

## LiFePO4 Battery System for Households



# USER GUIDE

LiFePO4 Battery System for Households



In order to prevent improper operation before use, please carefully read this manual.

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# 1 ABOUT THIS MANUAL

## 1.1 Purpose

This manual describes the introduction, installation, operation and emergency situations of the battery bank. Please read this manual carefully before installations and operations. Keep this manual for future reference.

## 1.2 Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

## 1.3 Safety Instructions



**WARNING:** This chapter contains important safety and operating instructions. Read and keep this manual for future reference.

1. Before using the unit, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2. CAUTION — To reduce risk of injury, damage, even burst, please use it following using manual. In case of causing personal
3. Do not disassemble the battery. Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of fire.
4. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
5. CAUTION – Only qualified personnel can install this device with inverter.
6. For optimum operation of this battery, please follow required spec to select appropriate cable size.
7. Be very cautious when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion or fire.
8. Please strictly follow installation procedure.
9. **GROUNDING INSTRUCTIONS** - This System should be connected to a permanent grounded wiring system. Be sure to comply with local requirements.
10. NEVER cause AC output and DC input short circuited. Do not connect to the mains when DC input short circuits.
11. Warning!! Only qualified service persons are able to service this device.
12. Battery should be installed indoor and kept away from water, high temperature mechanical force and flames.
13. Do not install the battery in any environment of temperature below 0°C or over 55°C, and humidity over 80%.
14. Do not put any heavy objects on the battery.

## 1.4 Can be Connected in Parallel

**1. The batteries can be connected in parallel. Series connection is not allowed. Use in upright position only.**

**2. The batteries are not allowed to connected with PWM controller for charging.**

**Special Attention: Due to the built-in protection board of the lithium battery pack is with over-discharge protection function, it is strongly recommended to stop using the load when the battery pack is over-discharged. The battery pack cannot be repeatedly activated for discharge. Or the battery may be failed to be activated by the AC or PV activation cable ( It requires a special charging activation method), so cannot be charged. Therefore, when the battery pack is low power, please charge the battery as soon as possible when main power or solar energy is available.**

## 1.5 Safety rules

To avoid property damage and personal injury, the following rules shall be followed when working on the hazardous live parts of the battery energy storage system:

- It is available for use.
- Ensure that it will not restart.
- Make sure there is no voltage.
- Grounding protection and short circuit protection.
- Cover or shield adjacent live parts.

## 1.6 Safety information

Part damage or short circuit may cause electric shock and death. A short circuit can be caused by connecting battery terminals, resulting in current flow. This type of short circuit shall be avoided under any circumstances. For this reason, follow these instructions:

- Use insulated tools and gloves.
- Do not place any tools or metal parts on the battery module or high-voltage control box.
- When operating the battery, be sure to remove watches, rings, and other metal objects.
- Do not install or operate this system in explosive or high-humidity areas.
- When working on the energy storage system, first turn off the charging controller, then the battery, and ensure that they are not turned on again.

**Improper** use of the battery energy storage system can lead to death. The use of the battery energy storage system beyond its intended use is not allowed, because it may cause great danger.

**Improper** handling of the battery energy storage system can cause life-threatening risks, serious injury or even death.




















**Warning!** improper use can cause damage to the battery cell.

- Do not expose the battery module to rain or soak it in liquid.
- Do not expose the battery module to a corrosive environment (such as ammonia and salt).

## 1.7 Installation

- After unpacking, please check the product for damages and missing parts.
- Make sure that the inverter and battery is completely turned off before commencing installation.
- Do not interchange the positive and negative terminals of the battery.
- Ensure that there is no short circuit of the terminals or with any external device.
- Do not exceed the battery voltage rating of the inverter.
- Do not connect the battery to any incompatible inverter.
- Do not connect different battery types together.
- Please ensure that all the batteries are grounded properly.
- Do not open the battery to repair or disassemble. Only FelicityESS is allowed to carry out any such repairs.
- In case of fire, use only dry powder fire extinguisher. Liquid extinguishers should not be used.
- Install the battery away from children or pets.
- Do not use battery in high static environment where the protection device might be damaged.
- Do not install with other batteries or cells.

