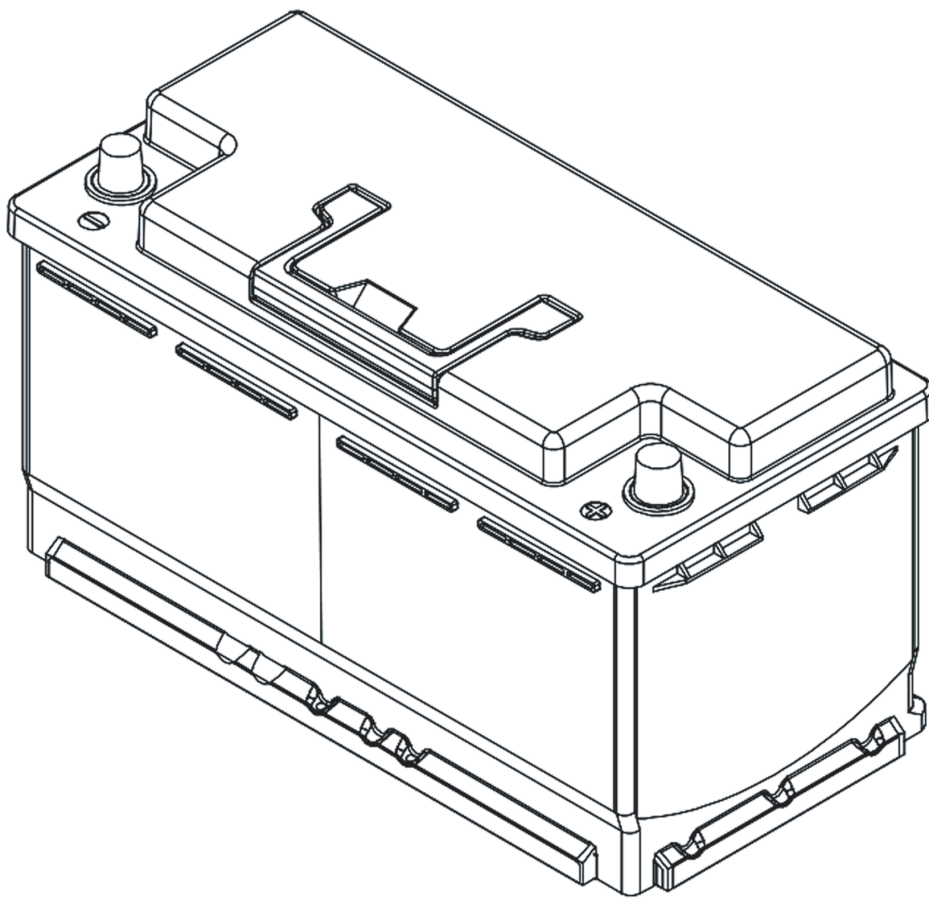


# LIFEPO4 BATTERY 12.8V 100AH V2.0

EN



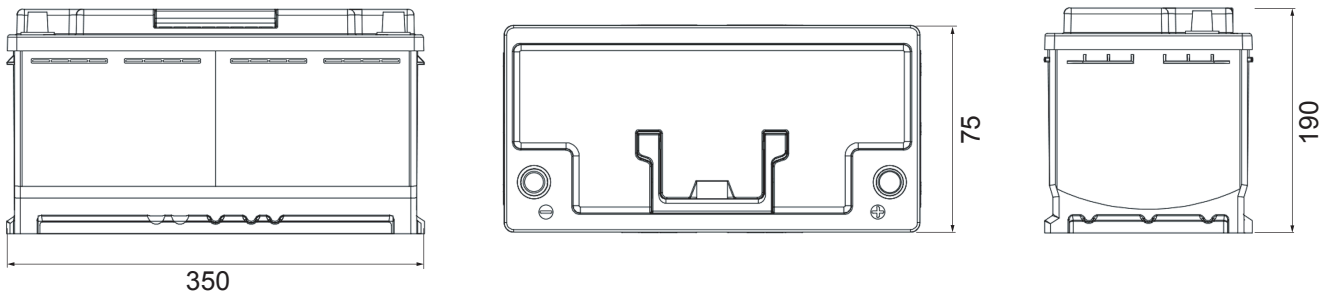
Art.-Nr. : 4912100



# LiFePO4 Battery 12.8V 100Ah

## Dimension (mm)

### LiFePO4 Battery 12.8V 100Ah



SolarV® Lithium iron phosphate (LiFePO4 or LFP) batteries are considered to be more environmentally friendly energy storage than traditional lead-acid batteries, and they comply with the European RoHS regulations. Lithium storage batteries boast excellent safety, reliability and high efficiency. The high number of cycles ensures a long lifespan and up to 80% usable capacity without deep discharge. The integrated BMS in our LiFePO4 battery ensures a high level of protection functions to safeguard against over-voltage and overcharging.

The SolarV® LiFePO4 batteries offer a proven advantage with their unparalleled energy storage to weight ratio – a weight savings of over 60% compared to AGM/Gel batteries. With the newly integrated Bluetooth communication feature, it enables operational monitoring through our Smart App for iOS and Android devices. Recommended applications include campervans, boats, PV systems, recreational applications and uninterruptible power supplies (UPS).

