



## USER GUIDE

EVO5.7kWh-V1 (LiFePO4 Battery) 48V120Ah

### Household Solar Storage System



**CE** Approved

**UN38.3**

**5.7 kWh**

## 1. Battery specifications

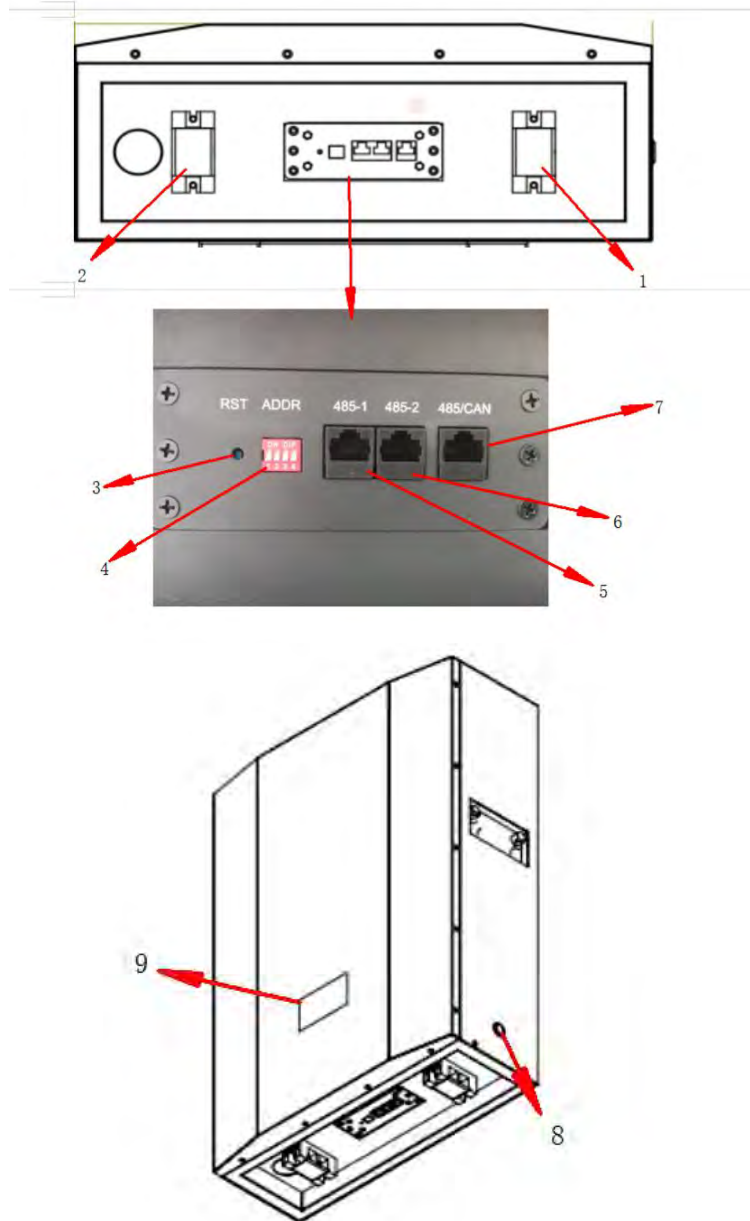
Battery Specifications	
Model No	EVO5.7-V1
<b>Nominal Parameters</b>	
Voltage	48V
Capacity	120Ah
Energy	5760Wh
Dimensions(L*W*H)	650*475*190mm
Weight	68.5kg (approx.)
<b>Basic Parameters</b>	
Storage time/temperature	5 months @ 25°C ; 3 months @35°C; 1 month @ 45°C
Operation temperature	- 10°C~55°C @ 60±20% Relative Humidity
Storage temperature	0°C~45°C @ 60±20% Relative Humidity
Protection grade	IP21
<b>Electrical Parameters</b>	
Operation voltage	48Vdc
Max. charging voltage	54Vdc
Cut-off discharge voltage	39Vdc
Max. charging and discharging current	150A

