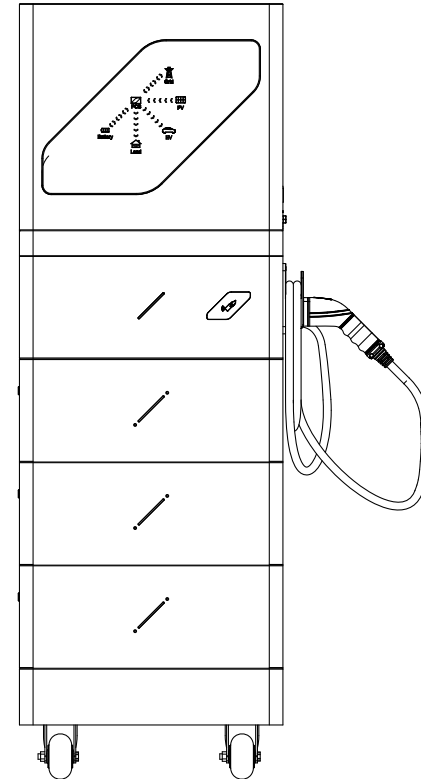


# USER MANUAL

## Single Phase System

ESSC-HY5-EV7-BAT5



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### Revise The History

Edition	Revised	Time	Explain
01	Angie	2023.12.05	The first official release
02	Du	2024.07.23	Add the off-grid EV charging function and electricity meter sampling

## Preface

### Summary






This document mainly introduces the product introduction, networking, system operation and maintenance of the equipment in the ESSC-HY 5-EV7-BAT 5 single phase system.

### Reader Object

This document applies to product users and professionals.

### Schematic Definition

The following icons may be used in this document to indicate safety precautions or critical information. Before installation and operation, please be familiar and master the illustration corresponding definitions.

Graphic	Definition
 Manual	Manual: Please read the manual carefully!
 Danger	Danger: indicates a dangerous situation that, if not avoided, will result in death or serious injury.
 Warning	Warning: A dangerous condition that, if not avoided, will cause death or serious injury.
 Caution	Warning: indicates a dangerous condition which, if not avoided, may cause minor or moderate injuries.
 Note	Note: Failure to observe this warning may result in damage.
<b>Tips</b>	Tip: key information, supplementary operation tips, etc.

## 1. Safety Precautions

### Essential Information

Before installing, operating and maintaining the equipment, please be familiar with the contents of this manual.

The "attention" / "warning" / "dangerous" items described in the manual are only complementary to all precautions. The Company shall not be

- No permission from the national or regional power department.
- The installed environment does not meet the relevant international, national or regional standards.
- Do not comply with the local laws and regulations and norms when operating and maintaining the equipment.
- The installed area does not meet the equipment requirements.
- Do not follow the operation instructions and precautions in the document.
- Not operating according to the warning labels required on the equipment or tool.

- Negligence, improper operation, or intentional damage.
- Failure to charge the device in time due to your reason causes battery capacity loss or irreversible damage.
- Damage caused by you or a third party company, replacing the use scenario of our equipment by yourself. (Such as mixing the company's battery pack with other batteries, using the company's battery pack with other brands of inverters or converters, etc.).
- The equipment is damaged because the customer or the third party company has neither used the accessories issued with the box nor purchased the accessories of the same model.
- Disassemble, replace equipment or modify software code.
- Equipment damage caused by force majeure (such as war, earthquake, fire, storm, lightning, flood, debris flow, etc.).
- Damage caused by the natural environment or external power parameters are unable to meet the standard requirements during the actual operation of the equipment (such as the actual operating temperature of the equipment is too high or too low).
- The equipment was stolen.
- After exceeding the warranty period, the equipment is damaged.

### Safety Requirements



- Overheating of the battery pack may cause fire, explosion, etc. It is forbidden to expose the equipment to a high temperature environment for a long time or to generate a heat source around the equipment for a long time (such as sunshine, fire source, heater, etc.).
- It is forbidden to clean or soak equipment with water, alcohol and oil, so as to avoid leakage, etc.
- Do not knock or impact the equipment. In case of accidental impact, please stop using the equipment immediately and use your installer in time. The equipment can be used only after inspection and evaluation by professional personnel.



- When the equipment is running, the temperature at the heat sink is high, do not touch.
- When the equipment is running, do not cover the decorative cover plate and maintain the 300 600mm heat dissipation channel to avoid high temperature fire.



