet | S | User define: S (Single), A (Phase A), B (Phase B), C (Phase C)<br>**Note:** After the "INVPSet" is changed, must turn off the inverter/charger for 10 seconds before restarting. Enter into the "System > Advanced Battery Properties" interface again to check if the change has taken effect. After the setting value was changed, the factory reset cannot be restored to the default value, it must be set by manually. |
| UCD | 5A | User define: 0A to 25A<br>**Note:** The parameter will only take effect when used in three phase. When “PCUP (Phase Current |

| | | |
|---|---|---|
| | | Unbalance Protection)" is enabled, if current unbalance value between any two phases is higher than set value, the load output will be turned off automatically. After the setting value was changed, the factory reset cannot be restored to the default value, it must be set by manually. |
| **3. Charge and Discharge Management** | | |
| BACC | 100.0A | Read-only.<br>When the BMS is enabled and the communication between the inverter/charger and the lithium battery's BMS is normal, the "BACC" value is read from the BMS. Otherwise, the "BACC" value equals the setting value of "LBACC" after each power-on. If "LBACC" is changed without a subsequent restart, the "BACC" value remains the previous value of "LBACC". |
| BADC | 250.0A | Read-only.<br>When the BMS is enabled and the communication between the inverter/charger and the lithium battery's BMS is normal, the "BADC" value is read from the BMS. Otherwise, the "BADC" value equals the setting value of "LBADC" after each power-on. If "LBADC" is changed without a subsequent restart, the "BADC" value remains the previous value of "LBADC." |
| UACC | 100.0A | User define: 5.0A to 100.0A.<br>Namely, the maximum current at the battery end when the utility charges the battery. |
| CMode | Solar + Grid | User define: Solar (Solar only), Solar > Grid (Solar priority), Solar + Grid, Grid > Solar (Grid priority).<br>**Note:** For detailed working modes, refer to Chapter 4 Working Mode. |
| DMode | PV > BT > BP | User define: PV > BP > BT (namely, PV > Bypass > Battery), PV > BT > BP (namely, PV > Battery > Bypass), BP > PV > BT (namely, Bypass > PV > Battery)<br>**Note:** For detailed working modes differences, please refer to Chapter 4 Working Mode. The "Dmode (Discharge Mode)" is only effective when the "Cmode |

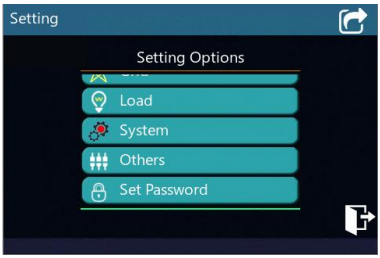
| | | |
|---|---|---|
| | | (Charging Mode)" is set as "Solar (Solar Only) " or "Solar > Grid (Solar priority)." If the "Cmode (Charging Mode)" is set as "Solar (Solar Only) " or "Solar > Grid (Solar priority)," during parallel operation, you should set the "Dmode (Discharge Mode)" as "PV>BT>BP (namely, PV>Battery>Bypass)," or "BP>PV>BT (namely, Bypass>Solar>Battery)" first. |
| ACmode | Grid | User define: Grid, Oil<br>When the AC input is an oil generator, this parameter needs to be set to "Oil" to improve the charging capability. **Note:** If the AC input mode does not match the AC source of the actual input, the normal operation of the inverter/charger will be affected. After setting, restart the inverter/charger for the setting to take effect. |
| PVMode | Single | User define: Single, Parallel.<br>When two PV arrays are independently input, the value shall be set to "Single."<br>When two or more PV arrays are connected in parallel as a single input to the inverter/charger, the value needs to be set to "Parallel." The wiring diagram between the PV array and the inverter/charger is as follows:<br>  <br><br>Product with one PV input is "Single" by default (other PV modes are invalid). |
| BCCMode | VOL | User define: VOL (Voltage), SOC<br>**VOL:** The battery voltage control parameters take effect after setting this value as "VOL."<br>**SOC:** The SOC parameters take effect after setting this value as "SOC."<br>**Note:** If "SOC" is selected, the battery needs to go through several full charge and discharge cycles, and the battery capacity must be set correctly. |

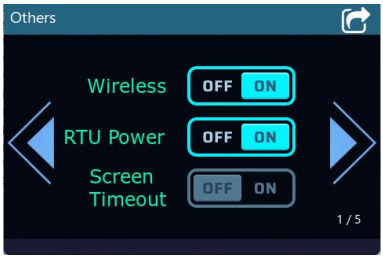
| | | |
|---|---|---|
| BMSProt | 10 | User define: 1–32<br>**Note:** Refer to the Lithium battery protocol file. |
| BMS | Disable | User define: Disable, Enable<br>Set this value as "Enable," the inverter/charger will communicate with the battery normally. |
| BMSVolt | Enable | User define: Disable, Enable<br>Set this value as "Enable," the BMS internal voltage control parameters will be automatically synchronized to the inverter/charger, and the inverter/charger will control the battery charging/discharging based on these parameters. |
| BMSCurr | Invalid | User define: Invalid, BMS<br>Set this value as "Invalid," the inverter/charger controls the charge and discharge according to the value set on the LCD. Set this value as "BMS," the inverter/charger controls the charge and discharge according to the read BMS value. |
| BMSFail | DSP | User define: DSP, Disable<br>**DSP:** The inverter/charger works according to the default mode and parameters.<br>**Disable:** No charging and discharging, equivalent to standby mode. |
| BCM | Share | User define: Only, Share<br>This parameter takes effect when the inverter/chargers are connected in parallel. If each inverter/charger is connected to the same battery pack, this value needs to be set to "Share." If each inverter/charger is connected to a separate battery pack, this value needs to be set to "Only." |
| **4. System Time Setting** | | |
| **5. Local Parameters** | | |
| LCD BRT | 100% | User define: 50% to 100%<br>It indicates the LCD brightness when operating the LCD. |

| | | |
|---|---|---|
| TODelay | 15S | User define: 6S to 60S<br>After not operating the LCD, when the set "TODelay" time arrives, the LCD brightness decreases to the set "LCDSBRT" brightness. |
| LCDSBRT | 50% | User define: 35% to 100%<br>It indicates the LCD brightness after no operation for more than "TODelay" time. |
| SOT | 30S | User define: 15–60S<br>If the "Screen Timeout" is set to "ON", the LCD will turn off if time of no operation exceeds the "TODelay" time, and then exceeds the "SOT" time. |
| Com ID | 1 | User define: 1–240 |
| Com BPS | 115200bps | User define: 9600, 19200, 38400, 57600, 115200, 256000 |
| DCT ON | 44.0V<br>(48V system) | User define: 9*N to (Dry Contract OFF Voltage minus 0.2*N).<br>**Note:** N = Rated battery voltage/12.<br>When the battery voltage is lower than this value, the dry contact is connected. |
| DCT OFF | 50.0V<br>(48V system) | User define: (Dry Contract ON Voltage plus 0.2*N) to 17*N.<br>**Note:** N = Rated battery voltage/12.<br>When the battery voltage is higher than this value, the dry contact is disconnected. |
| Switch BMS | Enable | User define: Enable, Disable<br>Under normal BMS communication, setting it to "Enable" allows charging, while setting it to "Disable" disallows charging. This parameter is invalid when BMS communication is abnormal. |
| Buzz | ON | User define: ON, OFF<br>When set to "OFF," the buzzer does not go off even if the inverter/charger fault occurs. |
| LED | ON | User define: ON, OFF<br>When set to "OFF," the LED indicator is off |

| | | |
|---|---|---|
| HRI | 60S | User define: 1 second to 3,600 seconds<br>Set the time interval for recording the historical data (only refers to the voltage, current and other data stored regularly, excluding the historical faults. These historical data can be exported by the Solar Guardian PC software or Website.) |

**6) Others (Other parameters setting)**



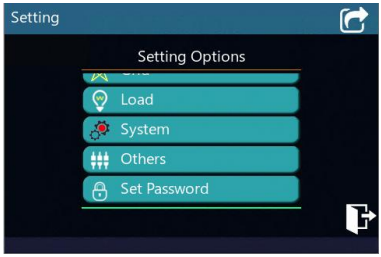

Click **Others** on the parameter setting interface to enter other parameters setting interface. Click / to switch the page and set the relevant parameters directly via the touch interface operation. The instructions of the interface are as follows:

**Default value and setting range for other parameters as shown in the below:**

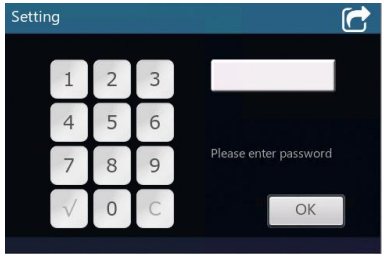
| Parameter | Default | User Define |
|---|---|---|
| **Others** | | |
| Wireless | OFF | Read-only. |
| RTU Power (5V power supply for COM port) | ON | User define: OFF, ON<br>Turn on or off the 5V power supply of the inverter/charger COM port. The external Bluetooth or WIFI module can only work after it is set to "ON." |
| Screen Timeout | ON | User define: ON, OFF<br>LCD backlight switch. Set to "ON," the LCD backlight will turn off after the "TODelay" time plus the "SOT" time has elapsed. Set to "OFF," the LCD backlight will remain on. |
| Parameter Rest | Normal Mode | User define: Normal Mode, Standby Mode<br>To reset the settings parameters: select "Standby Mode," and then click the "Factory Reset" button to restore parts of |

| | | |
|---|---|---|
| | | setting parameters to the default values (including password settings). |
| Low Power Mode | ECO Mode | User define: ECO Mode, Normal Mode<br>When set as "ECO Mode," the inverter/charger will enter the low power mode when certain conditions are met, such as no PV and utility, and the battery voltage drops to the low voltage disconnect voltage. When set as "Normal Mode," the inverter/charger will not enter the low power mode. If set to "Normal Mode," it will automatically return o "ECO Mode" after restarting. |
| Manual Equalizer | -- | On the "Low Power Mode" interface, press the "Manual Equalizer" button to enter the manual equalization charging stage. If the inverter/charger is restarted at this time, it will automatically exit the manual equalization charging state.<br>Note: This function has nothing to do with the selection of "Low Power Mode." |
| DC Source Characteristic | PV Source | User define: PV Source, DC Source<br>When using a DC power supply instead of a PV array for power supply testing, set this parameter as "DC Source," otherwise the inverter/charger will not work properly. When set to "DC Source," the PV indicator will flash green; when set to "PV Source," the PV indicator will remain continuously green. If set to "DC Source," it will automatically return o "PV Source" after restarting. |
| Initializing Records | -- | On the "DC Source Characteristic" interface, press the "Initializing Records" button and the progress bar pops up, the historical records and faults will be cleared after approximately 40 seconds.<br>Note: This function has nothing to do with the selection of "DC Source Characteristic." |
| Clear Statistical Power | Day Month Year | User define: Day Month Year, Total Generation<br>After selecting "Day Month Year" or "Total Generation", press the "Clear" button to clear the corresponding cumulative energy. |

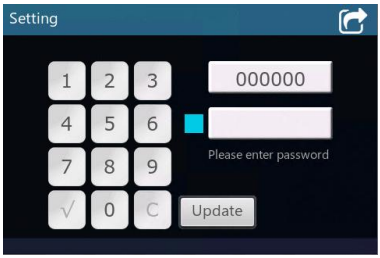
**7) Password setting**



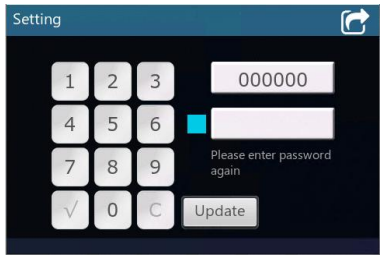

1. Click **Set Password** on the parameter setting page to enter the password modifying interface.




2. Enter the original password, the new password, and click Update to enter the interface of re-entering the password.




3. Enter the new password again and click Update.

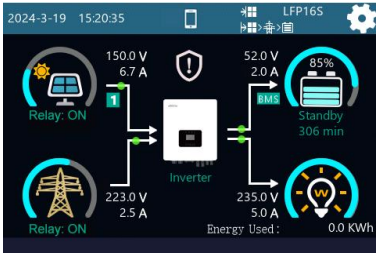


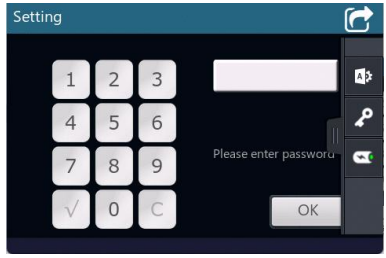

4. Enter the new password and click OK to complete the password modifying and re-enter the parameter setting interface.

**Note:** The password can be changed to blank or any other digit no more than 6 digits. If the password is empty, no digits will be entered when changing the password.