## Special features

- High energy density with low weight – 60% lighter than AGM/gel batteries
- Integrated, newly updated Bluetooth to connect multiple battery monitoring (max. distance 30m)
- Support battery group management
- Integrated BMS with numerous protection devices, support remote shutdown and BMS firmware upgrade
- Up to 80% usable capacity without deep discharge
- Up to 3 times as many cycles as conventional lead-acid batteries
- Self-discharge < 5% per month
- Product warranty: 2 years

## Technical Specifications

ELECTRICAL PARAMETERS		MECHANICAL PARAMETERS	
Nominal Voltage	12.8V	Dimension(L×W×H)	350x175x190mm 13.78x 6.89x 7.48"
Rated Capacity	100Ah	Weight	12.5 kg
Energy	1280Wh	Terminal Type	Copper pole
Resistance	≤30mΩ	Battery Housing	ABS
Efficiency	≥0.98	Housing Protection	IP65
Cycle Life (1C,80%DOD,25°C)	>2000 cycles @1C, 80% DOD	Cell Type-Chemistry	LiFePO4 Zell
Self Discharge	<5% per Month	Communication	Bluetooth
Max.Cell in Series/Parallel	4S/1P		

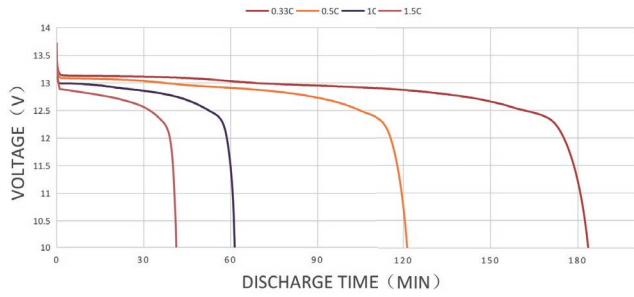
DISCHARGE PARAMETERS		CHARGE PARAMETERS	
Continuous Discharge Current	100A	Lademethode	CC-CV
Pulse Discharge Current	110A(<10S)	Ladespannung	14.2~14.6V
Recommended Volt. Disconnect	10V	Empfohlene Erhaltungsspannung	13.5~13.8V
BMS Discharge Cut-off Voltage	10V	Empfohlener Ladestrom	50A
Reconnect Voltage	12V	Maximaler Ladestrom	100A
Short Circuit Protection	300-800us	BMS-Ladeschlussspannung	15V

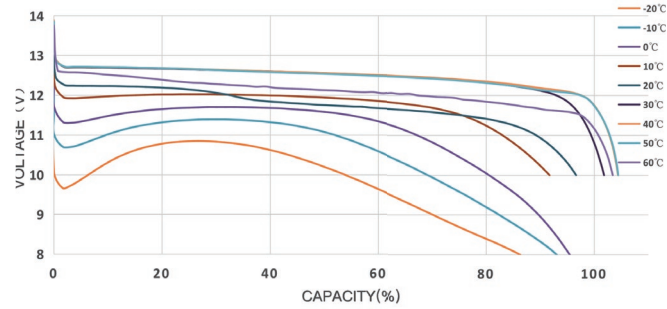
TEMPERATURE PARAMETERS	
Discharge Temperature	-20°C to 60°C
Charge Temperature	0°C to 55°C
Storage Temperature	-20°C to 60°C
BMS High Temperature Cut- off	65°C

# Technical Diagrams

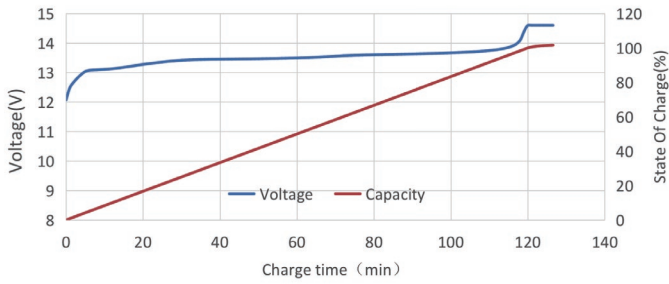
**DIFFERENT RATE DISCHARGE CURVE (25 °C)**



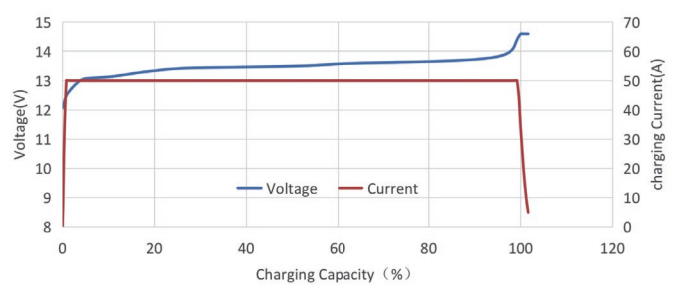
**DIFFERENT TEMPERATURE DISCHARGE CURVE (0.5C)**



