TODAMU

Smart Solar HUB User Manual

V 2.0

Smart Solar HUB Model

TE-H1600

Disclaimer

Before using this product, please read this document carefully to ensure that you fully understand it and can use it properly.

After reading this document, keep it in a safe place for future reference.

Improper operation of this product may result in serious injury to yourself or others, or damage to this product and other property.

By using this product you are deemed to have understood, acknowledged and accepted all the terms and conditions of this document.

The Company shall not be liable for any damages caused by the user's failure to operate this product in accordance with the instructions for use.

In accordance with laws and regulations, the Company reserves the right of final interpretation of this document and all documents related to this product.

This document is subject to update without notice, please visit the official website for the latest version.

This manual describes the assembly, installation, commissioning, maintenance and troubleshooting of the next model product.

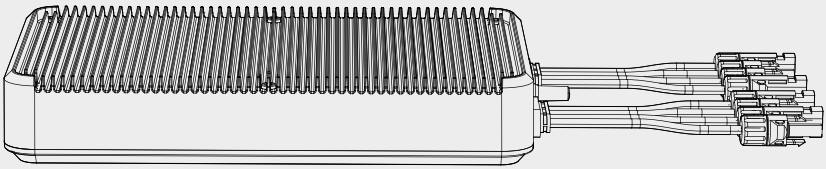
Solar HUB：LS-H1600

Contents

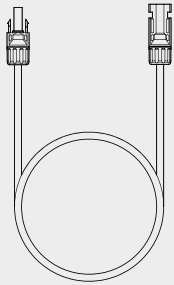
1.Safety Instructions

1. Before installing using or servicing this product, please read all documentation carefully, which may have changed due to product updates or other reasons.
2. Before installing, check the packaging and appearance of the unit to ensure that it has not been damaged during transportation.
3. Before connecting, make sure all cables and plugs are intact and dry to avoid electric shock.
4. Before the end of the installation, make sure that the solar PV panels, equipment is disconnected from the home power supply.
5. Do not install or operate the equipment under extreme weather conditions, such as lightning, snow, heavy rain, strong winds, etc.
6. Warning signs on the equipment must not be damaged, painted over or torn off.
7. After installation, remove any remnants of the installation, such as cut cable ties, torn insulation, etc.
9. For safety reasons, the equipment should use original or authorized cables. We are not responsible for damage to the equipment caused by the use of third-party accessories.
10. Ensure that the equipment is installed, operated or stored in a well-ventilated area. Inadequate ventilation can cause permanent damage to the equipment.
11. Do not install or place the device in a strong electrical and magnetic field environment to avoid radio interference.
12. Do not install the equipment in flammable, explosive, corrosive, extremely hot, cold and humid environments.
13. Do not install the device where children and pets can touch it.
14. Do not attempt to repair the equipment. If a malfunction occurs, contact our customer support department and initiate the replacement process.
15. Unauthorized repair or opening of the device will void the warranty policy.

2.Delivery List



Smart Solar HUB *1



1M MC4 Cable *4

User Manual

* If parts are missing, please contact customer service.
* Other tools and accessories involved in installation and commissioning are not included in the packing list, if you need to use, please purchase separately.

3.Installation Procedure

3.1 APP Download

The app allows you to remotely monitor and adjust the energy management of the PV HUB. Search "Smart Life" in Apple App Store and other major app stores, or scan the QR code below to download the "Smart Life" APP.