- Do not use the equipment with a fault. If the equipment is abnormal (such as battery pack leakage, appearance deformation, etc.), please contact your safety in time Managing processing.
- Carbon dioxide fire extinguisher and ABC fire extinguisher with dry powder fire extinguisher are recommended at home.
- If the device cannot enter the charging state, please contact your installer in time.

### No Devices Are Used For The Following Scenarios:

- Connect to the public infrastructure system facilities.
- Connect to the emergency medical facilities.
- Connect the elevator and other control equipment.
- Any other similar scenario, etc.

## 2. Introduction Of Optical Storage And Charging Machine System

### 2.1 Product Introduction

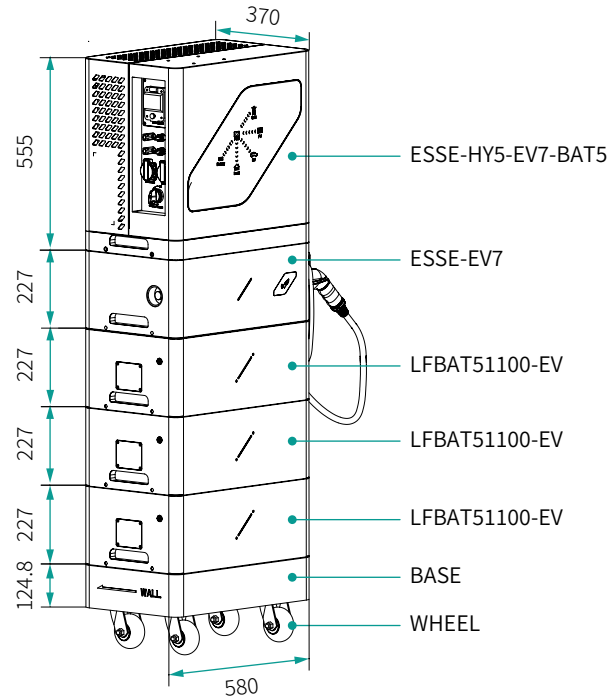
Hybrid Inverter	
Model	Function Declaration
ESSC-HY5-EV7-BAT5	It can be applied to optical storage and charging scenarios, and should be used with photovoltaic modules, ESSC-EV7 and LFBAT51100-EV

EV Charging Module	
Model	Function Declaration
ESSC-EV7	IElectric vehicle AC charging is 7KW

Battery Pack	
Model	Function Declaration
LFBAT51100-EV	Storage power capacity, 5 to 30 kWh extension

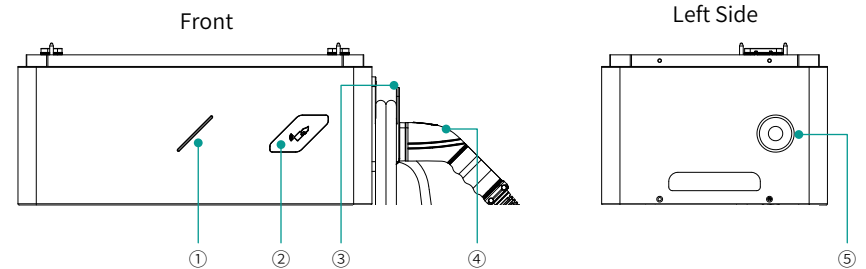
## 2.2 Product Appearance Introduction

### 2.2.1 Appearance And Dimensions



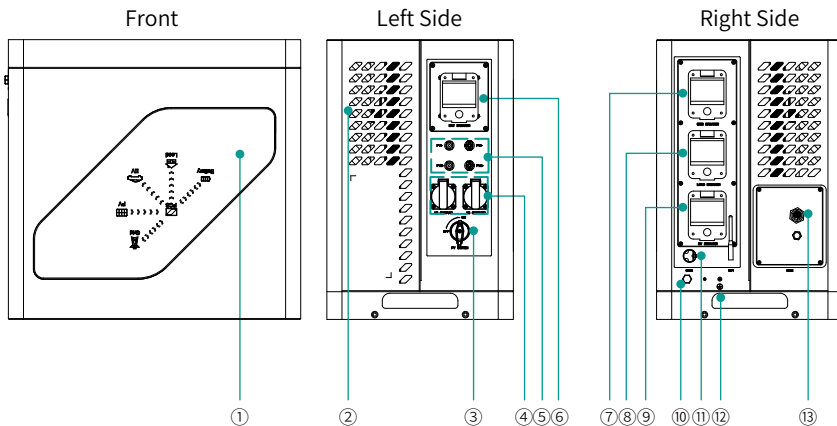
No.	Name	No.	Symbolic Meaning
1	LED Energy Indicator Screen	8	Load Switch
2	Airway	9	EV Charging Switch
3	Photovoltaic DC Switch	10	Atmospheric Valve
4	AC Output 1 / AC Output 2	11	Grid Access Port
5	PV1- /PV2+,PV2- /PV2+	12	Landing
6	Battery Switch	13	Communication Port
7	Grid Switch		