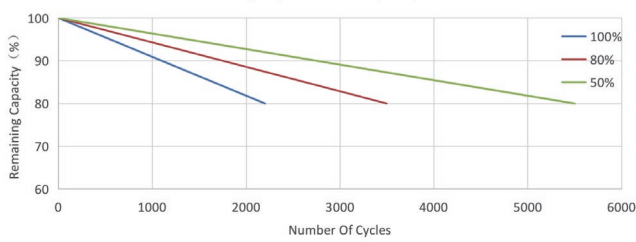
**STATE OF CHARGE CURVE (0.5C, 25°C)**



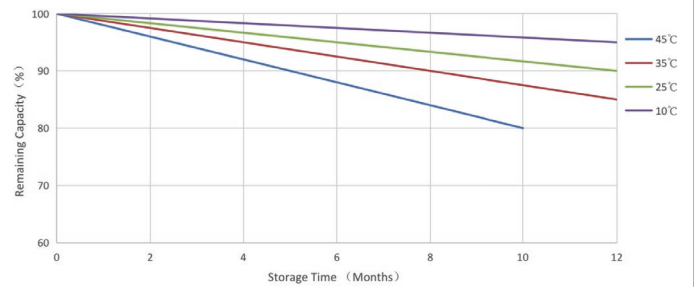
**STATE OF CHARGE CURVE (0.5C, 25°C)**



**DIFFERENT DOD DISCHARGE CYCLE LIFE CURVE (0.5C)**



**DIFFERENT TEMPERATURE SELF-DISCHARGE CURVE**



# APP-Download

**New App (SolarV LFP 2.0):** Improved battery search function, Bluetooth password reset, multi-battery monitoring, support for remote shutdown and BMS firmware upgrade.

**IMPORTANT:** The new app (SolarV LFP 2.0) is temporarily **ONLY** compatible with battery V 2.0.



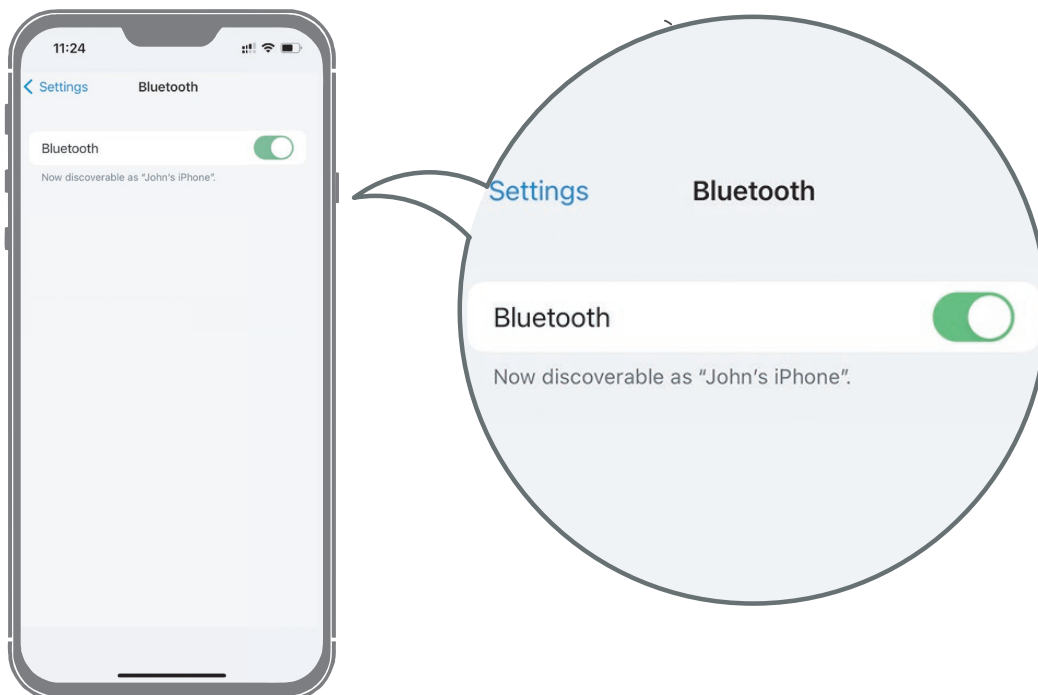
iOS iOS



Android

# Operation Manual

**1** Please turn on Bluetooth. The battery should be within the Bluetooth range.



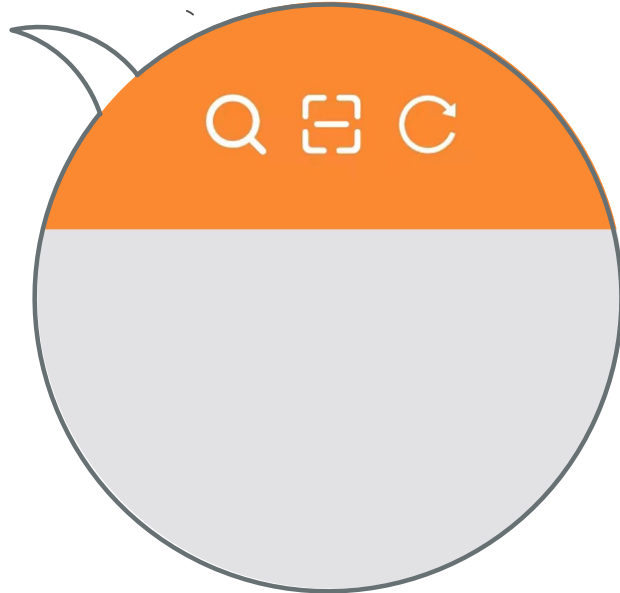
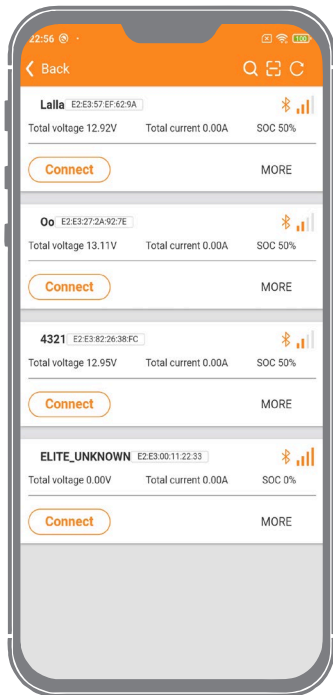
## 2 Please open the App - SolarV LFP 2.0