## 2. Introduction of the battery

### 2.1 Key Features

- ◆ LiFePO4 battery
- ◆ 48V120Ah(5.76KWh)
- ◆ Embedded smart BMS with OVP/UVF/DOCP/COCP/SCP/OTP protection and balance
- ◆ RS485&CAN communication interface to inverter

## 2.2 Interface Introduction



No.	Name	Silk-screen	Remark
1	Positive	+	M6 screw nut/Red
2	Negative	-	M6 screw nut/Black
3	Reset button	RST	Reset the BMS
4	Dial switch	ADDR	Set the battery address
5	RS485 parallel port	485- 1	Parallel communication port
6	RS485 parallel port	485-2	Parallel communication port
7	COM Output Port	CAN/485	Battery and inverter communication port
8	Power button	ON/OFF	
9	LCD	/	Display of battery info

## 2.4 Connectors

Charge/Discharge connectors: to connect the positive pole (+) and negative pole (-) from the battery to the inverter via DC isolator.

RS485/CAN: Active communication portal between battery and inverter.

USB To RS485-1: to get dynamic monitoring data of the battery from upper computer.

Address: Reserved Address portal for multiple parallel connections.

## 2.5 Wake up button

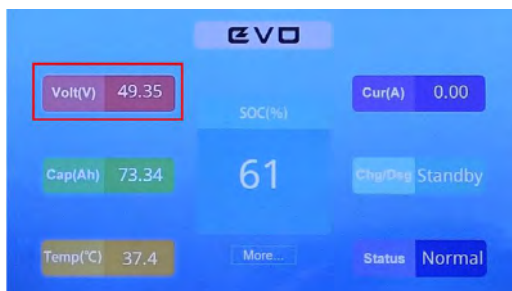
Battery On: When battery is shut down, press this RST button for 3 seconds. It is activated when the LED lights flicker from RUN light to the lowest capacity indicator.

## 2.6 LCD Display Introduction

### (1) Home Page: Voltage, Capacity, Temperature, Current, Charge/Discharge, Status, More



(2) Click "Volt(V)" to read the battery information include Voltage, Current, Status, SOC, Vmax, Vmin, RMC, FCC, Warn, Protect, Tmax, Tmin.



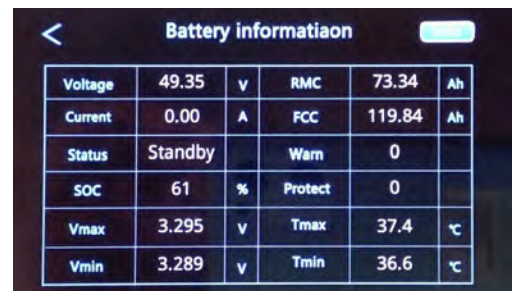
The screenshot shows the Battery Voltage & Temp. screen with the following data:

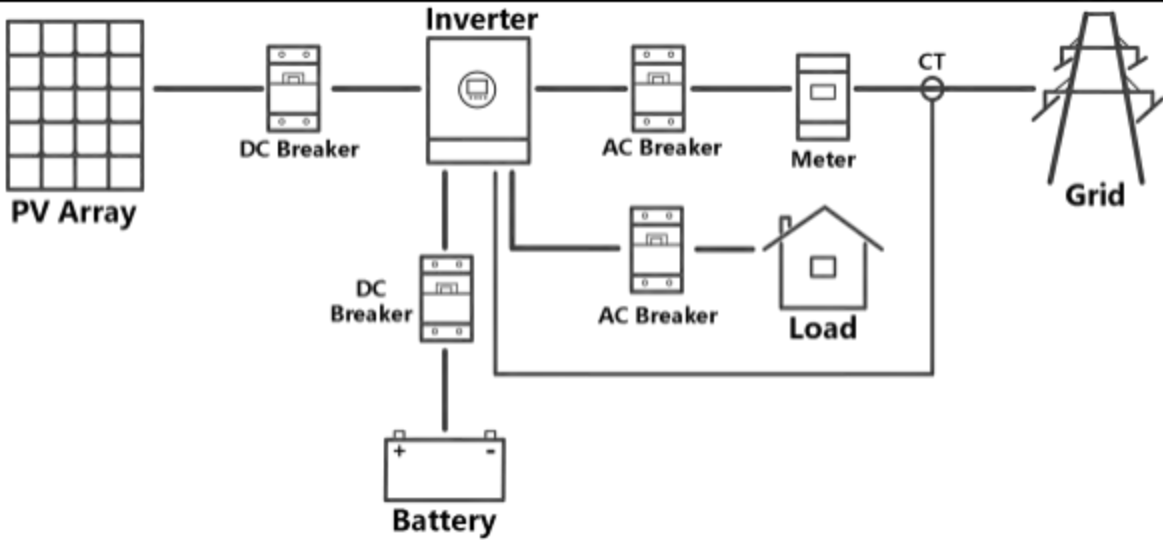
Cell Voltage		Temperature	
Cell 01	3.290	T1	37.2
Cell 02	3.290	T2	36.6
Cell 03	3.289	T3	37.4
Cell 04	3.289	T4	36.7
Cell 05	3.295	T.MOS	37.5
Cell 06	3.289	T.ENV	37.6
Cell 07	3.291		
Cell 08	3.290		
Cell 09	3.291		
Cell 10	3.290		
Cell 11	3.290		
Cell 12	3.290		
Cell 13	3.290		
Cell 14	3.291		
Cell 15	3.290		
Cell 16	65.535		

(3) Click "Status" to show the Battery operation status Normal, Warning or Protection.



(4) Click **“More”** to view the battery information include the Battery Voltage & Temp. Cell 01 to Cell 15 voltage, T1 to T4 temperature, T\_MOS,T\_ENV.





### 3.2 Tools

The following tools are required to install the battery pack:

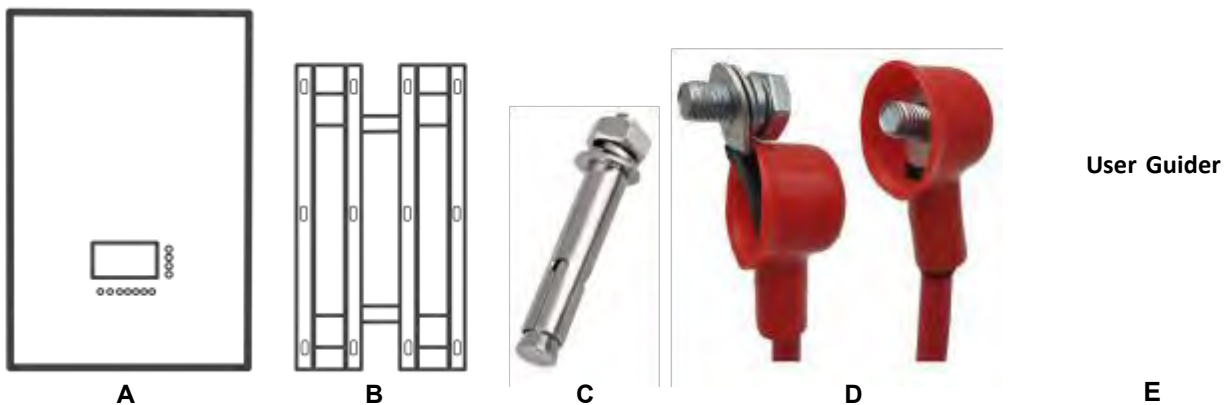
- 工具 Drill and Drill bits
- 工具 Wire cutter
- 工具 Crimping Pier
- 工具 Screw driver
- 工具 Hammer
- 工具 Spirit Level
- 工具 Marking Tool