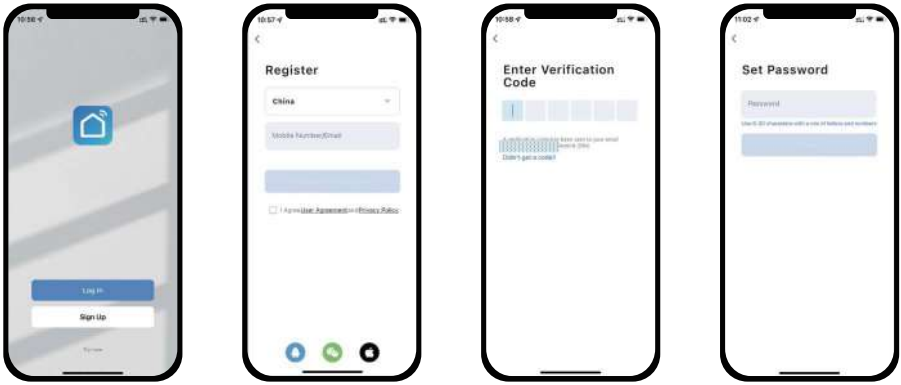
Download on the App Store

GET IT ON Google Play

Get it from Microsoft

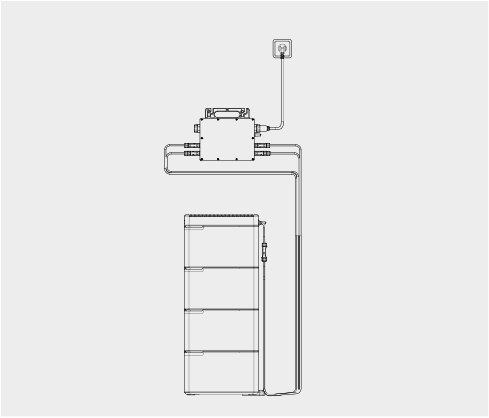
3.2 Register An Account

1. Click Sign Up to carefully read and agree to the User Agreement and Privacy Policy, and then go to the Register page. 2.
2. Register for an account with an e-mail address or cell phone number State/Region is assigned automatically or can be changed manually. The State/Region is automatically assigned and can be changed manually. However, this field cannot be changed after you register an account, so click Get Verification Code.
3. Enter the verification code received and go to the password setting page, set the password as required and click Done.

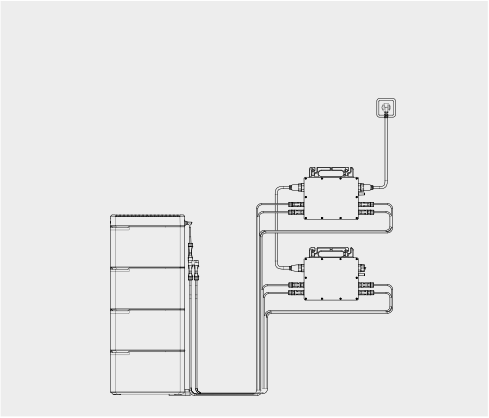


3.3 Installation Procedure

Standard installation:



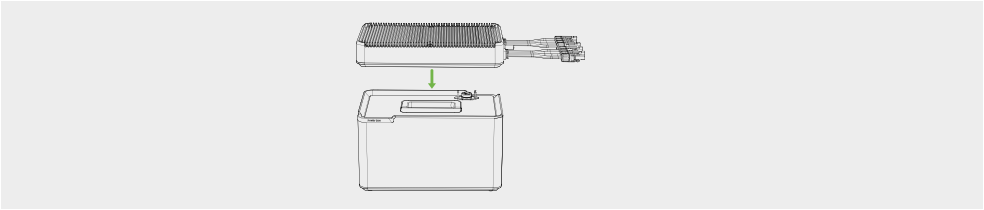
Solar HUB is stacked on the battery pack and connected with a micro inverter.



Solar HUB is stacked on the battery pack and connected with 2 micro inverters.

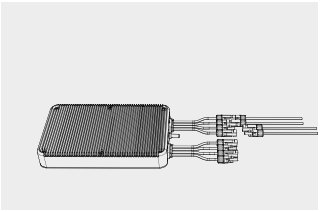
Step 1: Connect with the battery pack first

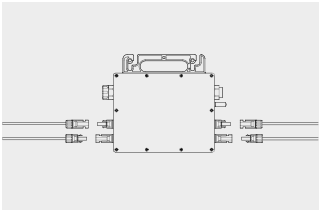
Select the position of solar HUB and battery pack, and place the solar HUB on the battery pack.