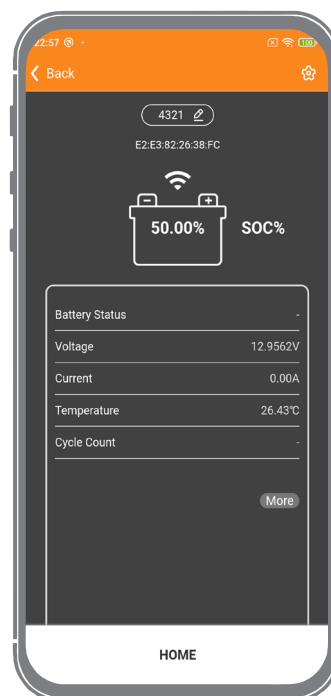
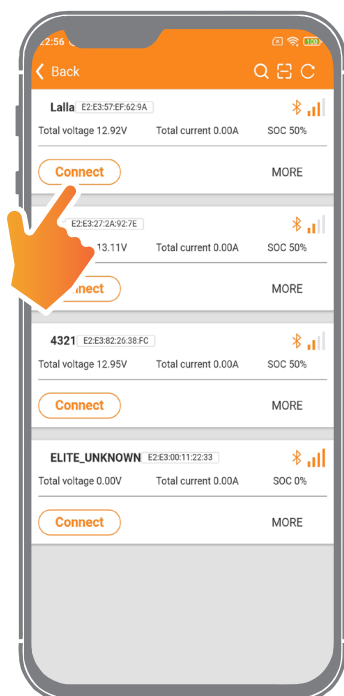
## 3 Click on "ADD NEW SOLARV BATTERY"



# 4 Search for your battery in the list or click on the "Search" icon or the "Scan" icon to list the available batteries

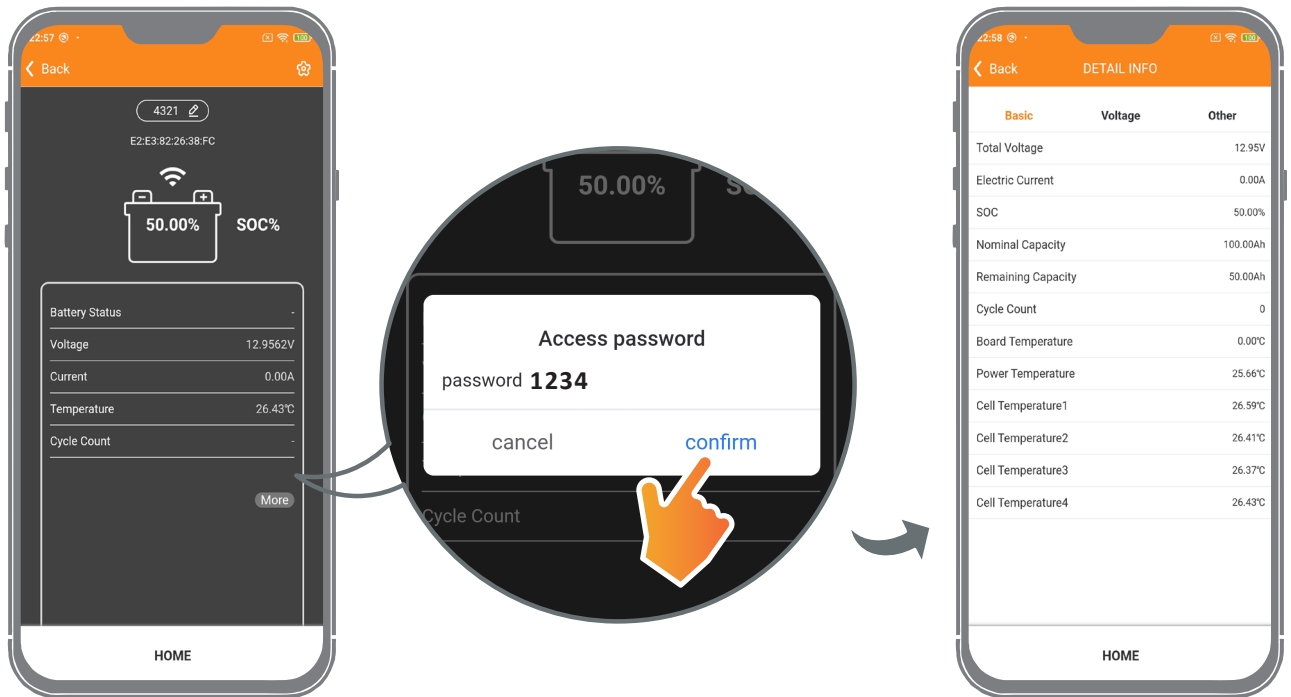


# 5 Your new battery is listed in the app with its serial number, which can also be found on the battery. Click on "Connect" to display the status information