#### Note

- ⚡ Use properly insulated tools to prevent accidental electric shock or short circuits.
- ⚡ If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

## 4. Installation

### 4.1 Inventory of items

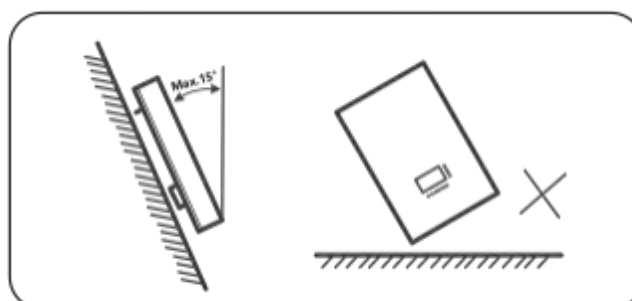


NO.	Item	Quantity	Specification
A	Battery Pack	1	48V/120Ah
B	Mounting frame	1	SPCC
C	Mounting frame screw	12	M6*80mm
D	User Guider	2	This document
Optional	Power Cable (1.0m)	1	35mm Wire - M8
Optional	Parallel Power cable (1.0m)	2	35mm Wire - M8
Optional	Parallel com cable (1.0m)	1	RJ45

## 4.2 Installation Location

Make sure that the installation location meets the following conditions:

- ✧ The installation site must be suitable for the size and weight of the battery.
- ✧ Must be installed on a firm surface to sustain the weight of battery.
- ✧ The area is waterproof.
- ✧ There are no flammable or explosive materials in proximity
- ✧ The ambient temperature is within the range from -10°C to 55°C.
- ✧ The temperature and humidity is maintained at a constant level.
- ✧ There is minimal dust and dirt in the area.
- ✧ Installation must be vertical or tilted backwards maximum 15° - avoid forward or sideways tilt.



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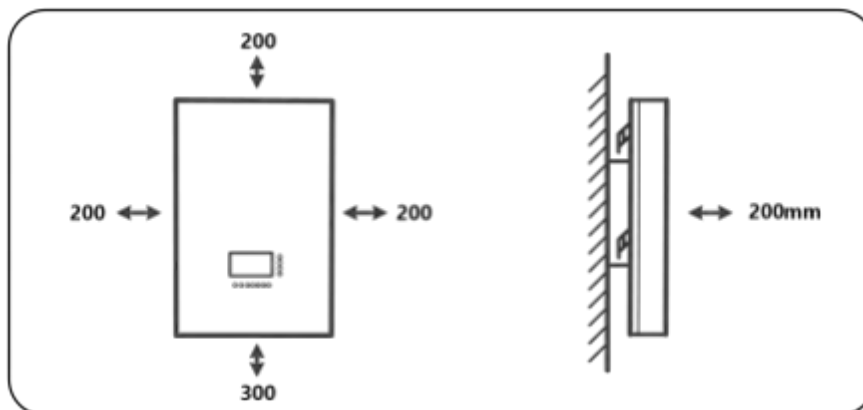
**CAUTION**

If the ambient temperature is outside the operating range, the battery pack stops operating to protect itself. The optimal temperature range for the battery pack to operate is 0°C to 45°C. Frequent exposure to harsh temperatures may deteriorate the performance and life of the battery pack.

◆ Minimum clearances

Observe the minimum clearances to walls, other batteries or objects as shown in the diagram and picture below in order to guarantee sufficient heat dissipation.