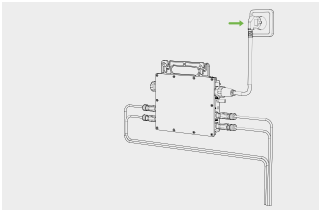


Step 2: Then Connect to the micro inverter DC input

Solar HUB connect to Micro inverter



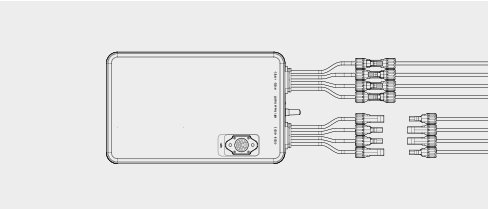


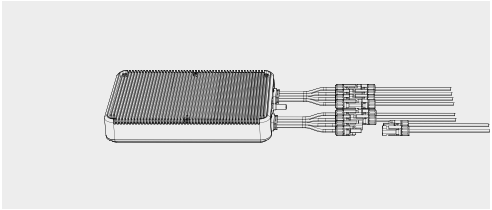


First connect the output of Solar HUB to the DC input of micro inverter via MC4 cables, then connect microinverter to the socket

Step 3: Finally connect to the Solar Panels

Solar panel to solar HUB input





See INPUT one-to-one docking (wiring diagram)

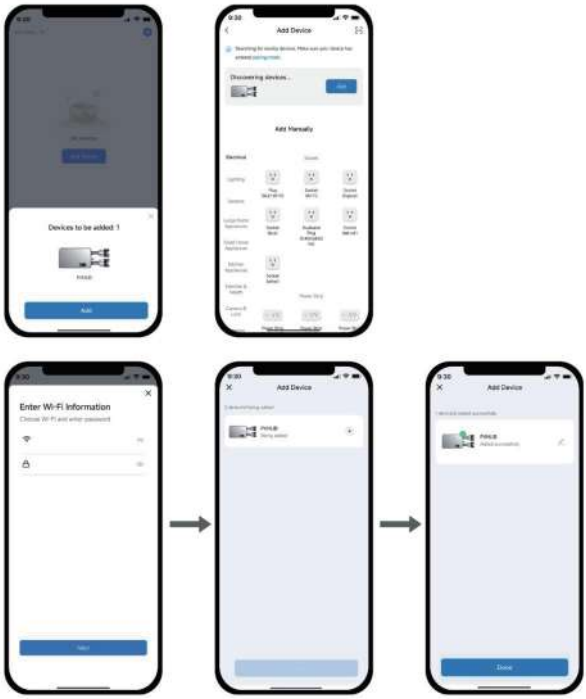
Solar Panel to Solar HUB (Wiring Diagram)

Step 4: Add the device

Photovoltaic power generation can be automatically turned on, flash green lights, you can connect to wifi.

Open the Smart Life APP, the Add Devise button automatically pops up, click Add to start connecting the device. If the Device Add button does not pop up automatically, you need to manually click the Add Devise button to search for nearby devices and enter into the pairing mode.

1. Enter your Wi-Fi account and password as prompted. Click the "Next" button when finished and wait for a few minutes for the device to complete network allocation.



Note: If the device is not found, you can press the HUB reset button for more than 10s to reset the app and reconnect the App.

When you install or restart the device for the first time, the device will enter the Checking Device Environment state for about 6 minutes.

Notes:

Equipment normal operation, arbitrary DC output unplugging and plugging equipment, will lead to the risk of equipment dead or damaged.

If you need to add, replace the battery pack or micro inverter, please make sure the whole system is power off.

The specific operation steps are as follows:

Step 1: Long press the solar hub On/Off button for 3s to turn off the hub (turn off the battery pack source)

Step 2: Unplug all solar panels from the input side (shut down the PV power source)

Step 3: Adding, replacing the battery pack or completing the micro inverter, then connect to the solar panels.