## 2. SYMBOLS

	Danger! Serious physical injury or even death may occur if not follow the relative requirements.		Install the product out of reach of children
	Caution, risk of electric shock.		Do not place or install near flammable or explosive materials
	In case of electrolyte leakage, keep leaked electrolyte away from eyes or skin.		Disconnect the equipment before carrying out maintenance or repair
	Do not connect the Pack's positive(+) and negative(-)terminal reversely.		Societe Generale de Surveillance S.A.
	Observe precautions for handling electrostatic discharge sensitive devices.		Instruction manual: Read the instruction manual before starting installation and operation.
	Caution, risk of electric shock, energy storage timed discharge		CE mark: The inverter complies with the CE directive.
	Recyclable.	<b>NOTE</b>	Note: The procedures taken for ensuring proper operation.
	Do not use the Pack beyond specified conditions		Earth terminal: The inverter must be reliably grounded.
	Take care! This Pack is heavy enough to cause serious injury.		EU WEEE mark: Product should not be disposed as household waste.

## 3. TRANSPORTATION

### 3.1 Regulations for the transport of battery modules

It is necessary to comply with the relevant regulations and provisions on roads for shipping lithium-ion products in the corresponding countries.



- Smoking is prohibited in the vehicle during transportation or in the vicinity during loading and unloading



- The dangerous goods transport vehicles shall meet relevant regulations concerning road transportation and shall be equipped with two tested CO2 fire extinguishers.



- Improper vehicle transportation can cause injury. Improper transportation or improper transportation locks may cause the load to slip or overturn, resulting in injury.



- The battery energy storage system can be damaged, if not properly transported. The battery module can only be transported vertically. Note that these parts may be top-heavy. Failure to follow this instruction may result in damage to the part.



- If possible, do not remove the transport packaging before arrival at the installation site. Before removing the transport protector, check if the transport packaging is damaged, and check the impact indicator on the outer packaging of the battery converter. If the impact indicator is triggered, the possibility of transport damage cannot be ruled out.



- Improper transport of battery modules may cause injury. The single battery module weighs 46 kg. It could cause injury if it falls or slips. Use only suitable transport and lifting equipment to ensure safe transport.



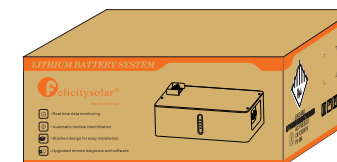
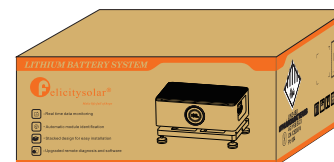
- Wear safety shoes to avoid the danger of injury. When transporting the battery module, their parts may be crushed due to their heavy weight. Therefore, all persons involved in transportation must wear safety shoes with toe caps. Please observe the safety regulations for transportation at the end customer's site, especially during loading and unloading.



- During transportation and installation of unpacked battery storage cabinets, the risk of injury increases, especially on sharp metal panels. Therefore, all personnel involved in transportation and installation must wear protective gloves.

### 3.2 Permissible and Impermissible Storage Positions of a Packaged

The battery module can only be transported in an upright position.



## 4. STORAGE

- Do not expose battery to open flame.
- Do not place the product under direct sunlight.
- Do not place the product near flammable materials. It may lead to fire or explosion in case of accident.
- Store in a cool and dry place with ample ventilation.
- Store the product on a flat surface.
- Store the product out of reach of children and animals.
- Do not damage the unit by dropping, deforming, impacting, cutting or penetrating with a sharp object. It may cause leakage of electrolyte or fire.
- Do not touch any liquid spilled from the product. There is a risk of electric shock or damage to skin.
- Always handle the battery wearing the insulated gloves.
- Do not step on the product or place any foreign objects on it. This can result in damage
- Do not charge or discharge damaged battery.