### 2.2.3 Introduction To The ESSC-EV7

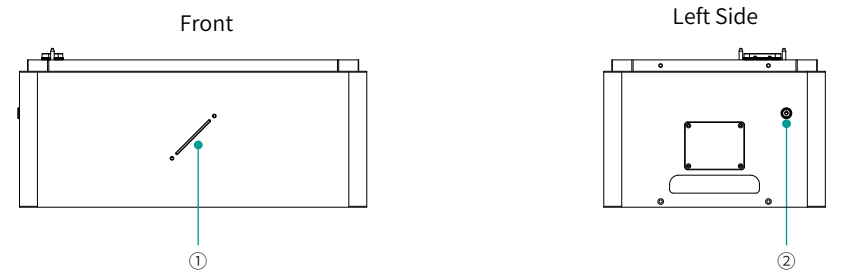


No.	Name	No.	Symbolic Meaning
1	EV Charge Lamp	4	Charging Gun
2	Induction Zone	5	EPO Push-Button
3	Charging Gun Bracket		

### 2.2.2 Introduction Of ESSC-HY 5-EV7-BAT 5



### 2.2.4 Introduction Of LFBAT51100-EV



No.	Name	No.	Symbolic Meaning
1	Battery Indicator Light	2	Switching Push-Button

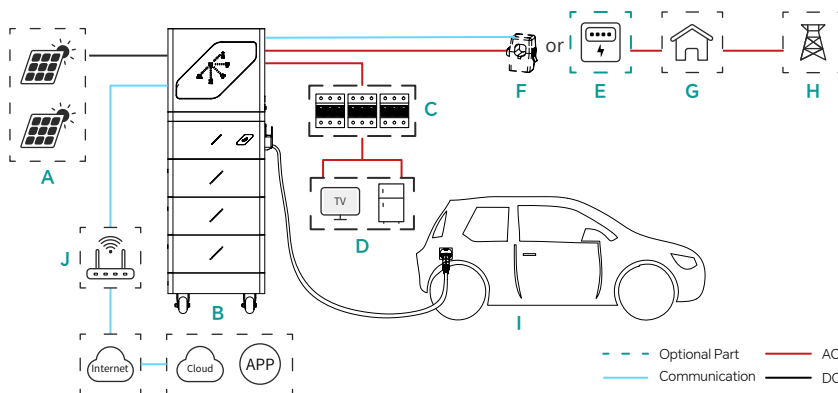
## 2.3 Labeling Description

Symbol	Definition
	Warn! Life is in danger Potential hazard after equipment operation. When operating the equipment, please protect yourself.
	After the device is power off, wait 10 minutes according to the label time requirement until the device is fully discharged.
	Warn! Scald danger There is high temperature on the surface of the equipment, no touch when the equipment is running, otherwise it may cause scald.
	Please refer to the instructions to operate the equipment.
	Earthing identification

## 2.4 Introduction To Typical Networking

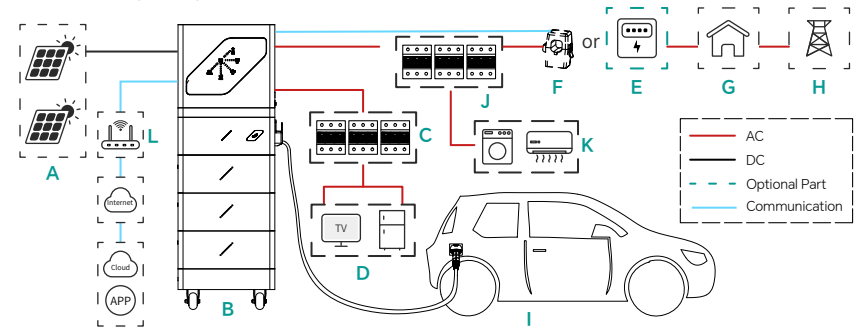
- Our company's products are used in home energy storage systems. The home energy storage system is composed of photovoltaic panel, inverter, battery pack, total control switch, load, power grid, etc.
- The main function of the home energy storage system is to store the direct current generated by the photovoltaic panels into the battery pack, and can also convert the electricity from the photovoltaic and the battery pack into alternating current for household appliances, EV charging or use into the grid.