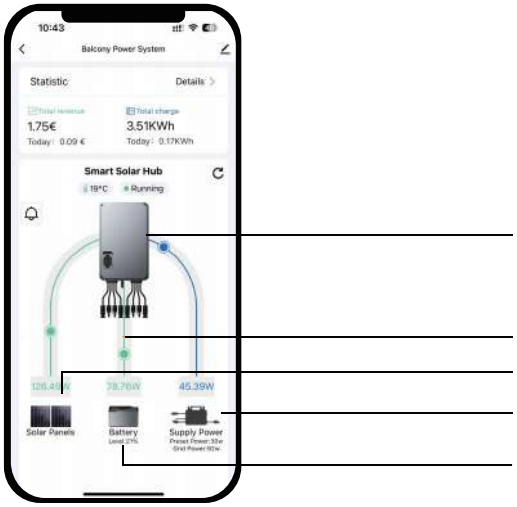
Note: When installing without solar panels or low sunlight, just wait for solar panels to have power, or activate battery pack power.

Activate battery pack power supply solar hub steps are as follows:

Long press the battery pack button for more than 6s to activate the battery pack and power supply solar hub, solar hub lights up.

4.APP Function Introduction

4.1 Introduction To The Interface



Solar HUB

Power Box input power in green, output power in blue Battery pack power percentage

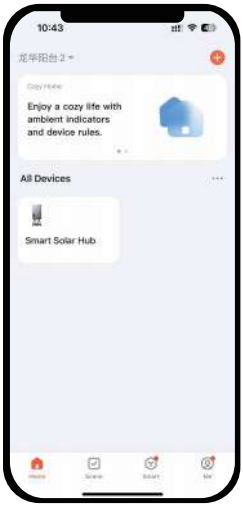
Solar panel input power

Output power for home use

Power Box percentage

4.2 APP Operation Interface

4.2.1 Main interface and statistics interface



1. After adding the device, you can view the successfully added device under "All devices". Click the device to enterthe main interface of the device

2. In the main interface, you can view the photovoltaic input power, battery power and charge and discharge power, as well as the power output of Solar HUB to the micro-inverter

3. Click "View details" in the data statistics on the main interface to view the statistics of the sun's emission point, the discharge of Solar HUB to the micro-inverter, and the battery charging

4.2.2 View system device details

1. Click the Solar HUB icon on the main interface to view the device status, temperature, and specification parameters of the Solar HUB

2. Click the photovoltaic panel icon on the main interface to view the input power, input voltage, and input current of the photovoltaic panel

3. Click the battery icon on the main interface to view the battery power, charge and discharge power, battery life, and number of cycles

4. Click the micro-inverter icon on the main interface to view the output power, output voltage, and output power of the Solar HUB output

4.3 Adding a smart meter

Before adding a smart meter, you need to connect the smart meter to the same router as this solar hub. After the connection is completed, you can add a smart meter in the following way, taking the shelly meter as an example.

1. On the device information page, select "Electric Meter" to enter the electric meter configuration page

2. Turn on the "Enable Electric Meter" switch and select the electric meter manufacturer to be connected; then click "Save"

3. Complete the connection of the smart meter according to the device prompt information; if you need to fill in the IP address and port number, please read the prompt information carefully and fill it in according to the prompt information

4. According to the device prompt information, enter the electric meter APP page and fill in the IP address and port number

4.4 Device Control

4.4.1 Custom Mode

1. Click the Solar HUB icon on the main interface, and click the switch of the device status to turn on/off the Solar HUB charging and discharging

2. Click "Configure Power Plan" to set the Solar HUB charging and discharging

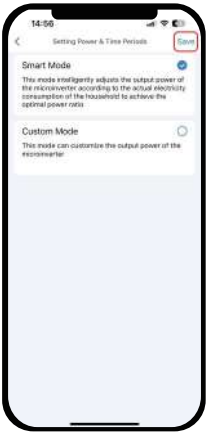
3. Drag the Default Household Power progress bar to set the default household power.Click the "+" sign on the right side of "Customize Household Power Consumption" to add a discharge time period.After setting is completed, click "Save".