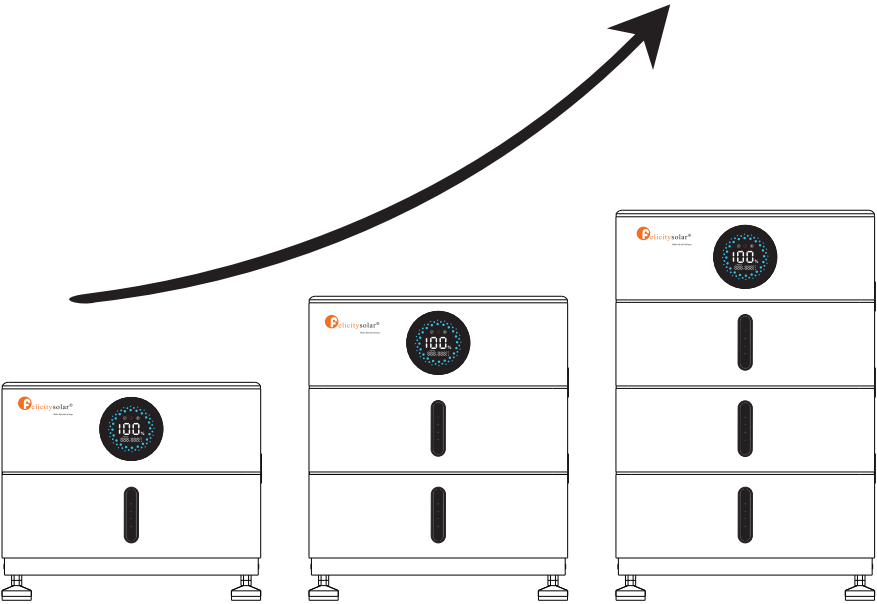
5. INTRODUCTION

The battery system main using solar power system for family house. It also have a with to controller the battery easily and protect our Household application timely.

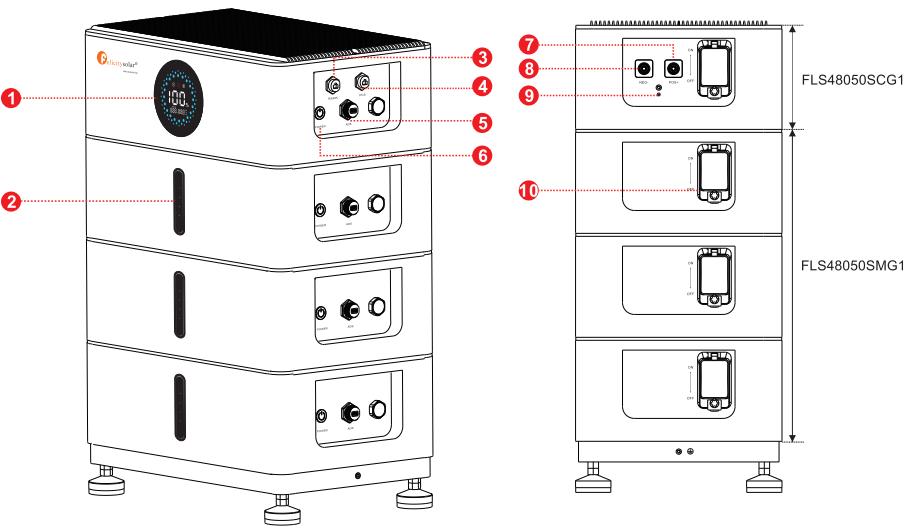
5.1 Features

- Features:
- LiFePO4:Higher safe performance and longer cycle life.
  - Multiple Protection:Built-in smart BMS, Breaker and Fuse.
  - Modular design for easy installation and increased capacity.
  - Flexible Installation:Floor-Mounted.
  - Wide Compatibility:Compatible with leading inverter brands.
  - High Scalability:Capacity up to 10.24kWh.
  - Built-in WIFI: Remote monitor of the battery pack data.

