

**Dear Clients,**

*Thanks for selecting SX12V55Ah lithium battery.*

*Please take time to read this user manual which will help you to make full use of the battery.*

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## Advantages of SX12V55Ah

- **Standard Size & light weight:** SX12V55Ah has the same standard size (350mm\*171mm\*158mm) as conventional lead acid batteries and weighs less than half of the capacity-equivalent lead acid battery.

- **BMS protection:** Each of SX12V55Ah has an integrated battery management system which protects the battery from extreme cases. The following chart shows the basic protection functions of the BMS.

Function	Function-on condition	Release condition
High-voltage protection	Bulk voltage >14.6V or Voltage of any bank >3.65V	Bulk voltage <14V or Voltage of every bank <3.5V
Low-voltage protection	Bulk voltage <10.8V or Voltage of any bank <2.7V	Bulk voltage >12V or Voltage of every bank >3V
Over-current protection	Charge/Discharge current $\geq$ 110A for over 5S	Automatically release in 32S after removing loads
Short circuit protection	Current >670A for over 400 $\mu$ S	Automatically release in 32S after removing loads
High temperature protection	>65°C (while charging) or >70°C (while discharging)	<55°C (while charging) or <60°C (while discharging)
Low temperature protection	< -1°C (while charging) or < -10°C (while discharging)	> 5°C (while charging) or > 0°C (while discharging)

- **Automatic voltage balancing:** The BMS can automatically narrow the voltage gap between four banks to achieve a better performance.

- **Safety precautions:** The case is made of fire-retardant material. Besides, each cell is connected with a fuse in series. The fuse will melt and cut off the circuit in case of a constant overcurrent to avoid fire risks.

- **Convenient monitoring & maintenance:** Dedicated smartphone APP for monitoring the status of the battery through Bluetooth . Upper cover is removable, which makes it convenient for battery maintenance.

- **Certifications:** CE, RoHS, UN 38.3, and MSDS.

## Technical Specifications

<b>Electrical Characteristics</b>	Nominal voltage	12.8V
	Nominal capacity	55Ah/704Wh
	Cycle life	>3000 cycles @0.2C 80 DOD
	Self discharge	<3% per month
	Efficiency of charge	>99% @0.5C
	Efficiency of discharge	96%~99% @0.5C
<b>Standard Charge</b>	Charge voltage	14.6±0.2V
	Charge mode	CC/CV: Constant Current/Constant Voltage
	Standard continuous charge current	11A
	Max charge current	100A
	Cut-off voltage	14.6V (bulk) / 3.65V (single bank)
<b>Standard Discharge</b>	Continuous current	≤100A
	Max pulse current	110A(<5s)
	Discharge cut-off voltage	10.8V (bulk) / 2.7V (single bank)
<b>Environment</b>	Charge temperature	0~65°C (32~149F) @ 60±25 relative humidity
	Discharge temperature	-10~70°C (14~158F) @ 60±25 relative humidity
	Storage temperature	-20~45°C (-4~113F) @ 60±25 relative humidity
	IP protection level	IP65
<b>Application</b>	Installment	Parallel connection only
	Control	Battery management system (BMS) integrated
	Monitoring	Bluetooth monitoring, Smartphone APP
<b>Mechanical</b>	Case material	ABS+PC
	Cell assembly	32650-4S13P
	Dimension	350mm (L) *171mm (W) *158mm (H)
	Weight	10.7KG

## Android Application



### 1st Step: Download & Installment

Search 'Solarfam' in Google Play, find our App and finish the installment.

### 2nd Step: Connect to the battery

Open the Bluetooth of your smartphone, start the APP, find the Bluetooth of the battery and connect.

### 3rd Step: Battery status monitoring:

When your smartphone and battery are successfully connected, the interface of the APP will turn to the status of the battery automatically.



Over-voltage Alarm

**Alarm Message:** When your battery can not work correctly, please open the App to check the alarm message first and contact us for further technical support.

## IOS Application



### 1st Step: Download & Installment

Search 'solarfam' in App Store, find our App and finish the installment.

### 2nd Step: Connect to the battery

Open the Bluetooth of your smartphone, start the APP, find the Bluetooth of the battery and connect. Or you can click the symbol at the top right of the screen and scan the QR code labelled on the case of the battery for Bluetooth connection.

### **3rd Step: Battery status monitoring:**

When your smartphone and battery are successfully connected, the interface of the APP will turn to the status of the battery automatically.

### **Usage and Storage Notes:**

- Please prevent the battery from collision or fall from a high place.
- Please use make sure your chargers or solar charge controllers are compatible with lithium batteries before using.
- Please do not reverse the polarities when connecting the battery to loads or chargers.
- Please do not charge or discharge with a current beyond the designed maximum continuous current.
- Please do not use a charger or solar charge controller of which the output voltage is above or below the rated charge voltage
- Please tighten the bolts when using.
- Please use cables of appropriate current carrying capacity according to your need.
- Please avoid exposing the battery to extreme heat or cold, fire or freezing.
- Please clean the battery regularly to prevent it from getting rusty or corroded.
- The SolarFam lithium batteries are rated IP65 which means they can at most stand a water projected by a nozzle (6.3 mm) against enclosure from any direction, so please pay attention to that when using.
- If you want to connect two or more SolarFam lithium batteries in series or parallel, please read the label on the top cover of each battery first to check the feasibility and in both connection way, there should not be more than four items.
- Please do not connect SolarFam lithium batteries of different models in series or parallel.
- Please do not connect SolarFam lithium batteries with lead acid batteries and lithium batteries of other brands in series or parallel.
- Please store the battery in an environment of  $-20\sim 45^{\circ}\text{C}$  ( $-4\sim 113\text{F}$ ) and  $60\pm 25$  relative humidity.
- If you are not going to use the battery for long periods of time, please partly charge the battery(30~50%) and store it in an environment in adherence to the guidelines and check the statue of the battery at least one time a month.
- Please do not open the top cover and break the seal without the permission of the manufacturer which may lead to the invalidity of the warranty.