### 8) Quick Setting Of BMS Parameters

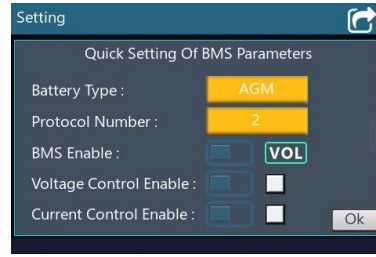
**Note:** Enter the **Quick Setting Of BMS Parameters** interface without an administrator password, allowing for rapid configuration of BMS related parameters.



1. On the home page, click  in the upper-right corner.

2. Enter the password input interface, click  on the right interface, and then, click  to enter the "Quick Setting Of BMS Parameters" setting interface.


3. Select the "Battery Type" and "Protocol Number" and "SOC or VOL" according the actual situation, and click  to return to the password input page. When selecting "Battery Type" as "AGM, GEL or FLD," "SOC or VOL" is displayed as  by default, and the "Protocol Number" is hidden. Only when the "Battery Type" is selected as lithium battery will the "Protocol Number" appear.

After selecting the "Battery Type" as lithium battery, select the "Protocol Number" according to the lithium battery protocol table. **Note:** When the "Protocol Number" is set as "10," you shall set the parameter value of "BMS" as "Enable" in the system parameters settings page

After the "Protocol Number" is selected, "SOC or VOL" is displayed as  by default. You can manually set it as  according to the actual situations.

The above parameters can be modified separately on the administrator interface, please refer to Subsection 2.5.1 Parameters list for detailed settings.

**Default value and setting range for BMS related parameters as shown in the below:**

| Parameter | Default | User define |
|---|---|---|
| **Quick Setting Of BMS Parameters** | | |
| Battery Type | AGM | **48V battery type:** AGM, GEL, FLD, LFP15S, LFP16S, LNCM13S, LNCM14S |
| Protocol Number | 10 | User define: 1–32<br>**Note:** Refer to the Lithium battery protocol file. |
| SOC or VOL | VOL | VOL (Voltage), SOC |

### 2.5.2 Battery work modes

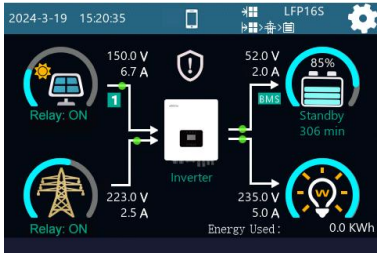
The following table lists the recommended working mode and setting process for different application scenarios. According to your current battery status (such as whether it is a lithium-ion battery pack, whether it has BMS function, whether it has current control function at the end of charge and discharge, etc.), you can reasonably set the parameters to ensure that the battery works in the optimal performance, so as to ensure the safe operation of the system for a long time.

| No. | Scenario | Recommended Working Mode | Setting Process |
|---|---|---|---|
| 1 | Non-lithium battery pack | The inverter/charger controls charging and discharging based on the LCD settings. | See Figure 1 "Setting process for non-lithium battery pack " |
| 2 | 1. Lithium battery pack with BMS and current control function at the end of charge and discharge<br>2. Normal communication | The inverter/charger controls charging and discharging based on the read BMS values. | See Figure 2 "Setting process for lithium battery pack with BMS and current control function" |

- **Figure 1 "Setting process for non-lithium battery pack"**

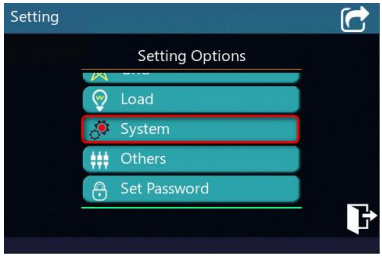
When the system adopts non-lithium battery packs (such as AGM, GEL, or FLD batteries), follow the flowchart below to set parameters correctly. The inverter/charger will control charging and discharging based on the LCD settings.

| LCD | Parameters | Define |
|---|---|---|
| Battery Basic Properties | BDCap (Battery Design Capacity) | Set according to the actual battery type. |
| | BType (Battery Type) | |
| Charge and Discharge Management | BCCMode (Battery Charging Control Mode) | To set as "VOLT" or "SOC." And then set the battery voltage control parameters or SOC control parameters. |

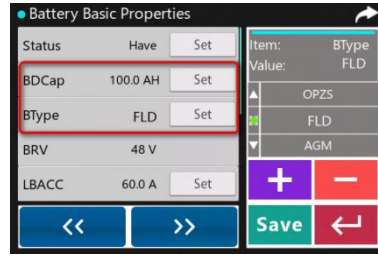



1. Click ⚙ in the upper right corner on the home page to enter the password input interface.

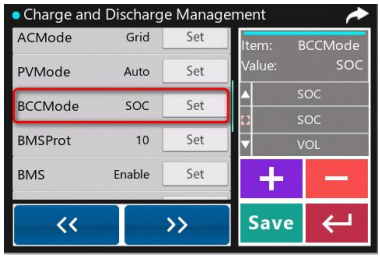

2. Enter the correct password (by default 000000) on the input interface, and click OK or √ to enter the "Setting Options" interface.




3. Slide up and down on the current interface, and click **System** to enter the system parameter setting interface.




4. Depending on the battery actually used, set **BDCap** and **BType**. After the settings are complete, click Save to issue new parameter value.

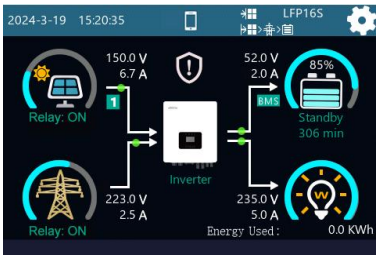



5. Click >> to switch to the "Charge and Discharge Management" interface, and set **BCCMode** to "VOL" or "SOC". After the settings are complete, click Save to issue new parameter value.

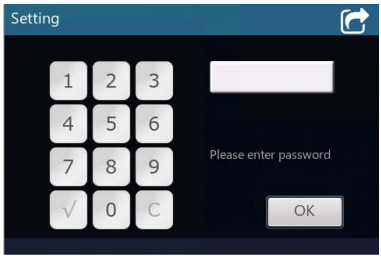
- **Figure 2 "Setting process for lithium battery pack with BMS and current control function"**

When the system adopts a lithium battery pack with BMS and current control function at the end of charge and discharge, and the lithium battery pack can communicate with the inverter/charger normally, follow the flowchart below to set parameters correctly. The inverter/charger controls charging and discharging based on the read BMS values.

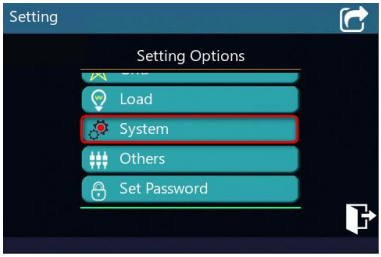
| LCD | Parameters | Define |
|---|---|---|
| Battery Basic Properties | BType (Battery Type) | Set it according to the battery you are actually using.<br>**Note:** The battery type must be selected as lithium battery, otherwise the lithium battery data cannot be read. |
| Charge and Discharge Management | BCCMode (Battery Charging Control Mode) | To set as "VOLT" or "SOC." And then set the battery voltage control parameters or SOC control parameters.. |
| | BMSProt (BMS Protocol) | Set the settings according to the actual battery protocol number used. |
| | BMS (BMS Enable) | Enable |
| | BMSVolt (BMS Voltage Control) | Enable |
| | BMSCurr BMSCurr (BMS Current Control) | BMS |



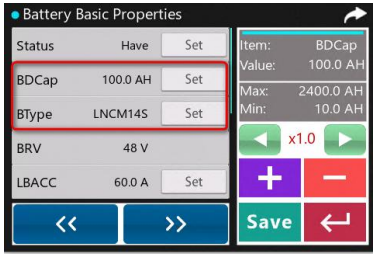

1. Click  in the upper right corner on the home page to enter the password input interface.



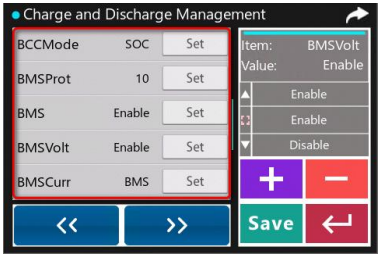

2. Enter the correct password (by default 000000) on the input interface, and click OK or √ to enter the "Setting Options" interface.




3. Slide up and down on the current interface, and click System to enter the system parameter setting interface.




4. Depending on the battery actually used, set **BDCap** and **BType**. After the settings are complete, click Save to issue new parameter value.




5. Click >> to switch to the "Charge and Discharge Management" interface and set **BCCMode**, **BMSProt**, **BMS** , **BMSVolt** and **BMSCurr**. After the settings are complete, click Save to issue new parameters.

| | |
|---|---|
| **Tip** | Please go to EPEVER official website to download the currently supported BMS manufacturers and the BMS parameters. |

**NOTICE**

- The inverter/charger will control charging and discharging based on the LCD settings after setting the "BMSCurr (BMS Current Control)" as "Invalid," or the communication between battery and inverter/charger fails.
- Due to the different charging and discharging characteristics and voltage consistency of lithium batteries from different manufacturers, it is necessary for professionals to guide the use of charging and discharging.