5.2 Product Overview



Up to 4 PCS battery packs can be connected in parallel



Number	Name
1	LCD display
2	LED
3	RS485 Communication
4	PCS Communication
5	ADS
6	Power On/Charging indicator
7	Battery Positive +
8	Battery Negative -
9	Earth wire
10	Breaker

### 5.3 Specifications

Model	FLS48050 SCG1	FLS48050 SMG1	FLS48050 SG1M2	FLS48050 SG1M3	FLS48050 SG1M4
Battery Type	LiFePO4				
Module Nominal Energy	2.56kWh				
Module Nominal Capacity	50Ah				
Module Nominal Voltage	51.2V				
Number of Battery Modules	1	1	2	3	4
System Nominal Energy	2.56kWh	2.56kWh	5.12kWh	7.68kWh	10.24kWh
System Nominal Voltage	51.2V				
System Operating Voltage	44.8~57.6V				
Recommend Charge/Discharge Current	25A	25A	40A	40A	40A
Max.Continuous Charge/Discharge Current[1]	50A	50A	80A	80A	80A
Peak Charge/Discharge Current(15s)	100A	100A	100A	100A	100A
Scalability	Up to 4 units in parallel(10.24kWh)				
Depth of Discharge(DOD)	≥95%				
Display type	Control Module:LCD/Battery Module:LED*4				
IP Rating of Enclosure	IP65				
Working Temperature Range	Charge: 0°C~+55°C				
	Discharge:-20°C~+55 °C				
Storge Temperature Range	0°C~+35°C				
Humidity	5%-95%				
Altitude	≤2000m				
Communication	RS485 / CAN				
Cycle Life[2]	≥6000 Cycles				
Installation	Floor-Mounted				
Protection	Built-in smart BMS, Breaker, Fuse				
Warranty Period[3]	10 Years				
Control Module FLS48050SCG1	Product Weight Approximate	31kg			
	Package Weight Approximate	40kg			
	Product Dimension	530×350×180mm			
	Package Dimension	642×462×337mm			
Battery Module FLS48050SMG1	Battery Designation	IFpP/41/150/102/[1P16S]M/-10+50/95			
	Product Weight Approximate	31kg			
	Package Weight Approximate	36kg			
	Product Dimension	530×350×175mm			
	Package Dimension	642×462×293mm			
[1] Max.continuous charge/Discharge current is affected by temperature and SOC.					
[2] Test conditions: 0.2C Charging/Discharging @25°C, 80% DOD.					
[3] Conditions apply, refer to Felicitysolar Warranty policy.					





### 5.4 Recommended Settings





Lithium battery pack is not same as lead-acid battery, so for the devices which you connect with the battery pack for charging or discharging, such as inverters, MPPT charger controllers or UPS, please implement pre-settings as recommended settings as below before you launched them.





Setting	FLS48050SG1
Max. Charging Voltage	57.6V
Floating charging Voltage	57.6V
Max. Charging Current	50A*N(Max=80A)
Cut-off voltage	48V





Notes:"N"means the number of battery packs connected parallel and should not exceed 4.(N≤4)





### 5.5 Labels

 Lithium iron phosphate battery	
Model	FLS48050SG1
Nominal Energy	2.56kWh
Nominal Voltage	51.2V
Nominal Capacity	50Ah
Maximum Continuous Charge /Discharge Current	50A
Cycle Life	≥6,000@25°C, 80% DOD
IP Rating of Enclosure	IP65
Working Temperature Range	Charge: 0°C~+55°C
	Discharge:-20°C~+55 °C
IFpP/41/150/102/[1P16S]M/-10+50/95	
  	

 Lithium iron phosphate battery	
Model	FLS48050SCG1
Nominal Energy	2.56kWh
Nominal Voltage	51.2V
Nominal Capacity	50Ah
Maximum Continuous Charge /Discharge Current	50A
Cycle Life	≥6,000@25°C, 80% DOD
IP Rating of Enclosure	IP65
Working Temperature Range	Charge: 0°C~+55°C
	Discharge:-20°C~+55 °C
IFpP/41/150/102/[1P16S]M/-10+50/95	
  	

 Lithium iron phosphate battery	
Model	FLS48050SG1M2
Nominal Energy	5.12kWh
Nominal Voltage	51.2V
Nominal Capacity	100Ah
Maximum Continuous Charge /Discharge Current	80A
Communication	RS485/CAN
Cycle Life	≥6,000@25°C, 80% DOD
IP Rating of Enclosure	IP65
Working Temperature Range	Charge: 0°C~+55°C
	Discharge:-20°C~+55 °C
IFpP/41/150/102/[(1P16S)2P]M/-10+50/95	
  	