### Networking Diagram (Whole House Backup)



A. PV panel B. ESSC-HY5-EV7-BAT5 C. Spare Power Distribution Unit D. Power Backup And Power Supply Equipment E. Optional Electric Meter F. CT G. Household Meter H. Electrified Wire Netting I. EV Charging J. Router

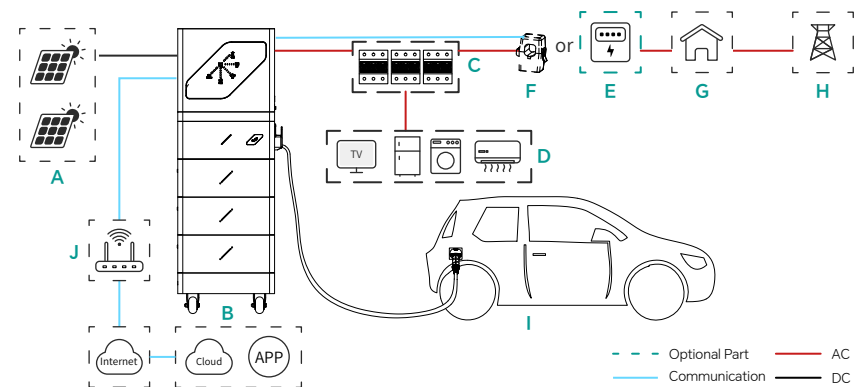
### Networking Diagram (Partial Spare Power)



A. PV Panel B. ESSC-HY5-EV7-BAT5 C. Spare Power Distribution Unit D. Power Backup And Power Supply Equipment E. Optional Electric meter F. CT G. Household Meter H. Electrified Wire Netting I. EV Charging J. Non-Backup Power Distribution Unit K. Non-Standby Ppower Supply Equipment L. Router

- F or E has the function of zero power grid connection with network connection data collection. F or E may not be configured for only partial power backup; F or E shall be configured for partial power backup + zero power grid connection control.

### Networking Diagram (Non-Backup Power Network)



A. PV Panel B. ESSC-HY5-EV7-BAT5 C. Power Distribution Unit D. Power Consumption Equipment E. Optional Electric Meter F. CT G. Household Meter H. Electrified Wire Netting I. EV Charging J. Router

### 3. Site Selection Requirements

## Tips

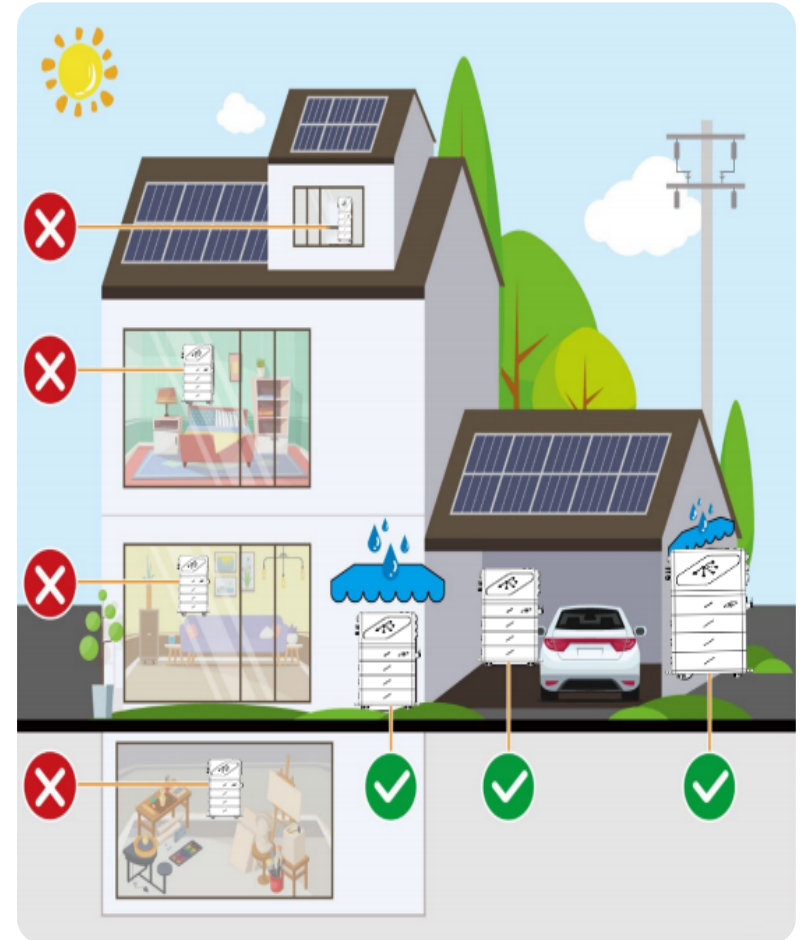
- Standard warranty is only applicable to the installation scenarios recommended by the Company, please operate as required.