# 6

Click "**More**" and enter the password "**1234**" (without quotation marks) to view more information in detail



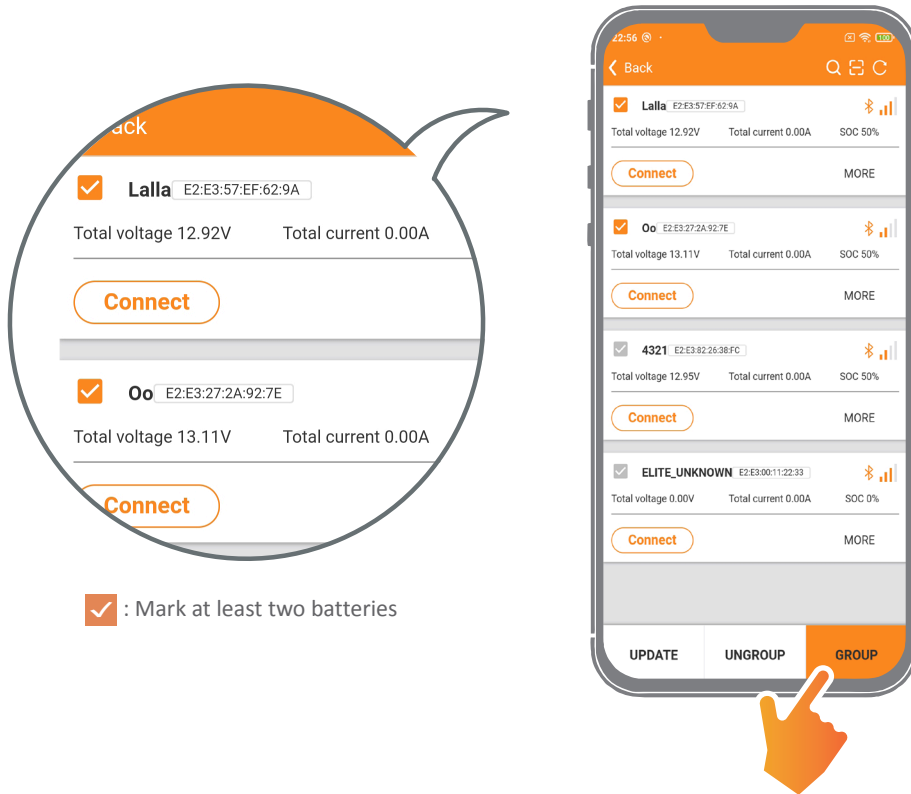
# 7

Click on the "**SETTINGS**" icon and enter the password "**1234**" (without quotation marks)

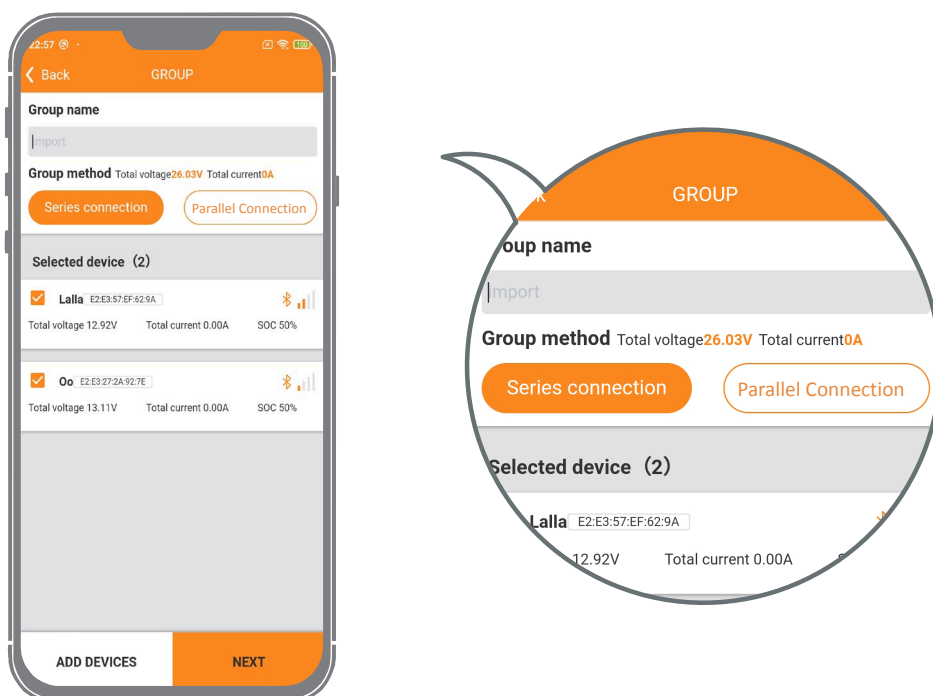




8 On the HOME page, press and hold one of the batteries until a checkbox appears. Select the batteries you would like to combine together and click on **“GROUP”**