 Lithium iron phosphate battery	
Model	FLS48050SG1M3
Nominal Energy	7.68kWh
Nominal Voltage	51.2V
Nominal Capacity	150Ah
Maximum Continuous Charge /Discharge Current	80A
Communication	RS485/CAN
Cycle Life	≥6,000@25°C, 80% DOD
IP Rating of Enclosure	IP65
Working Temperature Range	Charge: 0°C~+55°C
	Discharge:-20°C~+55 °C
IFpP/41/150/102/[(1P16S)3P]M/-10+50/95	
  	

 Lithium iron phosphate battery	
Model	FLS48050SG1M4
Nominal Energy	10.24kWh
Nominal Voltage	51.2V
Nominal Capacity	200Ah
Maximum Continuous Charge /Discharge Current	80A
Communication	RS485/CAN
Cycle Life	≥6,000@25°C, 80% DOD
IP Rating of Enclosure	IP65
Working Temperature Range	Charge: 0°C~+55°C
	Discharge:-20°C~+55 °C
IFpP/41/150/102/[(1P16S)4P]M/-10+50/95	
  	

## 6. INSTALLATION

### 6.1 Tools



Screw Driver



Crimping Modular



Safety Shoes



Multimeter



Safety Gloves



Safety Goggles



Plier



Ribbon



Electric drill

### 6.2 Unpacking and Inspection

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside of package.

FLS48050SCG1			
NO.	Description	Quantity	Picture
1	2.56kWh Control box	1	
2	Pedestal	1	
3	User Manual	1	
4	Warranty Card	1	
5	Quick installation Guide	1	
6	Terminal: In actual use, if the cable diameter is not appropriate, the customer needs to prepare the corresponding power cable and crimp the terminal before use. The cable diameter of the terminal is 16mm <sup>2</sup>	2	
7	Communication Cable : Used for communication with other brands of Rs485	1	

8	Power Cable: 0.9 meters, 25mm <sup>2</sup> , allows for charging and discharging up to 125A, used for connecting to external PCS.	2	
9	Signal Terminal: used for creating custom communication cables.	2	
10	Fix the bracket	1	
FLS48050SMG1			
NO.	Description	Quantity	Picture
1	2.56kWh Battery box	1	
2	User Manual	1	
3	Warranty Card	1	
4	Quick installation Guide	1	
5	Fix the bracket	1	

### 6.3 Mounting the Unit

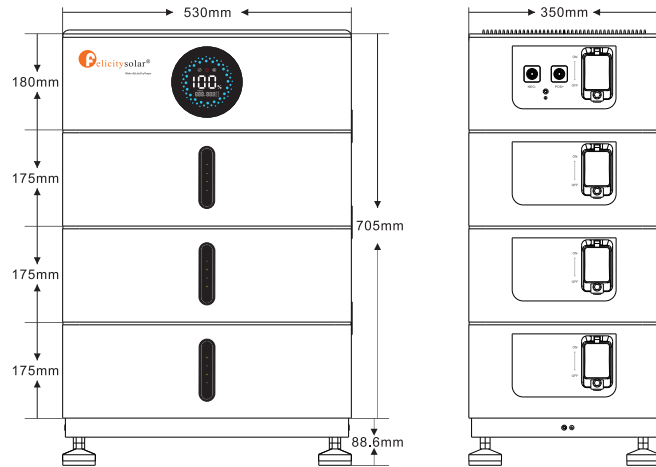
Consider the following points before selecting where to install:

- Do not mount the battery on flammable construction materials.
- The ambient temperature should be between 0°C and 45°C to ensure optimal operation.
- The recommended installation position is to be adhered to the wall vertically.
- Be sure to keep other objects and surfaces as shown in the right diagram to guarantee sufficient heat dissipation and to have enough space for removing wires.