#### Installation Environment Requirements

- It is forbidden to install the equipment in a smoke, flammable, explosive and corrosive environment.
- The ambient temperature shall be between  $-25^{\circ}\text{C}$  and  $+55^{\circ}\text{C}$ .
- Avoid installing the equipment in direct sunlight, rain, water, snow, dust and other environments, and it is recommended to install it in sheltered positions. If the local area is prone to flood, debris flow, earthquake, typhoon and other natural disasters, preventive measures should be taken when installing equipment.
- It is forbidden to install equipment in strong electromagnetic interference.
- The temperature and humidity of the installation environment shall meet the equipment requirements. The equipment shall be installed in areas 500m away from corrosion sources such as high salt or high acid (including but not limited to seaside, thermal power plants, chemical plants, smelters, coal plants, rubber plants, electroplating plants, etc.).

#### Installation Location Requirements

- No equipment tilt and inversion to ensure horizontal installation of equipment.
- Do not install equipment in locations easy to touch for children.
- It is forbidden to install the equipment in ignition or damp locations (including but not limited to kitchen, tea room, toilet, shower, laundry, etc.).
- Please stay away from your daily work and living positions (including but not limited to the living room, bedroom, studio, lounge, study, etc.).
- It is forbidden to install equipment in difficult areas (including but not limited to attic, basement, etc.).
- It is forbidden to install equipment in RV, cruise ships, trains and other mobile scenarios.
- It is recommended to install the equipment in an easy to operate, easy to maintain, easy to view the status of the indicator light.
- When installed in the garage, it is forbidden to install the equipment in the passing position of the vehicle to avoid collision.



### 4. Equipment Installation And Wiring

Equipment installation and wiring shall only be operated by the installation personnel approved by the Company. See the SigenStor Home Installation Guide-Three-Phase System A1 for operation details.

## 5. Systems Operation

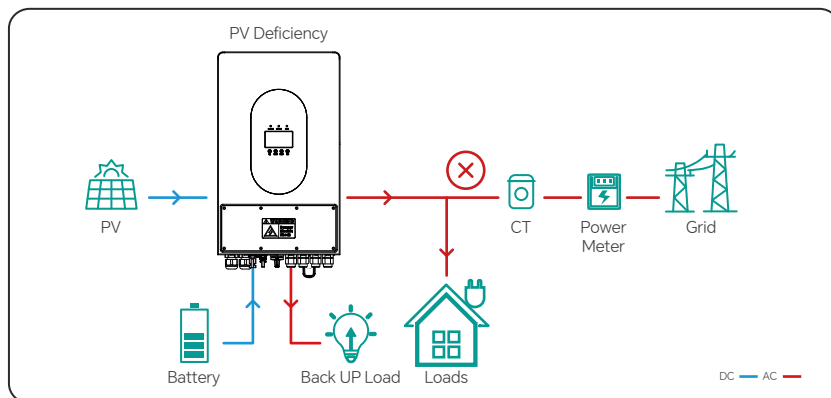
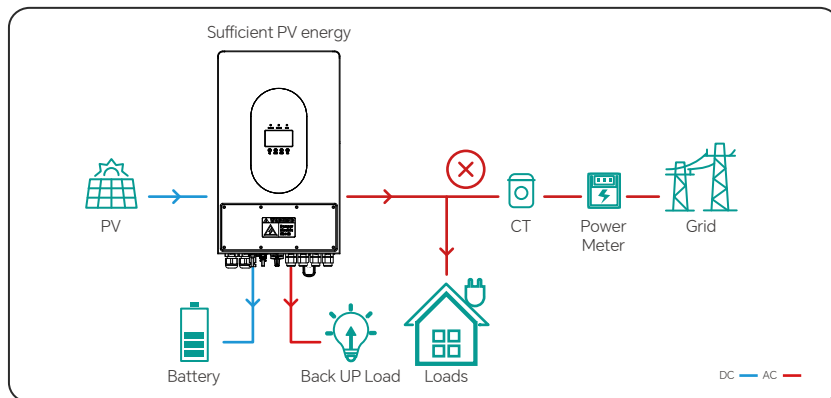
### 5.1 Working Mode

# Tips

- Standard warranty is only applicable to the installation scenarios recommended by the Company, please operate as required.