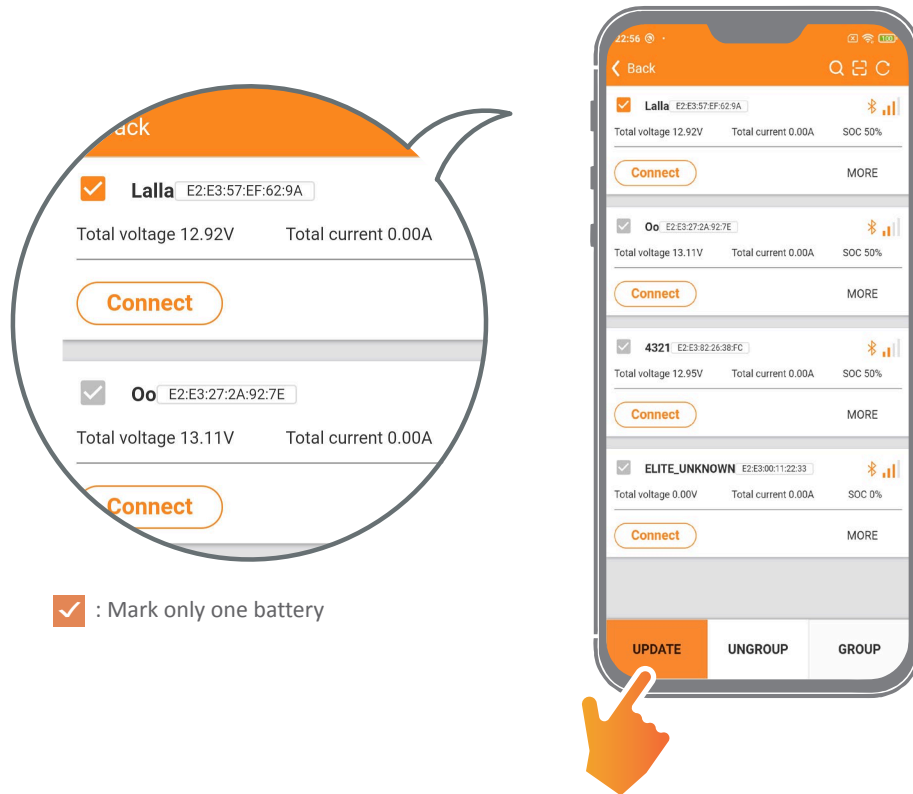


9 Please select **“Series connection”** or **“Parallel Connection”** and name the group



# NOTE

SolarV LFP 2.0 supports the upgrade of BMS and Bluetooth protocol. If the new version is available, you can click the **“Update”** button to upgrade it. Please refer to the official announcement on [www.solarv.de](http://www.solarv.de)



# Troubleshooting

ERROR DISPLAY	TROUBLESHOOTING
Cell fully charged on	Stop charging or discharge
Cell under voltage on	Charge the battery
Battery fully charged on	Stop charging or discharge
Battery under voltage on	Charge the battery
Charging high temperature on	Stop charging and move the battery to a shady area; the battery will automatically return to normal
Charging low temperature on	Stop charging and move the battery to a warmer (room) temperature environment; the battery will automatically return to normal
Discharging high temperature on	Stop discharging and move the battery to a shady area; the battery will automatically return to normal
Discharging low temperature on	Stop discharging and move the battery to a warmer (room) temperature environment; the battery will automatically return to normal
Charging over current on	Stop charging and check the charger output current.
Discharging over current on	Stop discharging and make sure the load current is not within the battery maximum discharge current range
Short circuit on	Fix the short circuit error. If the error cannot be cleared automatically, charge the battery to clear the error. If this is not possible, send the battery to the workshop for repair
Front end detection IC error	Depot repair
Charging timeout shutdown	Depot repair

# Important Safety Instructions

Although lithium iron phosphate batteries are inherently safe, like all batteries, energy storage equipment, and electrical equipment, there are indeed safety and electrical hazards. Failure to comply with these safety instructions may result in electric shock, injury, death, or damage to the battery or other equipment and property.

## Installation

- Batteries should be installed according to national and local regulations.
- Batteries can only be installed in locations approved by local building codes.
- Use insulated tools to minimize the risk of electric shock.
- Do not short-circuit the battery terminals.
- Do not install the battery if there are any signs of physical damage.
- Do not install the battery in locations where it could be submerged in water.

## Operation

- Only use approved battery chargers to charge the battery.
- Do not disassemble the battery.

## In emergency situations

- Disconnect the battery from the system.
- Wear a respirator, goggles, and rubber gloves (as appropriate).
- Use ABC dry chemical fire extinguisher.
- Dispose of the battery according to local regulations.

## Warnings

- Do not short-circuit the battery terminals.
- Do not reverse polarity.
- Do not puncture the battery casing.
- Do not attempt to dismantle.
- Do not drop or mishandle.
- Do not immerse in water.
- Do not operate with loose connections.
- Do not connect or operate batteries in series or parallel with any other type of battery.
- Do not connect more than four batteries in series.