### 2.5.3 Battery voltage control parameters

**1) Lead-acid battery voltage control parameters**

The parameters are measured in the condition of 48V/25℃.

| Battery Type / Voltage Control Parameters | AGM | GEL | FLD | User Define |
|---|---|---|---|---|
| Overvoltage Disconnect Voltage | 64.0V | 64.0V | 64.0V | 42.8 – 64V |
| Charging Limit Voltage | 60.0V | 60.0V | 60.0V | 42.8 – 64V |
| Overvoltage Recovery Voltage | 60.0V | 60.0V | 60.0V | 42.8 – 64V |
| Equalization Charging Voltage | 58.4V | -- | 59.2V | 42.8 – 64V |
| Bulk Charging Voltage | 57.6V | 56.8V | 58.4V | 42.8 – 64V |
| Float Charging Voltage | 55.2V | 55.2V | 55.2V | 42.8 – 64V |
| Bulk Recovery Voltage | 52.8V | 52.8V | 52.8V | 42.8 – 64V |
| Low Voltage Recovery Voltage | 50.4V | 50.4V | 50.4V | 42.8 – 64V |
| Undevoltage Alarm Recovery Voltage | 48.8V | 48.8V | 48.8V | 42.8 – 64V |
| Undervoltage Alarm Voltage | 48.0V | 48.0V | 48.0V | 42.8 – 64V |
| Low Voltage Disconnect Voltage | 44.4V | 44.4V | 44.4V | 42.8 – 64V |
| Discharging Limit Voltage | 42.4V | 42.4V | 42.4V | Read-only |

**The following rules must be obeyed when setting the Lead-acid battery voltage control parameters.**

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

**2) Lithium battery voltage control**

| Battery Type / Voltage Control Parameters | LFP | | |
|---|---|---|---|
| | 48V System | | |
| | LFP15S | LFP16S | User Define |
| Overvoltage Disconnect Voltage | 55.5V | 59.2V | 42.8 – 64V |
| Charging Limit Voltage | 54.7V | 58.4V | 42.8 – 64V |
| Overvoltage Recovery Voltage | 54.7V | 58.4V | 42.8 – 64V |
| Equalization Charging Voltage | 53.5V | 57.1V | 42.8 – 64V |
| Bulk Charging Voltage | 53.5V | 57.1V | 42.8 – 64V |
| Float Charging Voltage | 51.0V | 54.4V | 42.8 – 64V |
| Bulk Recovery Voltage | 49.9V | 53.2V | 42.8 – 64V |
| Low Voltage Recovery Voltage | 48.7V | 52.0V | 42.8 – 64V |
| Undevoltage Alarm Recovery Voltage | 48.0V | 51.2V | 42.8 – 64V |
| Undervoltage Alarm Voltage | 46.5V | 49.6V | 42.8 – 64V |
| Low Voltage Disconnect Voltage | 43.5V | 46.4V | 42.8 – 64V |
| Discharging Limit Voltage | 41.2V | 44.0V | Read-only |

| Battery Type / Voltage Control Parameters | LNCM | | |
|---|---|---|---|
| | 48V System | | |
| | LNCM13S | LNCM14S | User Define |
| Overvoltage Disconnect Voltage | 55.9V | 60.2V | 42.8–64V |
| Charging Limit Voltage | 55.2V | 59.5V | 42.8–64V |
| Overvoltage Recovery Voltage | 55.2V | 59.5V | 42.8–64V |
| Equalization Charging Voltage | 53.8V | 57.9V | 42.8–64V |
| Bulk Charging Voltage | 53.8V | 57.9V | 42.8–64V |
| Float Charging Voltage | 52.0V | 56.0V | 42.8–64V |

| | | | |
|---|---|---|---|
| Bulk Recovery Voltage | 51.0V | 55.0V | 42.8–64V |
| Low Voltage Recovery Voltage | 48.1V | 51.8V | 42.8–64V |
| Undevoltage Alarm Recovery Voltage | 46.8V | 50.4V | 42.8–64V |
| Undervoltage Alarm Voltage | 45.5V | 49.0V | 42.8–64V |
| Low Voltage Disconnect Voltage | 41.6V | 44.8V | 42.8–64V |
| Discharging Limit Voltage | 40.3V | 43.4V | Read-only |

**When setting the Lithium battery voltage control parameters, the following rules must be obeyed.**

A. Overvoltage Disconnect Voltage < Over Charging Protection Voltage (BMS Circuit Protection Modules) minus 0.2V

B. Overvoltage Disconnect Voltage > Charging Limit Voltage ≥ Equalization Charging Voltage ≥ Bulk Charging Voltage ≥ Float Charging Voltage > Bulk Voltage Recovery Voltage

C. Overvoltage Disconnect Voltage > Overvoltage Recovery Voltage

D. Bulk Voltage Recovery Voltage > Low Voltage Recovery Voltage > Low Voltage Disconnect Voltage ≥ Discharging Limit Voltage

E. Undervoltage Alarm Recovery Voltage > Undervoltage Alarm Voltage ≥ Discharging Limit Voltage

F. Low Voltage Disconnect Voltage ≥ Over Discharging Protection Voltage (BMS Circuit Protection Modules) plus 0.2V

**NOTICE**

The BMS circuit protection module's voltage control accuracy must be at least ± 0.2V. The [Overvoltage Disconnect Voltage] shall be lower than the protection voltage of the BMS circuit protection module. In contrast, the [Low Voltage Disconnect Voltage] shall be higher. The increased voltage of the [Overvoltage Disconnect Voltage] and the [Low Voltage Disconnect Voltage] is determined by the control accuracy of the BMS circuit protection module.

# 3 Single Installation

## 3.1 Attention

- Please read the manual carefully to familiarize yourself with the installation steps.
- Be very careful when installing the batteries, especially flooded lead-acid batteries. Please wear eye protection, and have fresh water available to rinse if contact with battery acid.
- Keep the battery away from any metal objects, which may cause a short circuit of the battery.
- Combustible and harmful gases may come out from the battery during charging. Ensure the ventilation condition is good.
- This inverter/charger is wall-mounted. Consider whether the wall's bearing capacity can meet the requirements.
- Ventilation is highly recommended if mounted in an enclosure. Never install the inverter/charger in a sealed enclosure with flooded batteries! Battery fumes from vented batteries will corrode and destroy the inverter/charger circuits.
- The inverter/charger can work with lead-acid and lithium batteries within its control scope.
- Ensure all switches and breakers are disconnected before wiring. You operate the inverter/charger after checking that all wiring is correct.
- Loose connections and corroded wires may produce high heat that can melt wire insulation, burn surrounding materials, or even cause a fire. Ensure tight connections, use cable clamps to secure cables, and prevent them from swaying in motion.
- Select the system connection cables according to the current density no greater than 5A/$mm^2$.
- Do not install the inverter/charger in a harsh environment such as flammable, explosive, or dust accumulative.
- After turning off the switch, high voltage still exists inside the inverter/charger. Do not open or touch the internal devices; wait ten minutes before conducting related operations.
- The input terminal of the battery on the inverter/charger has the function of anti-reverse connection protection, but it is only effective when it is not connected to PV or Utility. Please strictly follow the operation and avoid frequent operations in fault.
- Utility input and AC output are high voltage. Please do not touch the wiring connection.
- When the fan is working, please do not touch it to avoid injury.

**NOTICE**

- The short-circuit current of the PV array must comply with the "PV Maximum Short-circuit Current" in Chapter 8 Technical Specifications. The reverse connection time should not exceed 5 minutes, avoid frequent operations in fault.
- The PV array must first be connected to a 500VDC or above circuit breaker with arc extinguishing function, and then connected to the inverter/charger. If the PV is reversed, disconnect the external circuit breaker first, and then disconnect the PV array terminal (such as the MC4 terminal) or the PV input terminal of the inverter/charger. Otherwise, an electric arc will be generated, causing damage to the PV array or the inverter/charger.

## 3.2 Wire size and circuit breaker

The wiring and installation methods must conform to all national and local electrical code requirements.

➢ **Recommended PV wire and breaker size**

Since the PV output current varies with the PV module's size, connection method, or sunlight angle, the minimum wire size can be calculated by the PV Isc (Max. short circuit current). Please refer to the Isc value in the PV module's specifications. When the PV modules are connected in series, the total Isc equals any PV module's Isc. When the PV modules are connected in parallel, the total Isc equals the sum of the PV module's Isc. The PV array's Isc must not exceed the maximum PV input current. For max. PV input current and max. PV wire size, please refer to the table below:

When two PV arrays are connected independently, the wire and circuit breaker size of each PV array are as follows:

| Model | PV Wire Size | Circuit Breaker |
|---|---|---|
| HP5542-AH1050P65C | 6mm$^2$/10AWG | 2P -- 25A (with arc extinguishing function) |

When two PV arrays are connected in parallel, the wire and circuit breaker size are as follows:

| Model | PV Wire Size | Circuit Breaker |
|---|---|---|
| HP5542-AH1050P65C | 10mm$^2$/7AWG | 2P -- 50A (with arc extinguishing function) |

**NOTICE**

When the PV modules are connected in series, the total voltage must not exceed the max. PV open circuit voltage 500V (At minimum operating environment temperature), or 440V (At 25℃).

➢ **Recommended Utility wire size**

| Model | Utility Wire Size | Circuit Breaker |
|---|---|---|
| HP5542-AH1050P65C | 6mm$^2$/10AWG | 2P -- 40A |

**NOTICE**

The utility input has the circuit breaker already; no need to add any more.

➢ **Recommended battery wire and breaker size**

| Model | Battery Wire Size | Circuit Breaker |
|---|---|---|
| HP5542-AH1050P65C | 35mm$^2$/2AWG | 2P -- 200A |

**NOTICE**

The recommended battery breaker size is selected when the battery terminals are not connected to any additional inverter.

➢ **Recommended load wire size**

| Model | Load Wire Size | Circuit Breaker |
|---|---|---|
| HP5542-AH1050P65C | 6mm$^2$/10AWG | 2P -- 40A |

**NOTICE**

- The wire size is only for reference. Suppose a long distance exists between the PV array, the inverter/charger, and the battery. In that case, larger wires shall be used to reduce the voltage drop and improve the system's performance.
- The above wire and circuit breaker sizes are for reference only; please choose a suitable wire and circuit breaker according to the actual situation.

## 3.3 Mounting the inverter/charger

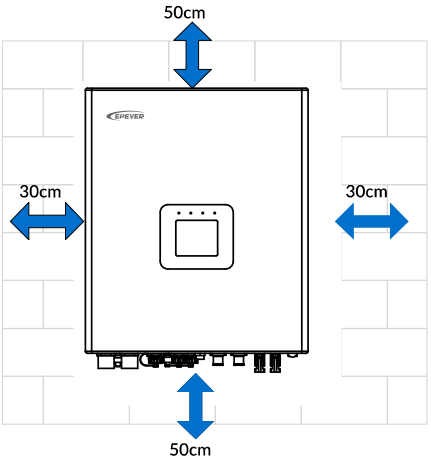
**⚠ DANGER**

- Risk of explosion! Never install the inverter/charger in a sealed enclose with flooded batteries!
- Do not install the inverter/charger in a confined area where the battery gas can accumulate.

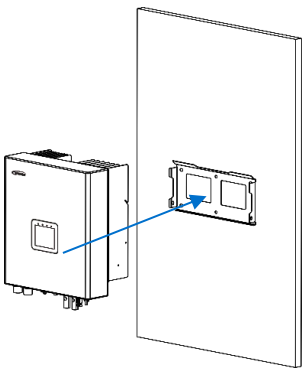
**NOTICE**

- The inverter/charger can be fixed to the concrete and solid brick walls, while it cannot be fixed to the hollow brick wall.
- The inverter/charger requires at least 30cm of clearance right and left, and 50cm of clearance above and below.