Please follow below steps to implement battery connection:

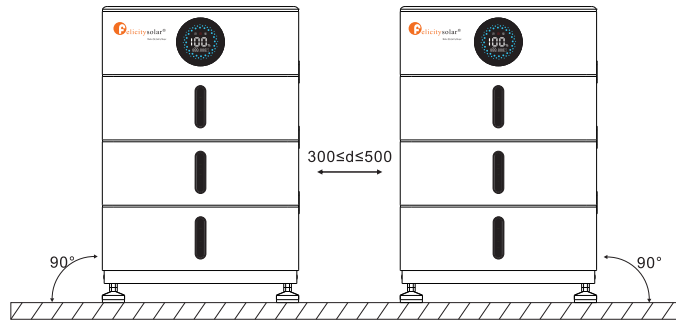
1. Assemble battery ring terminal based on recommended battery cable and terminal size.
2. Connect all battery packs as units requires. It's suggested to connect at least 2 sets for inverter larger than the energy of a battery pack in parallel connection.

#### 6.4 Product size information

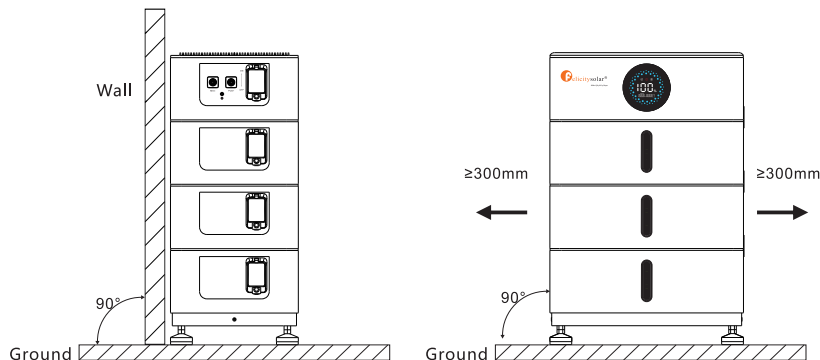


#### 6.5 Floor Installation with Base

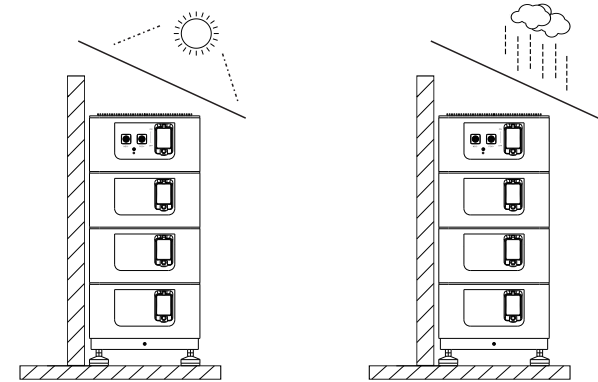
##### Installation Location Requirements



Ground(Two rows installation)



#### 6.6 Installation Environment



Max.+55°C



Min.-20°C



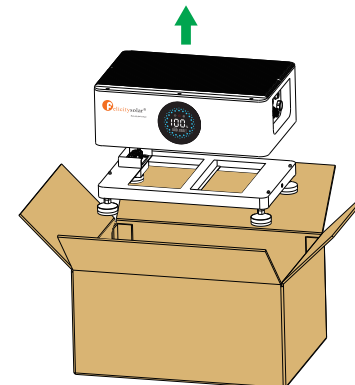
RH.+5%~+95%

## 7. INSTALLATION PROCEDURE

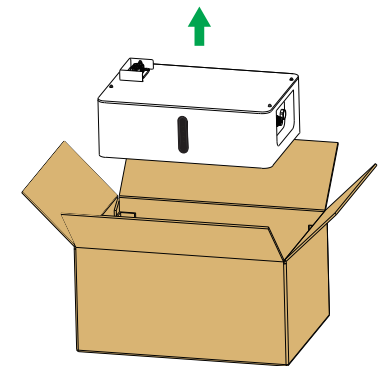
### 7.1 Setup Script

**Step 1:** Open the packaging Carton box and remove the accessories(FLS48050SCG1 battery pack, base ) ;

**Step 2:**Open the packaging Carton box and remove the accessories ( FLS48050SMG1 battery pack ) .

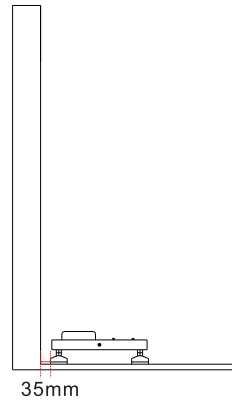


FLS48050SCG1

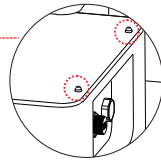
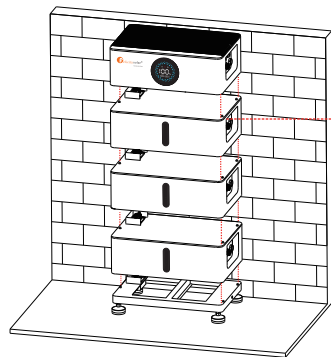