# Guidelines to correctly Charge Batteries

To charge the SOLARV battery correctly, you need to ensure that any charging components in the system can be programmed according to the following specifications. Charging components may include but are not limited to converters, inverter chargers, solar charge controllers, DC-to-DC chargers, etc.

Absorption: 14.2V-14.6V

Float: 13.4V to 13.8V

Equalization: 14.4V/Disabled

Temperature Compensation: 0/Disabled

Charge Rate: 50% of battery or battery bank capacity

Battery Charging Temperature Range: 32°F (0°C) to 131°F (55°C)

Battery Discharge Temperature Range: -4°F (-20°C) to 140°F (60°C)

## Guidelines to Battery Connections

### A.Parallel Connection

#### Why Parallel Connection?

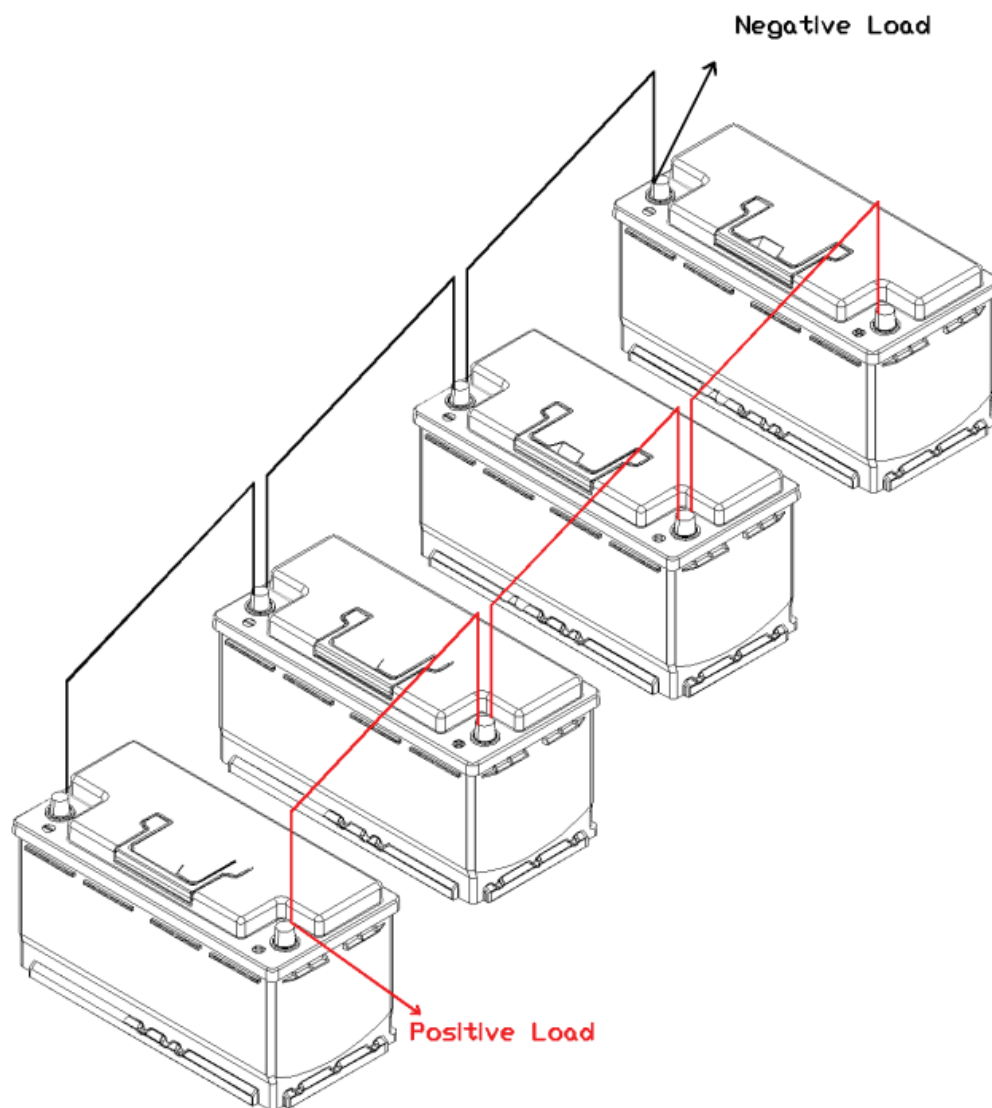
Multiple batteries can be connected in parallel to increase the system's capacity and current. When batteries are connected in parallel, the system voltage remains the same, but capacity and current are added together. For example, two batteries connected in parallel form a battery bank of 12V 200Ah, which can continuously supply 200A of current.

#### How to connect parallel?

**Note:** All cables and connections must be able to handle the high currents provided by the batteries. It is strongly recommended to use appropriate fuses and circuit breakers to protect downstream components from current spikes and short circuits.

1. Identify the positive and negative terminals. Red or (+) indicates positive, black or (-) indicates negative.
2. Connect the correct cable to the positive terminal of the first battery.
3. Connect the other end of the positive cable to the positive terminal of the battery.
4. Connect the correct cable to the negative terminal of the first battery.