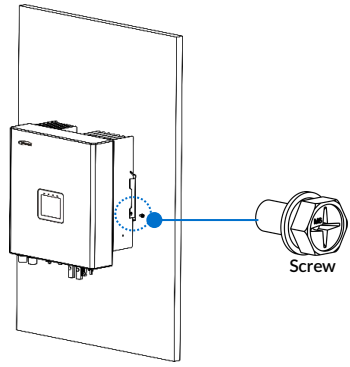
**Step1:** Determine the installation location and heat-dissipation space. The inverter/charger requires at least 30cm of clearance right and left, and 50cm of clearance above and below.




**Step 2:** Fix the wall hanger (included accessory) to the wall, and put the inverter/charger on it.



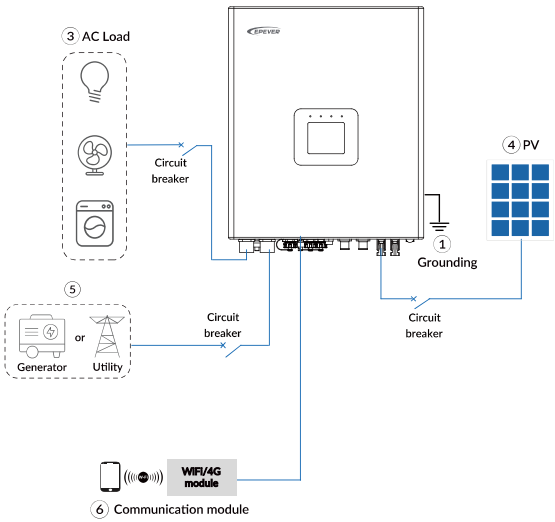
**Step 3:** Fix the inverter/charger to the wall hanger with two screws.



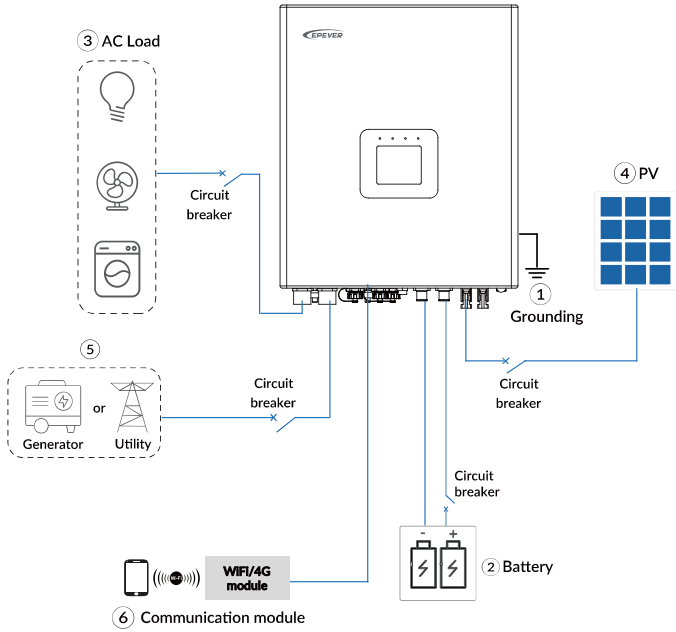

## 3.4 Wiring the inverter/charger

Connect the inverter/charger in the order of ① Grounding > ② Battery > ③ Load > ④ PV array > ⑤ Utility or generator > ⑥ Optional accessories, and disconnect the inverter/charger in the reverse order. The following wiring sequence is illustrated in the appearance of "HP5542-AH0650P65C". For wiring positions of other models, please refer to the actual product appearance.

- **No battery mode**



- **Battery mode**




**1. Grounding**

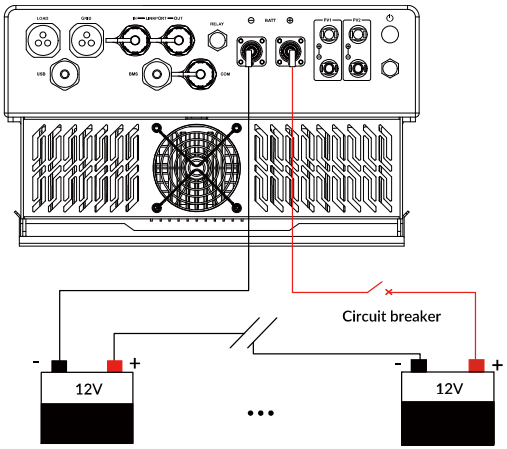
The inverter/charger has a dedicated grounding terminal, which must be grounded reliably. The grounding wire size must be consistent with the recommended load wire size. The grounding connection point shall be as close as possible to the inverter/charger, and the total grounding wire shall be as short as possible.

| | |
|---|---|
| **☒ NO GROUNDING** | ☒ Do not ground the battery terminals .<br>☒ Do not ground the PV terminals.<br>☒ Do not ground the AC input L or N terminals between the inverter/charger and the household power distribution cabinet.<br>☒ Do not ground the AC output L or N terminals. |
| **☑ GROUNDING** | ☑ The cabinet case and the PE terminal of AC input and output must be firmly grounded through the earth rail. |

**2. Connect the battery**

**NOTICE**

- Please disconnect the circuit breaker before wiring and ensure that the leads of "+" and "-" poles are polarity correctly.
- A circuit breaker must be installed on the battery side. Please refer to Subsection 3.2 Wire size and circuit breaker for selection.



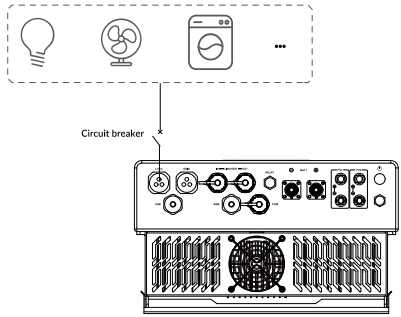

**3. Connect the AC load**

**DANGER**

High voltage! Electric shock hazard! When wiring the AC load, please disconnect the circuit breaker and ensure that the poles' leads are connected correctly.

**NOTICE**

- The AC loads shall be determined by the continuous output power of the inverter/charger. The AC load's surge power must be lower than the instantaneous surge power of the inverter/charger, or the inverter/charger will be damaged.
- If inductive loads such as motors, or a bidirectional transfer switch is connected to the AC output terminal, a separate overvoltage and overcurrent protector (VA-Protector) needs to be installed at the AC output terminal.



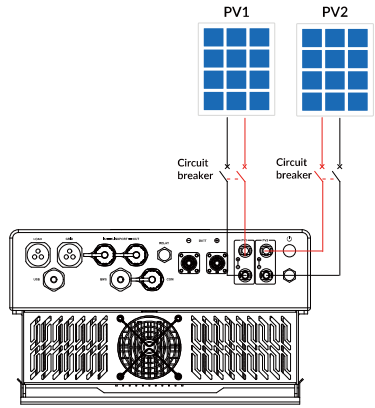

**4. Connect the PV modules**

**DANGER**

- High voltage! Electric shock hazard! The PV array can generate dangerous high-voltage!
- It is forbidden to connect the positive and negative poles of the PV with the ground; otherwise, the inverter/charger will be damaged.
- Disconnect the PV input circuit breaker before wiring, otherwise it may cause equipment damage or electric shock!

**NOTICE**

Suppose the inverter/charger is used in an area with frequent lightning strikes. In that case, install an external surge arrester at the PV input and utility input terminals is a must.



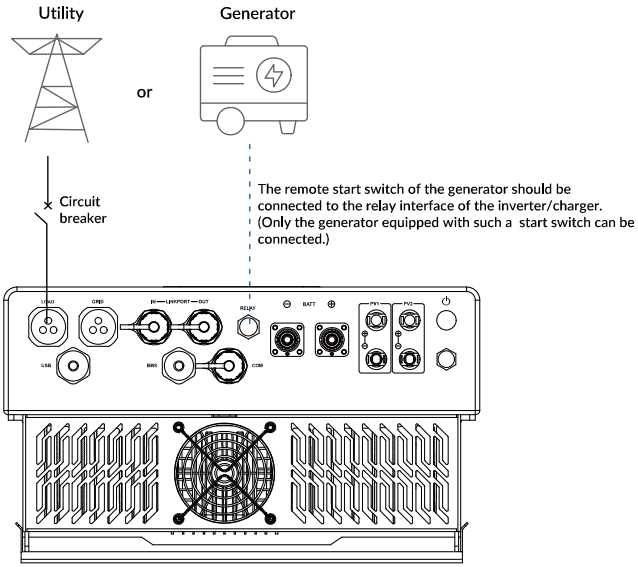
### 5. Connect the Utility or generator

**DANGER**

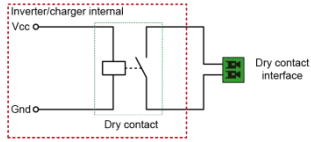
- High voltage! Electric shock hazard! The utility input can generate very high voltage. Disconnect the circuit breaker or fast-acting fuse before wiring and ensure that the poles' leads are connected correctly.
- After the utility is connected, the PV and battery cannot be grounded. In contrast, the inverter/charger cover must be grounded reliably to shield the outside electromagnetic interference effectively and prevent the cover from causing electric shock to the human body.

**NOTICE**

There are various types of oil generators with complex output conditions. It is recommended to use the inverter oil generator. If non-inverter oil generators are used, they must be tested in practice before use.




**Dry contact interface:** The dry contact interface can turn on/off the generator and is connected parallel with the generator's switch.



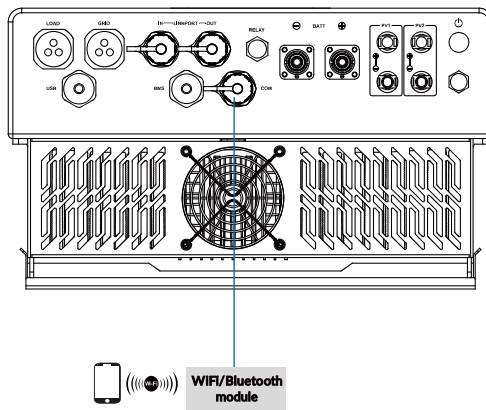

**Working principle:**

When the battery voltage is less than or equal to the Dry Contact ON Voltage, the dry contact is connected. Its coil is energized. The dry contact can drive loads of no more than 125VAC/1A, 30VDC/1A. According to different battery types of the inverter charger, the default values of the Dry Contact ON Voltage and the Dry Contact OFF Voltage are different. Please refer to Subsection 2.5.1 Parameters list for details.

**6. Connect optional accessories**

- **Connect the communication module**

Connect the WiFi and Bluetooth modules to the RS485 com. port. End-users can remote monitor the inverter/charger or modify related parameters on the phone APP. Detailed setting methods, refer to APP instruction manual.



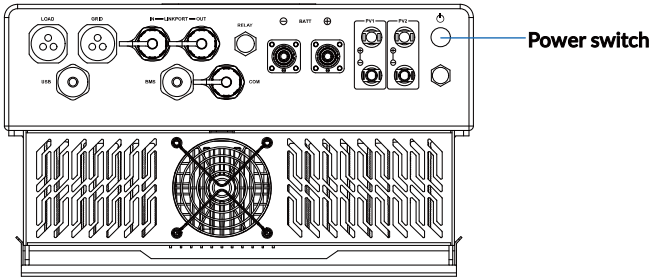

**Note:** For the specific communication modules supported, please refer to the accessories list file.

## 3.5 Operating the inverter/charger

**Step 1:** Double-check whether the wire connection is correct.

**Step 2:** Connect the battery circuit breaker.

**Step 3:** Turn on the power switch. The LCD will be lit, which means the system running is normal.




**NOTICE**

- Please connect the battery circuit breaker first. After the inverter/charger normally works, connect the PV array circuit breakers and plug the utility's socket. Otherwise, we won't assume any responsibility for not following the operation.
- The AC output is ON by default after the inverter/charger is powered. Before turning on the power switch, ensure the AC output is connected to loads correctly, and no safety hazard exists.