Direction	Minimum clearance (mm)
Above	200
Blow	300
Front	200
Sides	200





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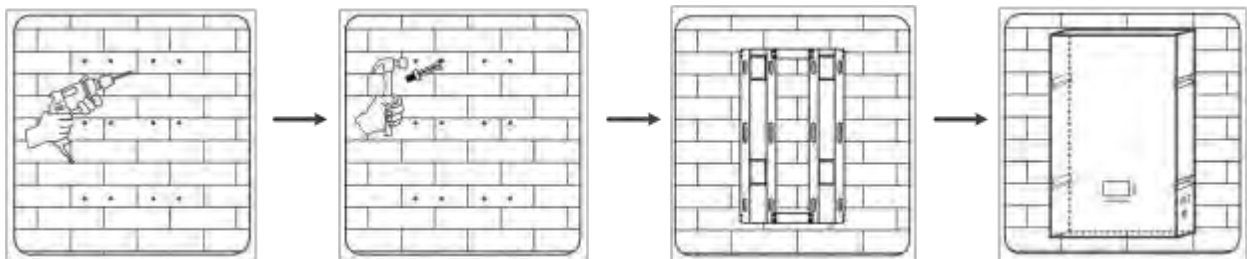
### 4.3 Installing the Battery Pack

#### **CAUTION**

In order to avoid electrical shock or other injury, inspect existing electronic or plumbing installations before drilling holes.

The battery is heavy, please handle with care to avoid damage to the product or injury to the installer.

- ✧ Choose a suitable firm wall with thickness greater than 80 mm.
- ✧ Use the mounting frame as a template, mark the hole position.
- ✧ Drill 12 holes according to the hole position, it is  $\varnothing 10$  with depth 60 mm.
- ✧ Hammer the M6 screws to the above holes, and screw the nut. Note: Do not position screws flush to the wall - leave 10 to 20 mm exposed.
- ✧ Fix the mounting frame to the 12 screws.
- ✧ Raise the battery a little higher than the mounting frame whilst maintaining the balance of the battery. Hang the battery on the frame through the match hooks.



#### **CAUTION**

Falling equipment can cause serious or even fatal injury: never mount the inverter on the bracket unless you are sure that the mounting frame is firmly mounted on the wall after thoroughly checking.

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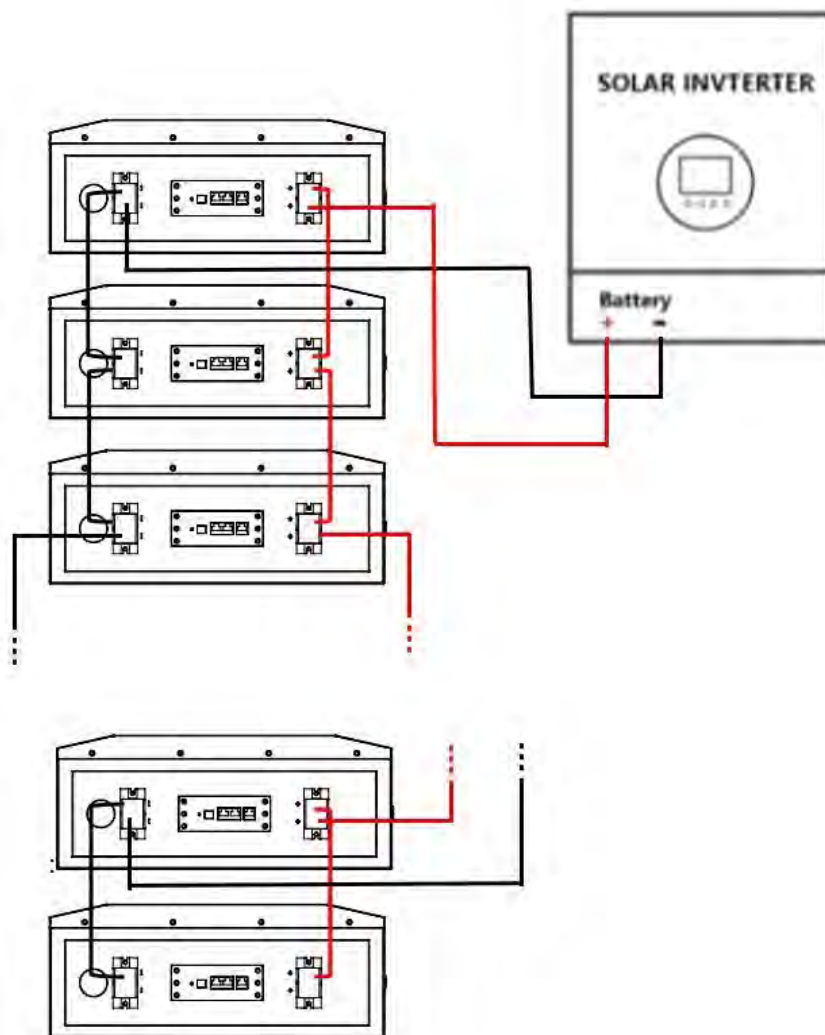
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#### 4.4 Parallel use of battery