5. Connect the other end of the negative cable to the negative terminal of the battery
6. Repeat steps 2-5 for other batteries in the system.



## B. Series Connection

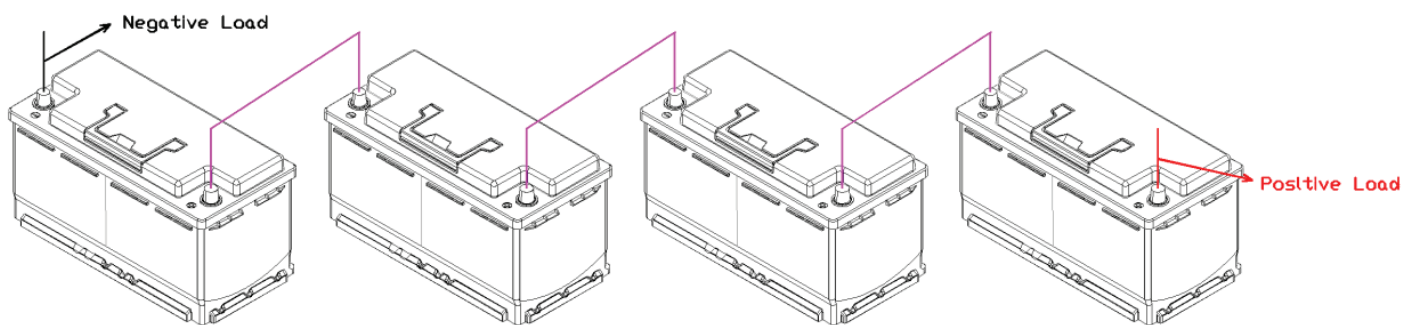
### Why Series Connection?

When batteries are connected in series, the current and capacity remain constant, but the voltage of the system is additive. For example, two 12V 100Ah batteries connected in series form a 24V 100Ah battery bank.

### How to connect in series?

**Note:** SolarV batteries can be connected in series up to 48V. However, do not exceed the 48V setting, as connecting beyond 48V can damage the batteries.

1. Before making any connections, charge each battery to 14.2V to 14.6V using an appropriate lithium battery charger. All batteries should be at the same voltage state before connection, or else you will encounter balancing issues within the system. You can use a multimeter to check the battery's charge status.
2. Identify the positive and negative terminals. Markings (+) or colors such as red indicate the positive terminal, while markings (-) or colors such as black indicate the negative terminal.
3. Connect the appropriate cable to the negative terminal of the first battery.
4. Connect the other end of the cable to the positive terminal of the battery to be connected. Repeat step 3.
5. Repeat steps 3-4 to add additional batteries to the system, but ensure that the total voltage does not exceed 48V (number of batteries in series  $\leq 4$ ).



## How does the Battery Management System (BMS) protect the battery?

All batteries come equipped with an internal Battery Management System (BMS) that protects the battery from many harsh environments, thereby safeguarding the battery's lifecycle and the electrical system from potential damage.

- **Hochspannungsabschaltung (>15V)**

If the voltage of an individual battery exceeds the specified threshold during the charging process, the BMS will prevent the charging current from continuing. In such cases, discharging is always allowed. Prolonged battery imbalance may lead to high voltage disconnect at lower voltages. The battery will rebalance after several full charges.

- **Low Voltage Disconnect (<10V)**

If an individual battery falls below the specified threshold during discharge, the BMS will prevent further discharge.

If the battery is in "low voltage disconnect" mode, it will still allow charging current.

**Note:** Many chargers must detect a voltage above 10V to charge the battery.

Please note that certain chargers may fail to detect batteries in a low voltage disconnect state, and you may need to connect them to a 12V power source to "wake up" the battery. You should charge the battery within 24 hours after entering low voltage disconnect, otherwise, battery damage may occur.

- **High Temperature Charge/Discharge**

If the internal temperature of the battery reaches 131°F (55°C), the BMS will not allow charging current.

If the internal temperature of the battery has reached 140°F (60°C), the BMS will not allow discharge current.

- **Low Temperature Charge**

The BMS will not allow charging when the internal temperature of the battery is below 32°F (0°C), but discharge is possible at a temperature of -4°F (-20°C).

- **High Current Discharge Impact**

The BMS will not allow continuous current exceeding 100 (+/-5%) amps for more

than 30 seconds, or any high current discharge lasting more than 0.5 seconds. After disconnecting the high current, the battery will automatically reconnect after 5 seconds.

- **Short Circuit Impact**

Our BMS has a built-in short circuit protection feature. If the short circuit protection trips, the BMS will shut down the battery and remain in a disconnected state until the battery load is removed. While disconnecting the battery load, we recommend measuring the battery voltage with a voltmeter. If the reading is above 10V, reconnect the battery cables. If you fail to get a voltage reading above 10V, the battery may be damaged.

- **Cell Balancing**

When the battery voltage exceeds around 14V during the charging process, the BMS initiates a passive balancing process. This ensures that all cells maintain the same state of charge, which helps improve the battery's lifespan and performance.





**solarV**

*power your life*



**SolarV GmbH**  
info@solarv.de  
www.solarv.de