# Warranty Policy

**Warranty Period:** Each SolarFam brand lithium battery sold by SOLMAX NEW ENERGY B.V. is warranted for 5 years for cells and 2 years for the BMS from the date of purchase.

**Warranty Procedure:** In the unlikely event, your battery can not work correctly, please contact us and staffs from our technical department will make a preliminary assessment first. We will offer technical support and guidance of repair and send you necessary spare parts for replacement. If the problem cannot be solved under our technical support, we will recall your battery. Usually In one week after receiving the recalled battery, we will send you the repaired battery or a replacement battery according to the actual situation and if it takes more time than expected, we will notify you in advance. All the procedure will be free of charge within warranty period and proof of purchase may be required.

**Warranty Exclusions:** SOLMAX NEW ENERGY B.V. warrants batteries to be free from manufacturer defects and the following cases (including but not limited to) are beyond our obligation:

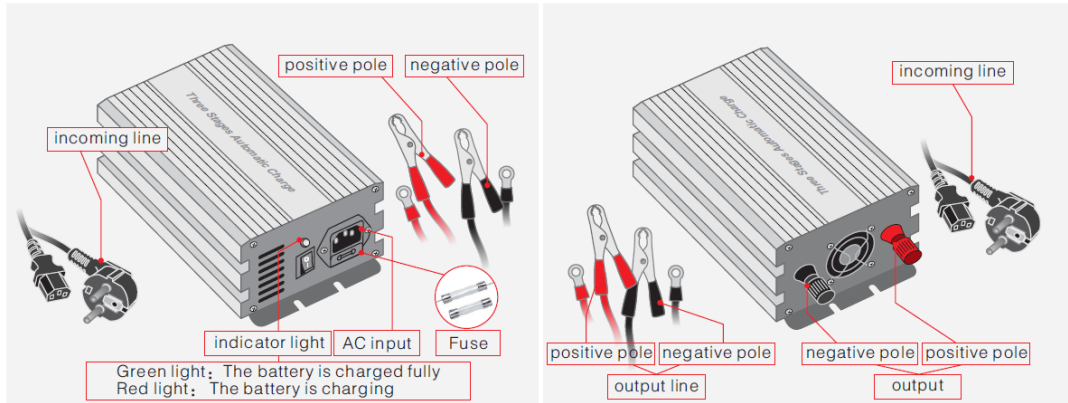
- damage caused during shipping and mishandling;
- water damage, damage caused from exposure to extreme heat or cold, fire or freezing;
- damage from improper connection: series and parallel, reverse of polarity, loose terminal bolt, connect SolarFam lithium battery of different models in series or parallel or connect SolatFam lithium battery with lead acid batteries and lithium batteries of other brands in series or parallel;
- damage caused by using inappropriate devices to charge and using the batteries for whatever beyond designed and intended use range.
- battery that has been opened, modified or tampered with;
- damage caused by lack of maintenance, abuse and negligence;
- damage due to improper storage.

***To avoid the invalidity of warrant caused by improper operation, please read the usage and storage notes.***

***Please keep the proof of purchase and pay attention not to break the seal on battery cover.***

# APPENDIX

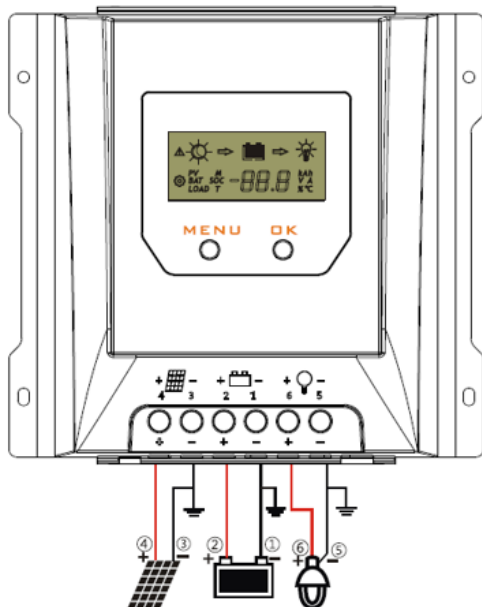
## Connect to SolarFam Lithium Charger



Please pay attention not to reverse the positive and negative of the charger and battery

For more details, please check the manual of SolarFam Lithium Charger

## Connect to Solar Controller (SX Li series MPPT Solar Controller)



SX Li series MPPT Solar Controller

### 1st Step: Connect the battery

Connect the battery connection cable with the correct polarity to the middle pair of terminals on the solar charge controller (with the battery symbol).

### 2nd Step: Connect the solar module

Ensure that the solar module is protected from incident light. Ensure that the solar module does not exceed the maximum permissible input current. Connect the solar module connection cable to the correct polarity of the left pair of terminals on the solar charge controller (with the solar module symbol).

### 3rd Step: Connect loads

Connect the load cable to the correct polarity of the right pair of terminals on the solar charge

controller (with the lamp symbol). To avoid any voltage on the wires, please connect the wire to load before connect to the controller.

#### **4th Step: Final work**

Tighten all cables connected to the controller and remove all the debris around the controller (leaving a space of approximate 15cm).

[For more details, please check the manual of SX Li series MPPT Solar Controller](#)

***If you want to use devices of other brands for charging, please make sure that your devices are suitable for lithium batteries before connection.***