4.4.2 Smart Mode

The smart mode can be used when the smart energy meter and the device are connected to the same Wi-Fi network. Please refer to the user manual of the smart energy meter for its usage. The setting method of the smart mode is as follows:

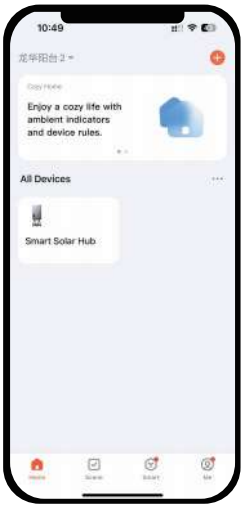
1. Click the device icon on the main interface and click the switch of the device status to turn on and off the charging and discharging of device.

2.Click "Setting Power & Time Period" to set the charging and discharging of device.

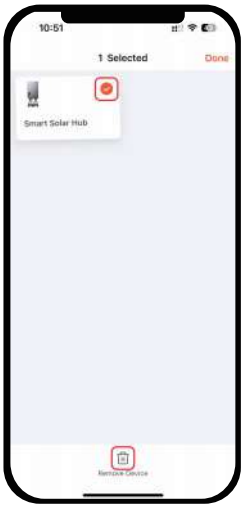


3.Tick "Smart Mode" and click "Save" to enter the smart mode.
After setting is completed, click "Save".

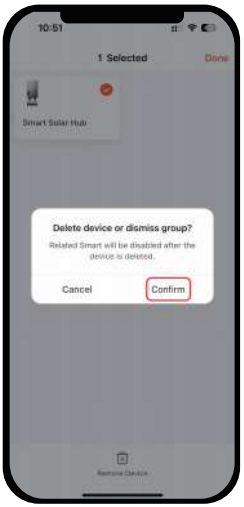
4.5 Remove device



1. Long press the device to be removed in the "All Devices" interface



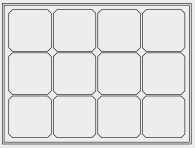
2. Click to select the device, and then click "Remove Device" in the lower right corner



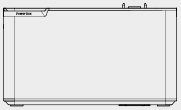
3. Finally, click the "OK" button to remove the device

5.1 Overview Of Grid-Connected Photovoltaic Inverter System

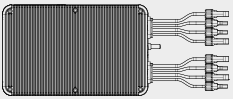
The grid-connected PV inverter system consists of PV modules, solar hub,Power Box Microinverters, meters and the grid. The microinverters convert the DC power generated by the PV modules into AC power that meets the requirements of the grid, and then connect the AC power to the grid through the meter.