**Step 4:** Set parameters by the buttons.

**NOTICE**

For detailed parameters setting, please refer to Section 2.5 Parameters setting.

**Step 5:** Use the inverter/charger.

Connect the load circuit breaker, the PV array circuit breaker, and plug the utility's socket in sequence. After the AC output is normal, turn on the AC loads one by one. Do not turn on all the loads simultaneously to avoid protection action due to a large transient impulse from the current. The inverter/charger will perform normal work according to the set working mode. See Section 2.4 Real-time data interface.

**NOTICE**

- When supplying power for different AC loads, it is recommended to turn on the load with larger impulse current first. After the load output is stable, turn on the load with smaller impulse current later.
- If the inverter/charger cannot work properly or the LCD/indicator shows an abnormality, please refer to Chapter 6 Troubleshooting or contact our after-sales personnel.

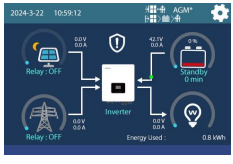
# 4 Working Mode

## 4.1 Abbreviation

| Abbreviation | Instruction |
|---|---|
| $P_{PV}$ | PV power |
| $P_{LOAD}$ | Load power |
| $V_{BAT}$ | Battery voltage |
| LVD | Low Voltage Disconnect Voltage |
| LVR | Low Voltage Recovery Voltage |
| DP | Discharging Protection SOC |
| DPR | Discharging Protection Recovery SOC |
| AUX OFF | Auxiliary Charging OFF Voltage (namely, Utility Charging OFF Voltage) |
| AUX ON | Auxiliary Charging ON Voltage (namely, Utility Charging ON Voltage) |
| UAC OFF | Utility Auxiliary Charging OFF SOC |
| UAC ON | Utility Auxiliary Charging ON SOC |
| LBACC | Local Battery Available Charging Current |
| SOC | The battery charging state, which indicates the ratio of the current storage capacity dividing the maximum storage capacity. |
| PV > BP > BT | Discharging Mode: PV > Bypass > Battery |
| PV > BT > BP | Discharging Mode: PV > Battery > Bypass |
| BP > PV > BT | Discharging Mode: Bypass > PV > Battery |

## 4.2 Battery mode

**Scenario A: Both PV and Utility are not available.**

| | |
|---|---|
| | **Regardless of the input and output sources, the working mode is as follows.** |
| **(A)**<br>**PV ☒**<br>**Utility ☒** |  <br>$V_{BAT} \geq$ LVR /SOC $\geq$ DPR ⇅ $V_{BAT} \leq$ LVD /SOC $\leq$ DP<br>  |

① Any of the following is satisfied, the battery supplies the load.

- The battery voltage is greater than or equal to the LVR value.
- The battery SOC is greater than or equal to the DPR value.

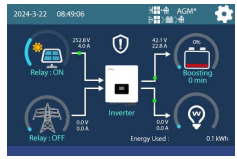
② Any of the following is satisfied, the battery stops supplying the load.

- The battery voltage is lower than or equal to the LVD value.
- The battery SOC is lower than or equal to the DP value.

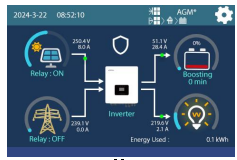
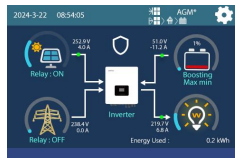
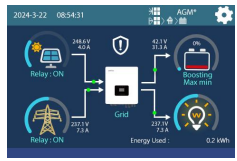
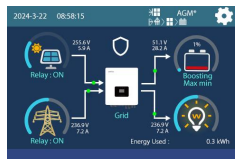
**NOTICE**

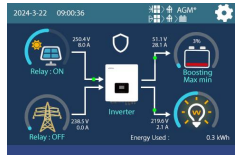
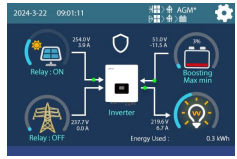
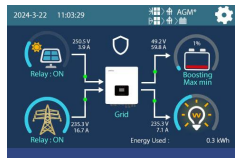
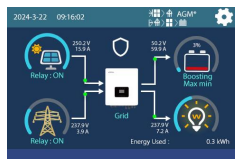
- Set the "BCCMode" as "VOL," the working mode is determined by the battery voltage value.
- Set the "BCCMode" as "SOC," the working mode is determined by the battery SOC. Before using the SOC mode, set the "BCCMode" as "VOL" first. Because the battery SOC value will be more accurate after a full charge-discharge cycle in the "VOL" mode.
- For setting the "BCCMode", refer to Subsection 2.5.1 Parameters list.

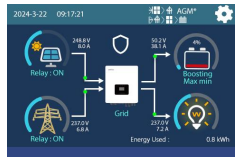
**Scenario B: PV is available, but the Utility is not available.**

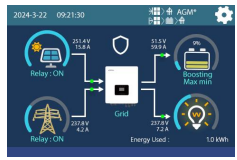
| | |
|---|---|
| | **Regardless of the input and output sources, the working mode is as follows.** |
| **(B)**<br>**PV ☑**<br>**Utility ☒** |  <br>$P_{PV} > P_{LOAD}$ ⇅ $P_{PV} \leq P_{LOAD}$<br>① When the PV power is greater than the load power, the PV charges the battery and supplies extra power to the load.<br>  <br>$V_{BAT} \geq LVR$ /SOC ≥ DPR ⇅ $V_{BAT} \leq LVD$ /SOC ≤ DP<br>② When the PV power is lower than or equal to the load power, the PV will not charge the battery, the battery will cut in to supply power to the load together with the PV.<br>  <br>③ Any of the following is satisfied, the PV and the battery stop supplying power to the load. The PV charges the battery only.<br>• The battery voltage is lower than or equal to the LVD value.<br>• The battery SOC is lower than or equal to the DP value. |
| | **Note:** When the battery voltage is greater than or equal to the LVR value, or the battery SOC is greater than or equal to the DPR value, the working mode returns to state ②. |

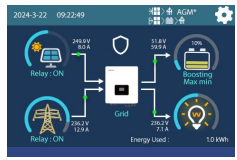
**Scenario C: Both PV and Utility are available.**

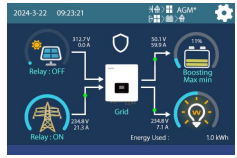
| | Charging Mode: "Solar" | Discharging Mode: "PV > BP > BT" or "PV > BT > BP" |
|---|---|---|
| (C-1)<br>PV ☑<br>Utility ☑ |  <br>$P_{PV} > P_{LOAD}$ ‖ $P_{PV} \leq P_{LOAD}$<br>  <br>$V_{BAT} \geq$ LVR /SOC≥ DPR ‖ $V_{BAT} \leq$ LVD /SOC ≤ DP<br>  | ① When the PV power is greater than load power, the PV charges the battery and supplies extra power to the load.<br>② When the PV power is lower than or equal to the load power, the PV will not charge the battery, the battery will cut in to supply power to the load together with the PV.<br>③ Any of the following is satisfied, the Utility supplies power to the load and the PV prioritizes charging the battery.<br>• The battery voltage is lower than or equal to the LVD value.<br>• The battery SOC is lower than or equal to the DP value. |
| | **Note:** When the battery voltage is greater than or equal to the LVR value, or the battery SOC is greater than or equal to the DPR value, the working mode returns to state ②. | |
| (C-2)<br>PV ☑<br>Utility ☑ | **Charging Mode: "Solar"** | **Discharging Mode: "BP > PV > BT"** |
| |  | The Utility supplies power to the load, and the PV charges the battery only. |

| (C-3) | Charging Mode: "Solar prior" | Discharging Mode: "PV > BP > BT" or "PV > BT > BP" |
|---|---|---|
| PV ☑<br>Utility ☑ |  <br>$P_{PV} > P_{LOAD}$ ⇅ $P_{PV} \le P_{LOAD}$ | ① When the PV power is greater than the load power, the PV charges the battery and supplies extra power to the load. |
| |  <br>$V_{BAT} \ge$ AUX OFF /SOC ≥ UAC OFF ⇅ $V_{BAT} \le$ AUX ON /SOC ≤ UAC ON | ② When the PV power is lower than or equal to the load power, the PV will not charge the battery, the battery will cut in to supply power to the load together with the PV. |
| |  | ③ Any of the following is satisfied, the Utility supplies power to the load and charges the battery together with the PV.<br>• The battery voltage is lower than or equal to the AUX ON value.<br>• The battery SOC is lower than or equal to the UAC ON value. |
| | **Note:** When the battery voltage is greater than or equal to the **AUX OFF** value, or the battery SOC is greater than or equal to the **UAC OFF** value, the working mode returns to state ②. | |
| (C-4) | **Charging Mode: "Solar > Grid"** | **Discharging Mode: "BP > PV > BT"** |
| PV ☑<br>Utility ☑ |  <br>$P_{PV} > LBACC^* V_{BAT}$ ⇅ $P_{PV} \le LBACC^* V_{RAT}$ | ① When the PV power is greater than the (**LBACC**$^*V_{BAT}$), the Utility and PV supply power to the load, and the PV charges the battery at the same time. |

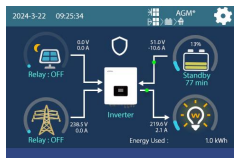
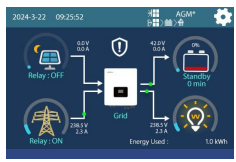
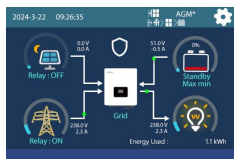
<table>
<tr><td></td><td> 

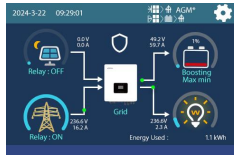
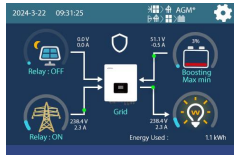
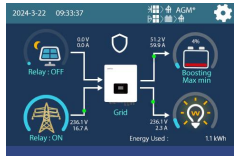
$V_{BAT} \geq AOF$ /SOC ≥ UCF<br>$V_{BAT} \leq AON$ /SOC ≤ UCO<br> 
</td><td>② When the PV power is lower than or equal to the (LBACC*$V_{BAT}$), the Utility supplies power to the load and the PV charges the battery.<br>③ Any of the following is satisfied, the Utility supplies power to the load and charges the battery together with the PV.<br>• The battery voltage is lower than or equal to the AUX ON value.<br>• The battery SOC is lower than or equal to the UAC ON value.</td></tr>
<tr><td></td><td colspan="2">Note: When the battery voltage is greater than or equal to the AUX OFF value, or the battery SOC is greater than or equal to the UAC OFF value, the working mode returns to state ②.</td></tr>
<tr><td>(C-5)<br><br>PV ☑<br><br>Utility ☑</td><td>Charging Mode: "Solar+Grid"<br> 