##### ❖ Parallel use of battery (Without CAN/RS485 Communication)

When the battery needs to be used in parallel, the maximum connection is 15 units. our recommendation is 2-8 units. In the event that your Inverter does not have RS485/ CAN Communication please manually set the Voltages and amprages based on the number of Batteries and According to your Inverter specifications. Charge Amperage Recommended 50A- 100A per battery, Cut off Voltage 39VDC, Float Voltage 52.5VDC, Bulk Charge 54VDC.

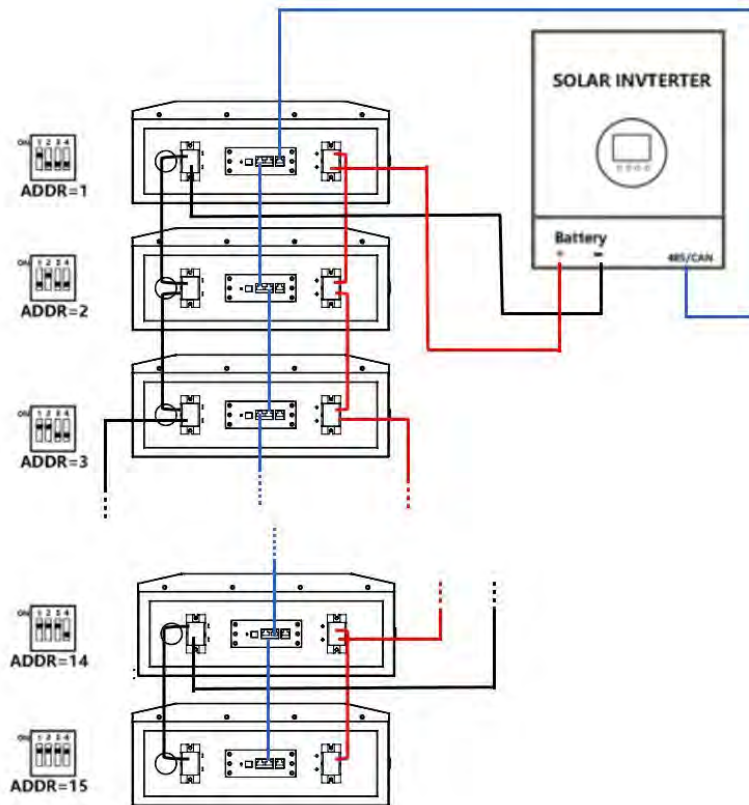
**NOTE:** Try to keep cable lengths equal in length and as short as possible. Please adjust the cable thickness to the Amperage required. If a cable is undersized, it can be dangerous as the cable will heat up and potentially cause a fire. Undersized cables also waste energy.



◆ **Parallel use of battery (With CAN/RS485 Communication)**

When the battery needs to be used in parallel, the maximum connection is 15 units. our recommendation is 2-8 units. In the event that your Inverter does have CAN/RS485 Communication connect your communication cable between each battery and then to the inverter as per the below diagram. Select the Lithium setting on your Inverter and the correct protocol to match the battery. Deye (00), Sunsynk (0), Growatt (CAN 52, RS485 51) etc

**NOTE:** Try to keep cable lengths equal in length and as short as possible. Please adjust the cable thickness to the Amperage required. If a cable is undersized, it can be dangerous as the cable will heat up and potentially cause a fire. Undersized cables also waste energy.