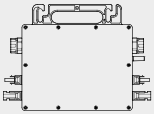
Solar Panel



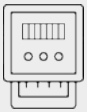
Power Box



Solar HUB

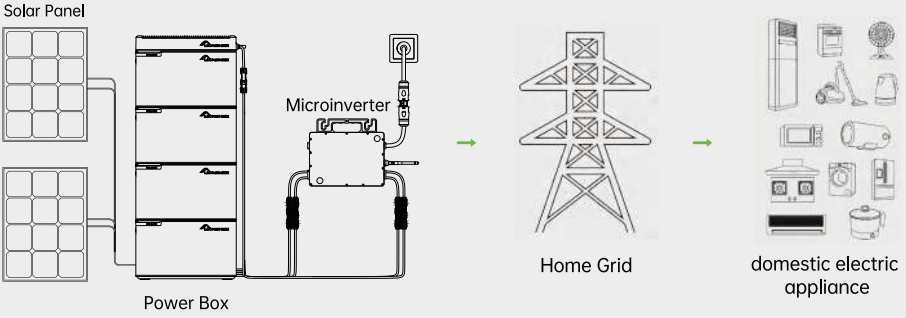


Microinverter



Grid-connected metering devices

Grids



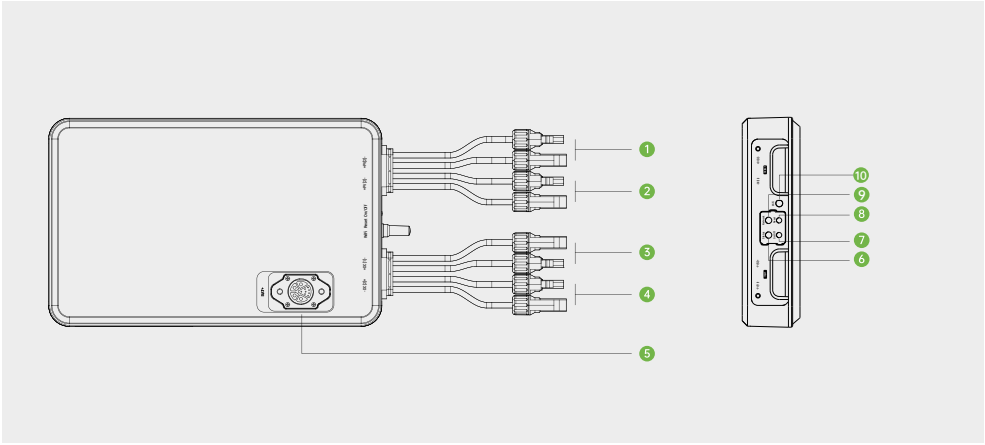
5.2 Solar HUB Overview

The solar HUB is a system EMS management brain device that allocates solar panel power distribution to home electricity as well as battery pack storage on a case-by-case basis.

5.3 Battery Pack Overview

The battery pack is the device that stores and collects electricity and supplies it.

5.4 Details Introduction



Serial number	Name	Details
1	input interface 1	PV1 input interface
2	input interface 2	PV2 input interface
3	output interface 1	Offer DC Direct current output 1
4	output interface 2	Offer DC Direct current output 2
5	Shunt interface	Link the battery pack port
6	Status	Feedback device status through different light colors
7	On/Off	Turn on / turn off the solar HUB
8	Reset	Used to reset app account
9	Network	Indicates whether the network connection is successful
10	WIFI antenna	Responsible for linking wifi signal wireless interface.

5.5 Function Introduction

Description of Indicator Light			
Indicator light	Indicator light status	Indicator light definition	Remarks
Solar HUB Status Indicator ligh	light off	1. The HUB is turned off 2. The HUB, battery and solar panels are out of power at the same time 3. The HUB is upgrading 4. The HUB is self-checking	
	Red light flashing	System failure, alarm	0.5Hz Red light flashes 1s on, 1s off
	Red light stays on	1. The HUB output is not connected 2. The HUB status on APP is closed	
	Green light stays on	HUB is working properly	
Network distri-bution indicator	Green light flashing	1. The HUB output is not connected 2. The HUB status on APP is closed	0.5Hz Green light flashes 1s on, 1s off
	Green light stays on	The device has successfully connected with the network	

Description of Button		
Button	Function	Operation
On/Off	Power on	1. When solar panels is power on, the HUB will automatically turn on 2. Turn on the battery, and the HUB will automatically turn on 3. Press the HUB On/Off button for 3s to turn on the HUB
	Power off	Press the HUB On/Off button for 3s to shut down
Reset	Reset	Press the reset button for 10s to reset and remove the HUB from the app

5.6 System Monitoring

The device is connected to the Internet through a broadband router, and after connecting with the system platform according to the operation instructions, the platform will display the current and historical performance trends, and inform the status of the photovoltaic system and the real-time status of the equipment EMS management.

5.7 Symbol Description

Symbol	Clarification
	Equipment disposal Electronic equipment must not be disposed of together with household waste, and old appliances that cannot be used must be collected and disposed of separately, in accordance with local laws or regulations.
	Battery method Suitable for all types of batteries and accumulators. The law stipulates that sellers must be responsible for the batteries they have sold, and recycle and dispose of used batteries.
	CE marking The equipment is affixed with the CE mark to prove that the equipment complies with the provisions of the European Low Voltage and EMC Directive.
	FCC logo The device is labeled with an FCC logo to certify that the device meets Federal Communications Commission communications requirements.