$P_{PV} > LBACC^* V_{BAT}$<br>$P_{PV} \leq LBACC^* V_{BAT}$<br> 
</td><td>Discharging Mode: No impact under any mode<br>① When the PV power is greater than the (LBACC*$V_{BAT}$), the Utility and PV supply power to the load, and the PV charges the battery simultaneously.<br>② When the PV power is lower than or equal to the (LBACC*$V_{BAT}$), the Utility and PV charge the battery, and the Utility supplies power to the load.</td></tr>
</table>

| | | |
|---|---|---|
| (C-6)<br>PV ☑<br>Utility ☑ | **Charging Mode: "Grid > Solar"**<br>  | **Discharging Mode: No impact under any mode**<br>The Utility supplies power to the load and charges the battery simultaneously. |

**Scenario D: The PV is not available, but the Utility is available.**

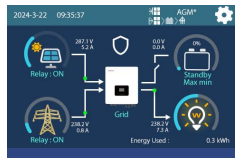
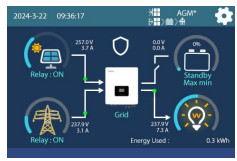
| | | |
|---|---|---|
| (D-1)<br>PV ☒<br>Utility ☑ | **Charging Mode: "Solar"**<br>  <br>$V_{BAT} \geq LVR$ /SOC ≥ DPR ⇅ $V_{BAT} \leq LVD$ /SOC ≤ DP<br>  | **Discharging Mode: "PV > BT > BP"**<br>① Any of the following is satisfied, the battery supplies the load.<br>• The battery voltage is greater than or equal to the LVR value.<br>• The battery SOC is greater than or equal to the DPR value.<br>② Any of the following is satisfied, the Utility supplies power to the load.<br>• The battery voltage is lower than or equal to the LVD value.<br>• The battery SOC is lower than or equal to the DP value. |
| (D-2)<br>PV ☒<br>Utility ☑ | **Charging Mode: "Solar"**<br>  | **Discharging Mode: "PV > BP > BT" or "BP > PV > BT"**<br>The Utility supplies power to the load. |

| | | |
|---|---|---|
| **(D-3)**<br><br>**PV ☒**<br><br>**Utility ☑** | **Charging Mode: "Solar > Grid"** | **Discharging Mode: "PV > BT > BP"** |
| |  <br>$V_{BAT} \geq$ AUX OFF / SOC ≥ UAC OFF<br>$V_{BAT} \leq$ AUX ON / SOC ≤ UAC ON<br>  | ① Any of the following is satisfied, the battery supplies the load.<br>• The battery voltage is higher than or equal to the AUX OFF value.<br>• The battery SOC is greater than or equal to the UAC OFF value.<br><br>② Any of the following is satisfied, the Utility supplies power to the load and charges the battery simultaneously.<br>• The battery voltage is lower than or equal to the AUX ON value.<br>• The battery SOC is lower than or equal to the UAC ON value. |
| **(D-4)**<br><br>**PV ☒**<br><br>**Utility ☑** | **Charging Mode: "Solar > Grid"** | **Discharging Mode: "PV > BP > BT" or "BP > PV > BT"** |
| |  <br>$V_{BAT} \geq$ AUX OFF / SOC ≥ UAC OFF<br>$V_{BAT} \leq$ AUX ON / SOC ≤ UAC ON<br>  | ① Any of the following is satisfied, the Utility supplies power to the load.<br>• The battery voltage is greater than or equal to the AUX OFF value.<br>• The battery SOC is greater than or equal to the UAC OFF value.<br><br>② Any of the following is satisfied, the Utility supplies power to the load and charges the battery simultaneously.<br>• The battery voltage is lower than or equal to the AUX ON value.<br>• The battery SOC is lower than or equal to the UAC ON value. |

| | | |
|---|---|---|
| (D-5)<br>PV ☒<br>Utility ☑ | **Charging Mode: "Solar + Grid" or "Grid > Solar"**<br>  | **Discharging Mode: No impact under any mode**<br>The Utility supplies power to the load and charges the battery simultaneously. |

## 4.3 No battery mode

**Note:** Under the no battery mode, the "Charging Mode" and "Discharging Mode" settings will not take effect.

| | | |
|---|---|---|
| PV ☑<br>Utility ☑ |  <br>$P_{PV} > P_{LOAD}$ $P_{PV} \leq P_{LOAD}$<br>  | ① When the PV power is greater than the load power; the PV supplies power to the load.<br>**Note:** In this mode, the Utility still keep a minimum power input. When the PV power is lower than the load power, the Utility can replenish the power supply at any time to avoid device shutdown.<br>② When the PV power is lower than or equal to the load power, the PV and the Utility supply power to the load together. |
| PV ☑<br>Utility ☒ |  | Only the PV supplies power to the load. |
| PV ☒<br>Utility ☑ |  | Only the Utility supplies power to the load. |

## 5 Protections

| No. | Protections | Instruction |
|---|---|---|
| 1 | PV limit current/power | When the output current/power of PV array is greater than the PV maximum input current/power of the inverter/charger, the inverter/charger will obtain energy from the whole PV array with the PV maximum input current/power. When the maximum open-circuit voltage of the PV array is less than 360V, excess power (up to 2 times the PV maximum input power of the inverter/charger) can be connected to the solar panel. When the maximum open-circuit voltage of the PV panel input is higher than or equal to 360V, excess power cannot be connected to the PV panel. |
| 2 | PV short circuit | When the PV is not charging and short circuit, the inverter/charger is not damaged. |
| 3 | PV reverse polarity | The inverter/charger will not be damaged when the PV array is reversely connected, correct the wire connection to resume work.<br>**Note:** If the maximum open-circuit voltage of the PV array ≥ 500V, the inverter/charger will be damaged. |
| 4 | Utility input overvoltage | When the utility voltage exceeds the set value of "UOD (Utility Overvoltage Disconnect Voltage)" the utility will stop charging and supplying the load. |
| 5 | Utility input undervoltage | When the utility voltage is lower than the set value of "ULVD (Utility Low Voltage Disconnect Voltage)" the utility will stop charging and supplying the load. |
| 6 | Battery overvoltage | When the battery voltage goes higher than the "OVD(Overvoltage Disconnect Voltage)," the PV/Utility will stop charging the battery to protect the battery from being over-charged. |
| 7 | Battery over-discharge | When the battery voltage goes lower than the "LVD (Low Voltage Disconnect Voltage)," the battery will stop discharging to protect the battery from being over-discharged. |
| 8 | Battery reverse polarity | The inverter/charger will not be damaged when the battery is reversely connected, correct the wire connection to resume work. |

<table>
<tr><td>9</td><td>Load output short circuit</td><td colspan="3">The output is turned off immediately in the occurrence of short-circuiting. And then, the output is recovered automatically after a delay time of 5s, 10s, and 15s separately (less than three times recovery within 5 minutes, it will be recounted). The inverter/charger stops working after the 4th protection and can resume working after resetting or restarting.<br>Clear the fault in time because it may damage the inverter/charger permanently.<br>Note: Resetting operation--See Subsection 2.4.6 Error code and then click the Clear button to exit the current fault state and resume normal operation.</td></tr>
<tr><td>10</td><td>Device overheating</td><td colspan="3">When the internal temperature overheats, the inverter/charger will stop charging/discharging.<br>The inverter/charger will resume charging/discharging when the internal temperature is normal.</td></tr>
<tr><td rowspan="3">11</td><td rowspan="3">HP5542-AH1050P65C Inverter overload<br>(no Utility)</td><td>5,665W ≤ P < 6,600W</td><td>6,600W ≤ P < 7,700W</td><td>P ≥ 7,700W</td></tr>
<tr><td>Protect after 30 seconds</td><td>Protect after 10 seconds</td><td>Protect immediately</td></tr>
<tr><td colspan="3">Note: The output is recovered automatically after a delay time of 5s, 10s, and 15s separately. The inverter/charger stops working after the 4th protection and can resume working after resetting or restarting.</td></tr>
<tr><td rowspan="3">12</td><td rowspan="3">HP5542-AH1050P65C Utility bypass overload (no-Battery mode)</td><td>6,050W ≤ P < 6,985W</td><td>6,985W ≤ P < 8,085W</td><td>P ≥ 8,085W</td></tr>
<tr><td>Protect after 30 seconds</td><td>Protect after 10 seconds</td><td>Protect immediately</td></tr>
<tr><td colspan="3">Note: The output is recovered automatically after a delay time of 5s, 10s, and 15s separately. The inverter/charger stops working after the 4th protection and can resume working after resetting or restarting.</td></tr>
<tr><td>13</td><td>HP5542-AH1050P65C Utility bypass overload</td><td>8,550W ≤ P <</td><td>9,485W ≤ P <</td><td>P ≥ 1,0585W</td></tr>
</table>

| | | | | |
|---|---|---|---|---|
| | (Battery mode) | 9,485W | 1,0585W | |
| | | Protect after 30 seconds | Protect after 10 seconds | Protect immediately |
| | | **Note:** The output is recovered automatically after a delay time of 5s, 10s, and 15s separately. The inverter/charger stops working after the 4th protection and can resume working after resetting or restarting. | | |

# 6 Troubleshooting

**NOTICE**

After the inverter/charger is powered on, the meter displays the boot screen all the time (unable to enter the home screen) and the red "RUN" indicator flashes. It means the communication with the inverter/charger is abnormal. When the above fault occurs, check whether the communication cable is disconnected. If not, please contact our after-sales engineer.

## 6.1 Battery faults

| Error code | Fault/Status | Indicator | Buzzer | Solution |
|---|---|---|---|---|
| Err4 | Battery Overvoltage Prorection | -- | -- | Disconnect the charging connection, and check whether the battery voltage is too high. Verify if the actual battery voltage matches the rated battery voltage; or check if the “Overvoltage Disconnect Voltage” is inconsistent with the battery specifications. After the battery voltage drops below the set value of “Overvoltage Recovery Voltage”, the alarm will automatically be cleared. |
| Err5 | Battery Undervoltage Prorection | | | Disconnect the loads connection, and check whether the battery voltage is too low. After the battery voltage is charged and restored to above the “Low Voltage Recovery Voltage”, it will automatically return to normal, or use other methods to charge the battery. |
| Err11 | Battery Over Temperature | | | Ensure the battery is installed in a cool and well-ventilated place, check that the battery actual charging and discharging current does not exceed the setting values of "Local Battery Available Charging Current” and “Local Battery Available Discharging Current”. It resumes normal work when the battery cools down to below the "Battery Over Temperature Protection Recovery". |

| | | | | |
|---|---|---|---|---|
| Err37 | Battery Overcurrent | | | Check that the battery actual charging and discharging current does not exceed the setting values of “Local Battery Available Charging Current” and “Local Battery Available Discharging Current”. |
| Err39 | Battery Cable Disconnected | | | Check whether the battery connection is normal, and whether the BMS protection occurs. |
| Err50 | Battery Undervoltage Alarm | | | Check if the battery voltage is lower than the Undervoltage Alarm Voltage. |
| Err56 | Battery Connection Failed | | | Check if the battery connection is normal and the BMS communication of the lithium battery is normal. |