### Self-use

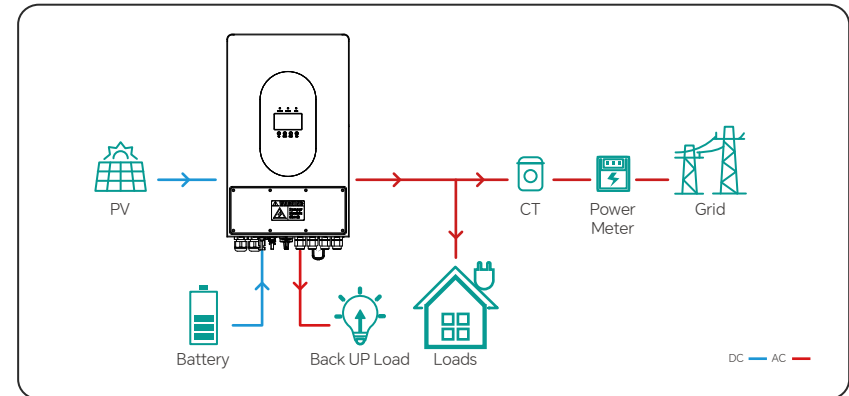
PV will be preferentially used for loads and cells. When the photovoltaic cannot meet the load demand, the power is discharged by the battery. When the photovoltaic power meets the load, the excess energy is stored in the cell. Priority: Load> Battery> Power Grid



### Electricity Selling Mode

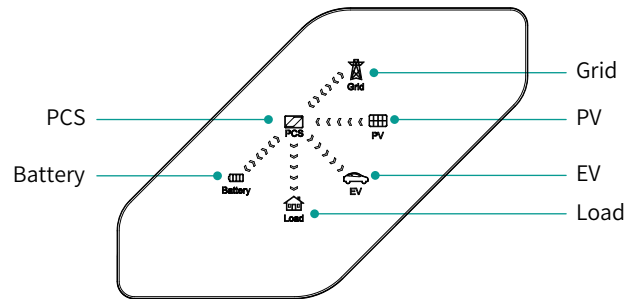
Photovoltaic and cells output all their energy to the grid at a set time.






















Priority: Load> Grid> Battery



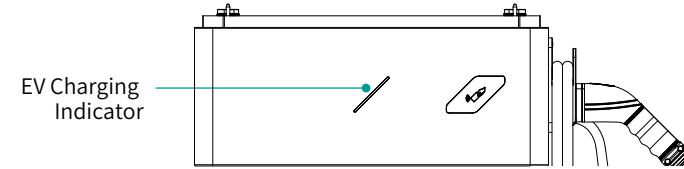






## 5.2 LED Indicator Light Status The ESSC-HY 5-EV7-BAT 5 Indicator Lamp



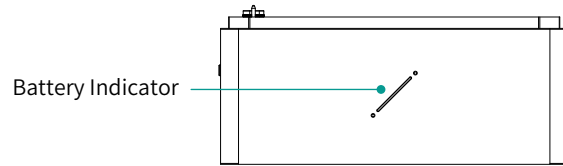
Pilot Lamp	Pigment	State	Meaning
 Grid		Often Bright	The AC Side Has Been Connected
		Extinct	The AC Side Is Not Connected
 PV		Often Bright	The DC Side Has Been Connected
		Extinct	The DC Side Is Not Connected
 EV		Often Bright	EV Charging Run
		Extinct	EV Charging Not Running
 Load		Often Bright	Load On
		Extinct	No-Output
 Battery		Often Bright	Battery Running
		Extinct	The Battery Is Not Connected
 PCS		Often Bright	Normal Operation Waiting
		Twinkle	Wait
		Often Bright	Report An Emergency
		Often Bright	Hitch
		Twinkle	Upgrade status

## The ESSC-HY 5-EV7-BAT 5 Indicator Lamp



Pilot Lamp	Pigment	State	Meaning
		Often Bright	There Is No Fault In Standby
		Twinkle	Plug Gun Connection
		Breathe	Run The Charge
		Often Bright	Charging End
		Often Bright	Jerk
		Often Bright	Hitch