RS485/CAN Matched Inverter brands

◆ **Battery Address Guideline**

The battery address of Dial switch (Dial SW) setting is as follows.

ADDR	1234	Dial SW	ADDR	1234	Dial SW	ADDR	1234	DIP	ADDR	1234	Dial SW
1	1000		4	0010		8	0001		12	0011	
2	0100		5	1010		9	1001		13	1011	
3	1100		6	0110		10	0101		14	0111	
			7	1110		11	1101		15	1111	

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## 5. Warning

It is very important and necessary to read the user Manual carefully before installing or using the battery. Failure to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, death, or may damage the battery and the whole system.

- ⚡ Do not short Circuit positive and negative with wire or metal objects.
- ⚡ If the battery is stored for a prolonged time, it is required that they are charged every three to six months, and the SOC should be no less than 60%.
- ⚡ The battery needs to be recharged within 12 hours, after fully discharging.
- ⚡ Do not expose cables to the elements.
- ⚡ All battery terminals must be disconnected before maintenance.
- ⚡ Do not use cleaning solvents to clean the battery.
- ⚡ Do not expose the battery to flammable or harsh chemicals or vapors.
- ⚡ Do not paint any part of the battery, including any internal or external components.
- ⚡ Do not connect battery with PV solar wiring directly.
- ⚡ Any foreign object is prohibited to be inserted into any part of the battery.
- ⚡ Any warranty claims are excluded for direct or indirect damage due to items above.

### 5.1 Before Connecting

After unpacking, please check the battery and packing list first, if the battery is damaged or spare parts are missing, Please contact the dealer.

Before installation, be sure to cut off the grid power and make sure the battery is in the turned-off mode; Wiring must be correct, do not mix-connect the positive and negative cables, and ensure no short circuit with the external device;

It is prohibited to connect the battery with AC power directly;

The embedded BMS in the battery is designed for 48VDC, please Do not connect batteries in series;

It is prohibited to connect the battery with different types of battery brands or Sizes;

Please ensure the electrical parameters of battery system are compatible to inverter;

Keep the battery away from fire or water.

### 5.2 During operation

If the battery system needs to be moved or repaired, the power must be shut down first and disconnected from the system;

DO NOT connect the battery with different types of battery;

DO NOT connect the battery to incompatible inverters, please ask and approved EVO distributor if a inverter is compatible;

In case of fire, only a dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited;

Please do not open, repair or disassemble the battery. We do not undertake any consequences or related responsibility due to violation of safety operation or tampering with of the design, production and equipment safety standards .

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## 6. Product warranty

6.1 For the warranty information please refer to [www.evo-energy.co.za](http://www.evo-energy.co.za)

### 6.2 Factory Warranty Scope

The factory warranty does not cover damages caused by following reasons:

- ✦ Breaking the product seal (the casing opened)
- ✦ Transport damage
- ✦ Incorrect installation or commissioning
- ✦ Failure to observe the user manual, quick installation instructions
- ✦ Incorrect usage or inappropriate operation
- ✦ Insufficient ventilation of the device
- ✦ Failure to observe the applicable safety regulations
- ✦ Force majeure

Neither does it cover cosmetic defects which do not influence the energy production.



**EVO**

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# Warranty Card

## **User Information**

Company/User Name:

Address:

Telephone:

Email:

Project installation location:

## **Product Information**

Battery Model:

Serial No:

Invoice Number:

Purchase Date:

Dealer:

Commission date:

Fault/Error Description:

Please fill the required information in and send this page to [warranty@evo-energy.co.za](mailto:warranty@evo-energy.co.za) when you need to apply warranty service support.

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