## 6.2 PV faults

| Error code | Fault/Status | Indicator | Buzzer | Solution |
|---|---|---|---|---|
| Err15 | PV1 Overvoltage | PV indicator solid red | Intermittent beeps | Check if the PV open-circuit voltage is higher than “Overvoltage Protection Voltage”. The alarm is released when the PV open-circuit voltage is below “Overvoltage Recovery Voltage”. |
| Err17 | PV1 Overcurrent | PV indicator solid green | -- | Turn off the inverter/charger first, wait for 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err18 | PV2 Overvoltage | PV indicator solid red | Intermittent beeps | Check if the PV open-circuit voltage is higher than “Overvoltage Protection Voltage”. The alarm is released when the PV open-circuit |

| | | | | |
|---|---|---|---|---|
| | | | | voltage is below “Overvoltage Recovery Voltage”. |
| Err20 | PV2 Overcurrent | PV indicator solid green | -- | Turn off the inverter/charger first, wait for 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err30 | PV HARD FAULT (PV Hardware Fault) | | | |
| Err43 | PV1TSD (PV1 Temperature Sensor Disconnected) | | | |
| Err52 | PV1 PCTO (PV1 Pre-charge Timeout) | PV indicator solid green | -- | Turn off the inverter/charger first, wait for 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err53 | PV2 PCTO (PV2 Pre-charge Timeout) | | | |

## 6.3 Inverter faults

| Error code | Fault/Status | Indicator | Buzzer | Solution |
|---|---|---|---|---|
| Err2 | Inverter Output Overcurrent | LOAD indicator solid red | Intermittent beeps | Check if the load actual power exceeds the "Inverter Rated Power (see Chapter 8 Technical Specifications)," disconnect the load completely and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err7 | Inverter Output Overvoltage | LOAD indicator solid red | Intermittent beeps | Check whether the inverter output is higher than the "Over Voltage Protection" (See 2.4.4 Load, click **Fun** to enter the "Setting Parameters To Display" |

| | | | | |
|---|---|---|---|---|
| | | | | page to view the value of this parameter).<br>Disconnect the load completely and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err10 | Inverter Over Temperature | -- | -- | Ensure the inverter/charger is installed in a cool and well-ventilated place. |
| Err22 | Inverter Hardware Overvoltage | -- | -- | Disconnect the load completely and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err23 | Inverter Hardware Overcurrent | | | |
| Err32 | Inverter Voltage OFFSET Error | | | |
| Err35 | Inverter Current OFFSET Error | -- | -- | Disconnect the load completely and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err45 | Inverter Temp Sensor Disconnected | LOAD indicator solid green | -- | Turn off the inverter/charger.Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |

| | | | | |
|---|---|---|---|---|
| Err49 | Inverter Output Undervoltage | LOAD indicator solid red | Intermittent beeps | Check if the load actual power exceeds the "Inverter Rated Power (see Chapter 8 Technical Specifications)," disconnect the load completely and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |

## 6.4 Utility faults

| Error code | Fault/Status | Indicator | Buzzer | Solution |
|---|---|---|---|---|
| Err8 | Utility Overvoltage | GRID indicator solid red | Intermittent beeps | Check if the utility voltage is exceeds the “Utility Overvoltage Disconnect Voltage”, then disconnect the AC input and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err9 | Utility Overcurrent | GRID indicator solid red | Intermittent beeps | Check if the load actual power exceeds the "Inverter Rated Power (see Chapter 8 Technical Specifications)," disconnect the load completely and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support.<br>Check if the utility voltage is lower than the “Utility Low Voltage Disconnect Voltage”, disconnect the utility input and |
| Err25 | Utility Undervoltage | GRID indicator solid red | -- | |

| | | | | |
|---|---|---|---|---|
| | | | | turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err28 | Utility Pre-charge Timeout | GRID indicator solid green | -- | Check if the utility frequency in between the "Utility Underfrequency Disconnect Frequency" to "Utility Overfrequency Disconnect Frequency" disconnect the utility input and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err29 | Utility Relay Adhesion | GRID indicator solid green | -- | |
| Err31 | Utility Frequency Error | GRID indicator solid red | Intermittent beeps | |

## 6.5 Load faults

| Error code | Fault/Status | Indicator | Buzzer | Solution |
|---|---|---|---|---|
| Err33 | Load Current OFFSET Error | -- | -- | Disconnect the load completely and turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err48 | Load Over Load | LOAD indicator solid red | Intermittent beeps | |
| Err55 | Overload Lockdown | LOAD indicator solid red | Intermittent beeps | |

## 6.6 Other faults for single inverter/charger

| Error code | Fault/Status | Indicator | Buzzer | Solution |
|---|---|---|---|---|
| Err0 | DC Bus Overvoltage | -- | -- | Turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err6 | DC Bus Undervoltage | | | |
| Err12 | Ambient Over Temperature | -- | -- | Ensure the inverter/charger is installed in a cool and well-ventilated place. |
| Err21 | Battery or Bus Hardware Overvoltage | -- | -- | Turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err24 | High Volt Bus Hardware Overcurrent | | | |
| Err36 | High Volt Bus Current Abnormal | | | |
| Err38 | Boost Drive Error | | | |
| Err40 | Auxiliary Power Supply Abnormal | | | |
| Err42 | Environment Temp Sensor Disconnected | -- | -- | Turn off the inverter/charger. Wait 5 minutes and then turn on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |
| Err46 | Low Temperature Charging Limit | -- | -- | Check whether the ambient temperature is lower than the set "Low Temperature Stop Charging Temperature" and "Low Temperature Stop Discharging Temperature". |
| Err47 | Low Temperature Discharging Limit | | | |
| Err54 | EEprom Abnormal | -- | -- | Turn off the inverter/charger. Wait 5 minutes and then turn |

| | | | | |
|---|---|---|---|---|
| | | | | on the inverter/charger to check if it resumes normal. If it is still abnormal, please contact our technical support. |

## 6.7 BMS faults

| Error code | Fault/Status | Indicator | Buzzer | Solution |
|---|---|---|---|---|
| Err66 | BMS Overvoltage | -- | -- | Check the BMS communication status or BMS setting parameters. |
| Err68 | BMS Charging Temp Abnormal | | | |
| Err69 | BMS Undervoltage | | | |
| Err71 | BMS Discharging Temp Abnormal | | | |
| Err74 | BMS Communication Failure | | | |

# 7 Maintenance

**The following inspections and maintenance tasks are recommended at least twice yearly for best performance.**

- Make sure no block on airflow around the inverter/charger. Clear up dirt and fragments on the radiator.
- Check all the wired cables to ensure insulation is not damaged for serious solarization, frictional wear, dryness, insects or rats, etc. Repair or replace some wires if necessary.
- Check and confirm that LED or LCD is consistent with the required. Pay attention to any troubleshooting or error indication. Take necessary corrective action.
- Confirm that all the terminals have no corrosion, insulation damage, high temperature, or burnt/discolored sign; tighten terminal screws to the suggested torque.
- Check for dirt, nesting insects, and corrosion. If so, clear up in time.
- Check and confirm that the lightning arrester is in good condition. Replace a new one in time to avoid damaging the inverter/charger and other equipment.

**⚠ DANGER**

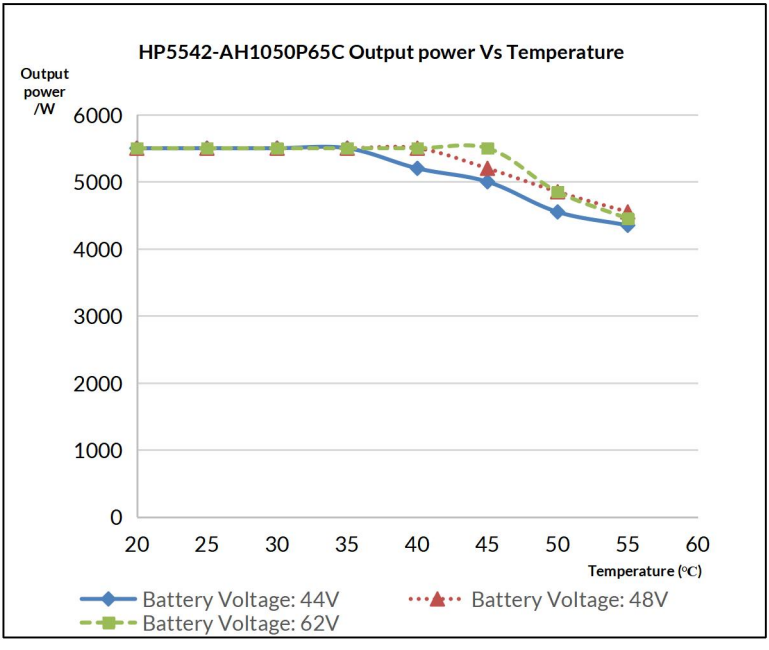
Electric shock hazard! Make sure that the power supply of the inverter/charger is disconnected when performing the above operations, and wait for 10 minutes for the power in the capacitor to be discharged before performing the corresponding checks or operations.

## 8 Technical Specifications

| Model | HP5542-AH1050P65C |
|---|---|
| **Utility Input** | |
| Utility Input Voltage | 176VAC to 264VAC (Default)<br>90VAC to 285VAC (Configurable) |
| Utility Input Frequency | 45Hz to 65Hz |
| Maximum Utility Charging Current | 100A |
| Switch Response Time | Inverter to Utility: 10ms<br>Utility to Inverter (when the load power is higher than 100W): 20ms |
| **Inverter Output** | |
| Inverter Rated Power (@30℃) | 5,500W |
| 3-second Transient Surge Output Power | 8,500W |
| Inverter Output Voltage | 220/230VAC ± 3% |
| Inverter Frequency | 50/60Hz ± 0.2% |
| Output Voltage Waveform | Pure sine wave |
| Load Power Factor | 0.2－1(VA ≤ Rated output power) |
| THDu (Total Harmonic Voltage Distortion) | ≤ 3% (48V resistive load) |
| Maximum Load Efficiency | 91% |
| Maximum Inverter Efficiency | 94% |
| **Solar Controller** | |
| PV Maximum Open-circuit Voltage | 500V (At minimum operating environment temperature)<br>440V (At 25℃) |
| MPPT Voltage Range | 85V to 400V |

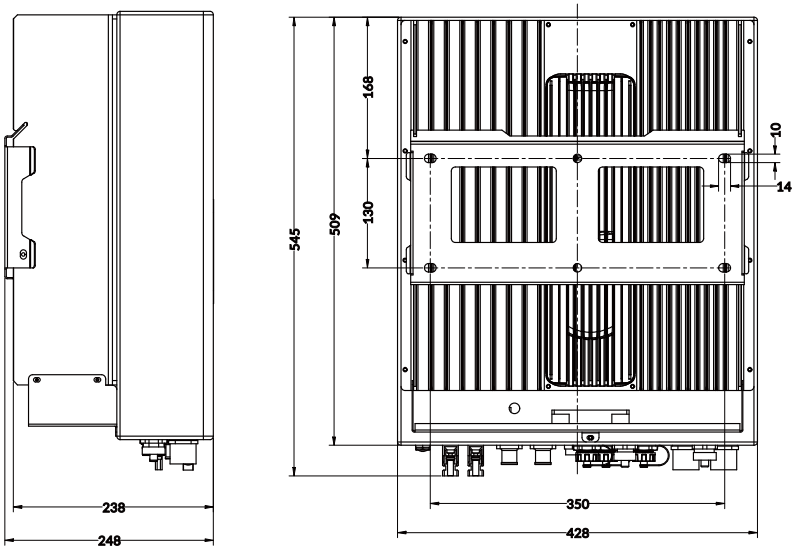
| | |
|---|---|
| Number of MPPTs | 2 |
| PV Maximum Input Current | Two ways, 2 × 15A |
| PV Maximum Input Power | 2 × 3,000W |
| MPPT Maximum efficiency | ≥99.5% |
| **Battery** | |
| Battery Rated Voltage | 48VDC |
| Battery Work Voltage Range | 43.2VDC to 64VDC |
| Battery Maximum Charging Current | 100A |
| **Others** | |
| No-load Losses | ≤ 1.2A |
| | Test condition: Utility, PV and Load are disconnected, AC output is ON, fan stops, @48V input |
| Standby Current | ≤ 0.8A |
| | Test condition: Utility, PV and Load are disconnected, AC output is OFF, fan stops, @48V input |
| Work Temperature Range | -20℃ to +55℃ (> 35℃ derating)(1) |
| Storage Temperature Range | -25℃ to +60℃ |
| Enclosure | IP65 |
| Relative Humidity | < 100% (N.C.) |
| Altitude | < 4,000m (> 2,000 meters derating) |
| **Mechanical Parameters** | |
| Dimension (L × W × H) | 545mm × 428mm × 248mm |
| Mounting Size (L × W) | 350mm × 130mm |
| Mounting Hole Size | Φ10mm |
| Net Weight | 25.4Kg |

(1) The graph showing the variation of output power with environment temperature is as follows.