FLS48050SMG1

**Step 3:** Place the base, which should be 35MM away from the wall.

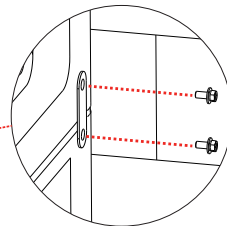
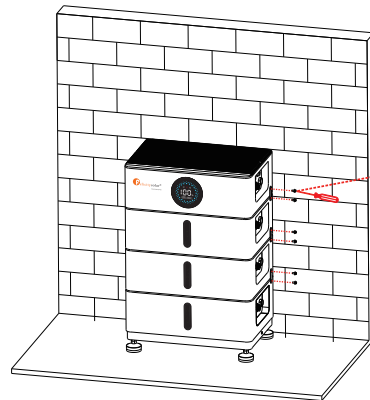


**Step 4:** Stack and place the products, with a base on the bottom layer, LED lights on the middle layer, and an LCD display screen on the top layer.



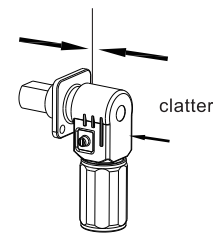
There are positioning pins between layers for guidance, please do not use force to damage them

**Step 5:** Use screws to lock the sheet metal connectors between the stacked products.

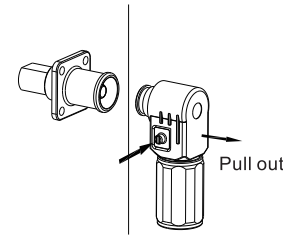


## 7.2 Terminal Connection

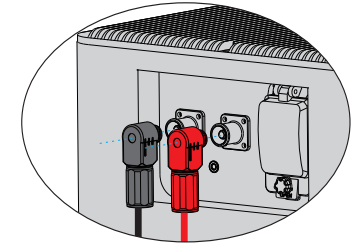
Power terminal



connect



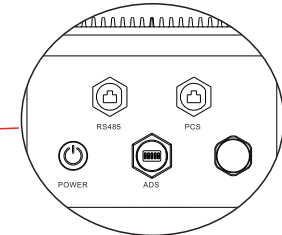
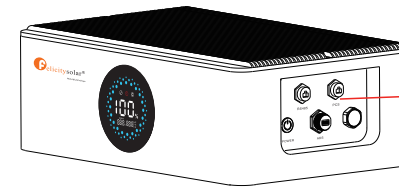
to break off



Battery terminal

Note: Press the position indicated in the figure above before disconnecting the power terminal.

## 7.3 Description for Communication port



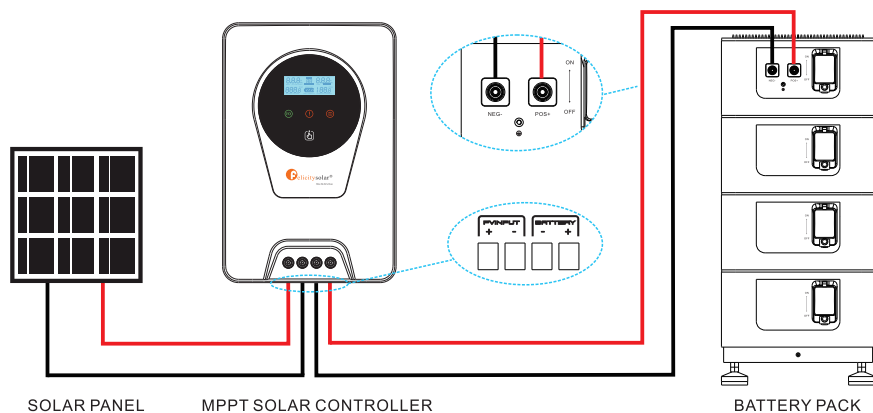
### PCS Port Pin Definition

Pin	Function Definitions	Function Declaration
1	COM-GND	COM-GND
2	/	/
3	/	/
4	/	/
5	RS485-B	Communication between the battery pack and the inverter through the RS485 port
6	RS485-A	
7	CANLPCS	Communication between the battery pack and the inverter through the CAN port
8	CANHPCS	