## The LFBAT51100-EV Indicator Light



Battery Status Display					
●	●	●	●	●	●
RUN	ALM	SOC			

Battery Capacity										
State	Charge				Discharge					
Capacity Indicator Light	L4	L3	L2	L1	L4	L3	L2	L1		
SOC	0 ~ 25%	Go Out	Go Out	Go Out	Flash 2	Go Out	Go Out	Go Out	Often Bright	
	26 ~ 50%	Go Out	Go Out	Flash 2	Often Bright	Go Out	Go Out	Often Bright	Often Bright	
	51 ~ 75%	Go Out	Flash 2	Often Bright	Often Bright	Go Out	Often Bright	Often Bright	Often Bright	
	76 ~ 100%	Go Out	Often Bright	Often Bright	Often Bright	Often Bright	Often Bright	Often Bright	Often Bright	
Running State	●	Often Bright				Slint (Flash 3)				

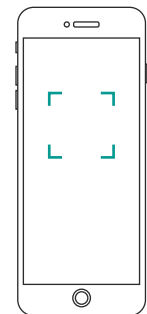
Battery Status								
State	Normal Alarm Protect	RUN	ALM	Capacity LED				Description
		●	●	●	●	●	●	
Shut Down	Shut Down	Go Out	Go Out	Go Out	Go Out	Go Out	Go Out	The Whole Pass
Await The Opportune Moment	Normal	Dodge	Go Out	Go Out	Go Out	Go Out	Go Out	Await the Opportune Moment
Charge	Normal	Often Bright	Go Out	Charge				
	Alarm	Often Bright	Dodge					
Discharge	Normal	Often Bright	Go Out	Discharge				
	Alarm	Often Bright	Dodge					
	Protect	Go Out	Often Bright	Go Out	Go Out	Go Out	Go Out	UCP, OCP...
Discharge		Go Out	Often Bright	Go Out	Go Out	Go Out	Go Out	Stop Charging And Discharging

## 5.3 Mini EMS App

The App can be downloaded in two ways, see the Mini EMS App Manual for details.



Android



## 6. System Maintenance

### 6.1 Routine Maintenance

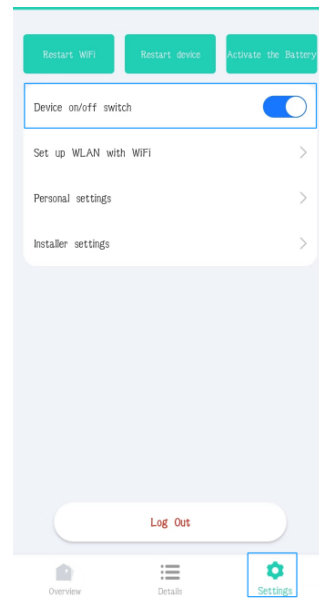
In order to maintain the equipment for a long term, it is recommended to perform routine maintenance as described in this section.

Scope Of Examination	Check The Method	Whether to shut down	Maintenance Cycle
System Cleaning	Regularly check the decorative cover without cover and dirt, if any, please clean up. Never use tools that may cause electric shock or insulation damage, such as steel wire brush, wet towel, etc. during cleaning.	yes	Once In 3 Months.
System Operation Status	<ul style="list-style-type: none"> <li>Observe the appearance of the equipment for any damage or deformation.</li> <li>Listen to whether the device has any abnormal sound during operation.</li> <li>Check whether the parameters of the equipment are set correctly when the equipment is running.</li> </ul>	Deny	Once In 6 Months.

### 6.2 Equipment Switchgear

#### Scheme 1: App Operation

Click "Setting" in Mini EMS APP to switch the machine.



#### Scheme 2: Manual Operation

Turn on all power switches in turn, and turn off all switches in turn.

## Tips

- Battery pack press > 3s can realize startup or shutdown; the interval between startup and shutdown is > 10s.

### 6.3 Low Power Use

#### Scheme 1: App Operation

Loss of power caused due to the self-discharge characteristics of the battery pack. If the equipment is not charged for a long time, it may cause the equipment damage. When the equipment is in a low power state, please charge it in time.

Under normal circumstances, the equipment can charge by itself according to the operation situation. If the equipment cannot be charged, please contact your installer in time and deal with it within the specified time. The company shall not be liable for the battery capacity loss or irreversible damage caused by the overdue period.