6. Troubleshooting

Type of error	Error code	Treatment suggestion
Solar panel	PV1 Over voltage protection	1)Ensure that the open circuit voltage of the photovoltaic module is less than or equal to the maximum input voltage. 2)If the open circuit voltage of the PV module is within the normal range, please contact the distributor.
	PV1 Low voltage protection	1)Ensure that the open circuit voltage of the photovoltaic module is not lower than the maximum input voltage. 2) If the open circuit voltage of the photovoltaic module is normal, please contact the dealer.
	PV2 Over voltage protection	1) Ensure that the open circuit voltage of the photovoltaic module is less than or equal to the maximum input voltage. 2) If the open circuit voltage of the photovoltaic module is within the normal range, please contact the dealer.
	PV2 Low voltage protection	1)Ensure that the open circuit voltage of the photovoltaic module is not lower than the maximum input voltage. 2) If the open circuit voltage of the photovoltaic module is normal, please contact the dealer.

Solar HUB	Solar HUB Over Temperature Derating Alert	1) Check the ventilation and temperature of the location where the solar HUB is installed. 2) If the ventilation is poor or the temperature is too high, improve ventilation and heat dissipation. 3) If the problem persists, contact your dealer.
	Solar HUB over-temperature protection	**1) Check the ventilation and temperature of the locationwhere the solar HUB is installed. 2)f the ventilation is poor or the temperature is too high, please improve the ventilation and heat dissipation. 3)Ifthe problem persists, please contact the dealer**
	Off-line	**1)Ensure the normal operation of the micro inverter (Check whether the DC voltage is within the normal range) 2)Check whether the SN on the label of the micro inverter is the same as that on the monitoring platform. 3)If the alarm is frequent and cannot be recovered, please contact the dealer.**
Power Box	Over Temperature Derating Alert	1) Check the ventilation and temperature of the battery pack installation site. 2) If the ventilation is poor or the temperature is too high, please improve the ventilation and heat dissipation. 3) If the problem persists, please contact the dealer.
	Device over temperature protection	1) Check the ventilation and temperature of the battery pack installation site. 2) If the ventilation is poor or the temperature is too high, please improve the ventilation and heat dissipation. 3) If the problem persists, please contact the dealer.
Home power supply	Over Temperature Derating Alert	1) Check the ventilation and temperature of the installation site of the equipment in the output section of the solar HUB. 2) If the ventilation is poor or the temperature is too high, please improve the ventilation and heat dissipation. 3) If the problem persists, please contact the dealer.
Home power supply	Device over temperature protection	1) Check the ventilation and temperature of the installation site of the equipment in the output section of the solar HUB. 2) If the ventilation is poor or the temperature is too high, please improve the ventilation and heat dissipation. 3) If the problem persists, please contact the dealer.
	Unconnected power cable	1) Check whether the power cord is connected to the home mains. 2) Check whether the power cord is damaged.
Wifi connection	No wifi	1) Check whether the device is online 2) Check whether the home wifi is working properly. 3) If the alarm is frequent and cannot be recovered, please contact the dealer.

7. Specification

Model	LS-H1600
Recommended PV module power	800Wx2
PV input voltage	12V - 60V
PV input current	25Ax2
PV input power	800Wx2
Battery charging power	1600W
Inverter output voltage	18V - 55V
Inverter output current	28Ax2
Inverter output power	1600W
MPPT start voltage	18V
MPPT tracking efficiency	99,90%
Peak conversion efficiency	98%
Working environment temperature	-20℃~65℃
Protection level	IP65
Communication method	RS485/CAN/WiFi
Dimensions	340 x 213 x 67 mm
Weight	3,2 kg
Standards	2015/863/EU(ROHS) EN 62509:2011 ETSI EN 301 489-17 V3.2.4(2020-09) ETSI EN 300 328 V2.2.2 (2019-07) ETSI EN 300 440 V2.2.1 (2018-07)