## 9 Dimensions

**Model: HP5542-AH1050P65C** **Unit: mm**



# 10 Appendices

## 10.1 Appendix1 Abbreviations index

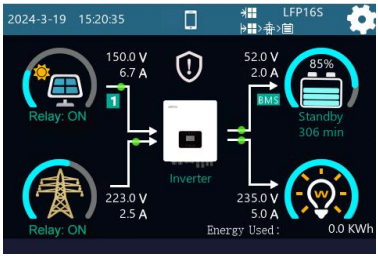
| Interface | Abbreviations | Full Name |
|---|---|---|
| Solar Setting Parameter | OVP | Overvoltage Protection |
| | OVPR | Overvoltage Protection Recovery |
| | OTP | Over Temperature Protection |
| | OTPR | Over Temperature Protection Recovery |
| Voltage Control Strategy | OVD | Overvoltage Disconnect Voltage |
| | CLV | Charging Limit Voltage |
| | OVR | Overvoltage Recovery Voltage |
| | ECV | Equalization Charging Voltage |
| | BCV | Bulk Charging Voltage |
| | FCV | Float Charging Voltage |
| | BVR | Bulk Voltage Recovery Voltage |
| | LVR | Low Voltage Recovery Voltage |
| | UVWR | Undervoltage Alarm Recovery Voltage |
| | UVW | Undervoltage Alarm Voltage |
| | LVD | Low Voltage Disconnect Voltage |
| | DLV | Discharging Limit Voltage |
| | AUX OFF | Auxiliary Charging OFF Voltage |
| | AUX ON | Auxiliary Charging ON Voltage |
| SOC Control Strategy | FCP | Full Charge Protection SOC |
| | FCPR | Full Charge Protection Recovery SOC |
| | LPAR | Low Power Alarm Recovery SOC |
| | LPA | Low Power Alarm SOC |

| | | |
|---|---|---|
| | DPR | Discharging Protection Recovery SOC |
| | DP | Discharging Protection SOC |
| | UAC ON | Utility Auxiliary Charging ON SOC |
| | UAC OFF | Utility Auxiliary Charging OFF SOC |
| | Set SOC | Set SOC |
| Utility Setting Parameter | UOD | Utility Overvoltage Disconnect Voltage |
| | UOR | Utility Overvoltage Reconnect Voltage |
| | ULVD | Utility Low Voltage Disconnect Voltage |
| | ULVR | Utility Low Voltage Reconnect Voltage |
| | UOF | Utility Overfrequency Disconnect Frequency |
| | UFD | Utility Underfrequency Disconnect Frequency |
| Load Setting Parameter | INVOVL | Inverter Output Voltage Level |
| | INVOFR | Inverter Output Frequency Range |
| | Load CL | Load Current Limit |
| | INVOP | Inverter Overvoltage Protection Voltage |
| | INVOPR | Inverter Overvoltage Protection Recovery Voltage |
| | TempUL | Temperature Upper Limit |
| | TempULR | Temperature Upper Limit Recovery |
| Battery Basic Properties | Status | Battery Status |
| | BDCap | Battery Design Capacity |
| | BType | Battery Type |
| | BRV | Battery Voltage |
| | LBACC | Local Battery Available Charging Current |
| | LBADC | Local Battery Available Discharging Current |
| | BECT | Battery Equalization Charging Time |
| | BECD | Battery Equalization Charging Date |

| | | |
|---|---|---|
| | BBCT | Battery Bulk Charging Time |
| | BTCC | Battery Temperature Compensation Coefficient |
| Advanced Battery Properties | Li PROT | Lithium Battery Protection |
| | LTSChrg | Low Temperature Stop Charging Temperature |
| | LTSDischrg | Low Temperature Stop Discharging Temperature |
| | BATT OTP | Battery Over Temperature Protection |
| | BATT OTPR | Battery Over Temperature Protection Recovery |
| | Chrg | Charging |
| | Dischrg | Discharging |
| | PCUP | Phase Current Unbalance Protection |
| | INVPSet | Inverter Phase Setting |
| | UCD | Unbalanced Current Difference |
| Charge and Discharge Management | BACC | Battery Available Charging Current |
| | BADC | Battery Available Discharging Current |
| | UACC | Utility Available Charging Current |
| | CMode | Charging Mode |
| | DMode | Discharge Mode |
| | ACmode | AC Input Mode |
| | PVMode | PV Mode |
| | BCCMode | Battery Charging Control Mode |
| | BMSProt | BMS Protocol |
| | BMS | BMS Enable |
| | BMSVolt | BMS Voltage Control |
| | BMSCurr | BMS Current Control |
| | BMSFail | BMS Fail Action |

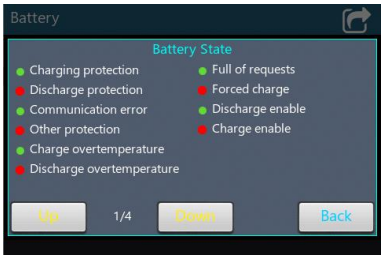
| | | |
|---|---|---|
| Local Parameters | LCD BRT | LCD Brightness |
| | TODelay | Idle Timeout Delay |
| | LCDSBRT | Standby LCD Brightness |
| | SOT | Screen Off Time |
| | Com ID | Communication ID |
| | Com BPS | Communication Baud Rate |
| | DCT ON | Dry Contract ON Voltage |
| | DCT OFF | Dry Contract OFF Voltage |
| | Switch BMS | Switch BMS |
| | HRI | History Record Interval |
| Others | Wireless | Wireless |
| | RTU POWER | RTU POWER |
| | Screen Timeout | Screen Timeout |
| | Parameter Rest | Parameter Rest |
| | Low Power Mode | Low Power Mode |
| | Manual Equalizer | Manual Equalizer |
| | DC Source Characteristic | DC Source Characteristic |
| | Initializing Records | Initializing Records |
| | Clear Statistical Power | Clear Statistical Power |

## 10.2 Appendix 2 Battery state instruction

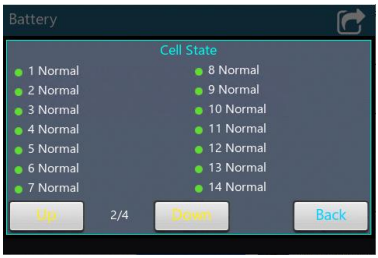



1. Click the battery icon  on the home page to enter the battery real-time data interface.

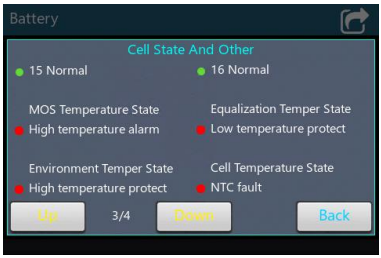

2. Touch the  to enter the battery state interface.




3. The first page shows the “Battery State.”




4. Click **Down** button to shows the "Cell State" on second page.




5. Click **Down** button to shows the "Cell State And Other" on third pages.


6. Click **Down** button to shows the "Other" on forth pages.

**The detailed data of each interface is as follows:**

| LCD | English Display | Description |
|---|---|---|
| Battery State | Charging protection | Green means this state has not occurred, red means this state has occurred. After showing red, the inverter/charger turns off charging. |
| | Discharge protection | Green means this state has not occurred, red means this state has occurred. After showing red, the inverter/charger turns off discharging. |
| | Communication Error | The communication between BMS-Link and lithium battery BMS fails (such as wrong protocol selection, mismatched communication cables, etc.).<br>Green means this state has not occurred, red means this state has occurred. After showing red, the inverter/charger turns off charging and discharging. |
| | Other protection | Green means this state has not occurred, red means this state has occurred. After showing red, the inverter/charger turns off the charging and discharging. |
| | Charge overtemperature | Green means this state has not occurred, red means this state has occurred. After showing red, the inverter/charger turns off charging. |
| | Discharge overtemperature | Green means this state has not occurred, red means this state has occurred. After showing red, the inverter/charger turns off discharging. |
| | Full of requests | Green means this state has not occurred, red means this state has occurred. |
| | Forced charge | |
| | Discharge Enable | Green means discharging is enabled. Red means discharging is disabled. After showing red, the inverter/charger turns off discharging. |
| | Charge Enable | Green means charging is enabled. Red means charging is disabled. After showing red, the inverter/charger turns off charging. |

| | | |
|---|---|---|
| Cell State | 1 Normal to 14 Normal | If it is detected that the current single battery cell is normal or there is no battery cell, it will display green; if the current battery cell is abnormal, the display will turn red.<br>The abnormal status of a single battery cell includes: Undervoltage alarm, Overvoltage alarm, Undervoltage proterct, Overvoltage protect, and Cell detection.<br>After reading the undervoltage alarm or protection of the single cell, the inverter/charger turns off discharging. After reading the overvoltage alarm or protection of the single cell, the inverter/charger turns off charging. |
| Cell State And Other | 15 Normal to 16 Normal | |
| | MOS Temperature State | Normal display is green, abnormal display is red. Abnormal status includes: High temperature alarm, Low temperature alarm, High temperature protect, Low temperature protect, NTC fault.<br>The inverter/charger turns off charging and discharging. |
| | Environment Temper State | |
| | Equalization Temper State | |
| | Cell Temperature State | |
| Other | Pack Voltage State<br>Undervoltage alarm | Normal display is green, abnormal display is red. Abnormal status includes: Undervoltage alarm, Overvoltage alarm, Undervoltage proterct, Overvoltage protect.<br>After reading the BMS under-voltage alarm or protection, the inverter/charger turns off discharging. After reading the BMS over-voltage alarm or protection, the inverter/charger turns off charging. |
| | Pack Current State<br>Overcharge alarm | Normal display is green, abnormal display is red. Abnormal status includes: Overrelease alarm, Overcharge alarm, Overdischarge protection, Overcharge protection.<br>After reading the BMS over-discharge alarm or protection, the inverter/charger turns off discharging. After reading the BMS overcharge alarm or protection, the inverter/charger turns off charging. |

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