- 10%, charge will be charged within 30 days.
- When 0% charge is < 10%, charge within 7 days.

Scene that may cause no recharging (including but not limited to):

- The PV side has no input, and the power grid side fails for a long time.
- Equipment failure.
- Not having the parameter set correctly.

### 6.4 Emergency Treatment

#### Fire Emergency Measures



- With the safety, the equipment should be turned off or the main power switch.
- High temperature will cause the deformation and damage of the battery pack, leading to electrolyte overflow, and even leak toxic gas, do not close, and wear protection utensil.
- If the fire is small, use carbon dioxide or ABC dry powder fire extinguisher.
- If the fire is likely to expand, evacuate the building or equipment area immediately and call the fire alarm. It is forbidden to enter the burning building again Build things.
- Firefighters do not contact with high voltage components during fire fighting as it may cause the risk of electric shock.
- After the fire, prohibit the equipment, please contact your installer.

## Flood Response, Emergency Measures



- With the safety, the equipment should be turned off or the main power switch.
- If the battery pack is submerged, do not touch it to avoid the danger of electric shock
- After the flood recedes, please contact your installer.

## Emergency Measures For Abnormal Battery pack



- When the battery pack has abnormal smell, electrolyte leakage, heat, etc., do not approach or touch, and contact the professional staff immediately texture. Professionals must wear goggles, rubber gloves, gas masks, protective clothing and other protective equipment to protect their own safety.
- Electrolytes are corrosive, and contact can lead to skin irritation or chemical burns. If the electrolyte, immediately  
**Take the following measures:**
  - Inhalation: Evacuate contaminated areas, maintain fresh air and seek medical assistance.
  - Eye contact: rinse your eyes with a lot of water for 15 minutes, prohibit eye rubbing, and seek medical help immediately. Skin contact: Wash the contact area with plenty of soapy water and seek medical help immediately.
  - Intake: cause vomiting, and seek medical help immediately.
- No abnormal battery pack is continued, please contact your installer.

## Battery Pack Drop Or Impact Emergency Measures

- If there is obvious odor, smoke, fire, etc., please stay away from the equipment immediately, and contact professionals to deal with it.
- The battery pack is prohibited after falling or impact, please contact your installer.

## 7. Appendix

### 7.1 Technical parameters

Model	ESSC-HY5-EV7-BAT5
<b>Inverter Data</b>	
Maximum Input Power (W)	7000w
PV Input Voltage Range (V)	150 ~ 500
MPPT Voltage Range (V)	120 ~ 430
MPPT Quantity	2
Maximum Number Of Input Group Strings Per Route MPPT	1
Maximum Input Current For Each MPPT	15A/15A
Nominal Grid Voltage (V)	220/230/240
Nominal Grid Frequency (Hz)	50Hz / 60Hz
Rated Power For Power Grid Discharge (W)	5000
Max Imum Power For Grid Discharge (VA)	5500
Rated Power Of Standby Power Supply (W)	4500
UPS Function Cut Time	<10ms
<b>Battery Data</b>	
Battery Type	lithium iron phosphate
Nombattery Battery Of Battery (kWh)	5.12
Number Of Expanded Bbatteries	6
Available Battery Power Range (kWh)	5.12 ~ 30.72
Battery Voltage Range (V)	41.6 ~ 58.5
<b>Charging Pile Data</b>	
Power Rating (W)	7000
European Efficiency	220/230/240
Nominal Frequency (Hz)	50Hz / 60Hz
Mode Of Operation	Credit card / APP / gun to start
Output Outlet	Total length of 5 meters AC charging gun output
<b>Transfer Efficiency</b>	
Maximal Efficiency	98%
European Efficiency	97%
Maximum AC Battery Conversion Efficiency	95%
MPPT Productiveness	99.9%
<b>System Parameter</b>	
Operating Environment Temperature Range (°C)	-25 ~ 55°C
Relative Humidity	≤95% (25°C)
Vbrate	< 0.5G
Noise	<35 dB

Height	<2000 Meters
Levels Of Protection	IP54
Cooling-Down Method	natural cooling
Communication	RS485/CAN/WiFi
Inverter Size (width X height X thickness mm)	580 × 555 × 370
EV Charging Module Size (width X height X thick mm)	580 × 227 × 370
Single Battery Pack Size (width X height X thickness mm)	585 × 227 × 370
Base Size (width X height X thickness mm)	585 × 124.8 × 370