### RS485 Port Pin Definition

Pin	Function Definitions	Function Declaration
1	COM-GND	COM-GND
2	/	/
3	/	/
4	/	/
5	RS485-B	Communication between the battery pack and the inverter through the RS485 port
6	RS485-A	
7	/	/
8	/	/

For pure off-grid systems, the power line needs to be connected to the battery's MPPT charging controller and the battery pack is only charged by the solar panel, the connection diagram is as follows:



## 7.4 Parallel DIP Switch

Adjust each battery pack dialer from left to right according to the diagram below (from top to bottom)

ON DP 1 2 3 4 5	No. of BAT	1	2	3	4
	1PCS	1,5 ON			
	2PCS	1,5 ON	2,5 ON		
	3PCS	1,5 ON	2 ON	1,2,5 ON	
	4PCS	1,5 ON	2 ON	1,2 ON	3,5 ON

**Note:** After completing the above steps, arbitrarily select the positive and negative poles of one of the battery packs to output. After confirming the correct connection of the inverter, controller and battery, you can turn on any of the switches and use the battery group happily.

## 8. OPERATION

Once the batteries are connected well, close the breaker to the ON block, press On/Off button to enable the output of the battery pack.



### 8.1 Switch On / Off

1. Switch on: press On/Off button to switch on the battery, then the battery will do self-inspection before enable output. The LCD will show the SOC.
2. Switch off: press and hold On/Off button for 1to3 seconds, the battery will shut down directly.

DIP SWITCH		
	1-4	Communication Address
	5	Termination Resister

### 8.2 Description for LED

The LED shows the SOC of module N.

100%	75%	50%	25%	Flashing SOC < 10%








**Note:** The battery need to be fully charged for at least once in one month to ensure the accurate SOC calculation.



### 8.3 ON / OFF or SOC Led (Mode or SOC)


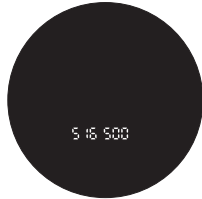
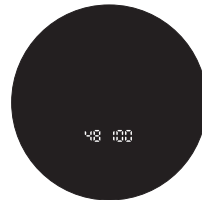
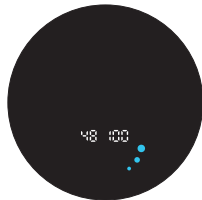
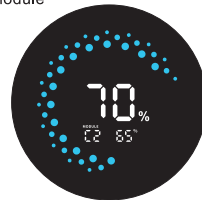
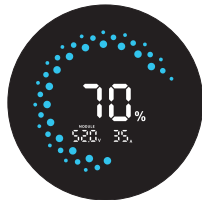
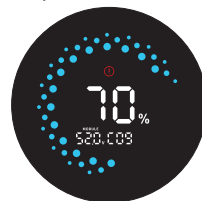
BATTERY MODE	ON/OFF		SOC				REMARK
	GREEN LED	RED LED	LED1	LED2	LED3	LED4	
POWER OFF	OFF	OFF	OFF	OFF	OFF	OFF	
POWER ON	OFF	ON	ON	ON	ON	ON	
STANDBY	OFF	OFF	SOC				SOC<10%(DEFAULT): LED1 FLASH
NORMAL	ON	OFF	RUNNING/SOC				SOC<10%(DEFAULT): LED1 FLASH
DISCHARGE	ON	OFF	SOC				SOC<10%(DEFAULT): LED1 FLASH
CHARGE	FLASH	OFF	RUNNING				
LOW POWER	FLASH	OFF	OFF				
FAULT	OFF	ON	ON	OFF	OFF	OFF	BATTERY VOLTAGE HIGH
			OFF	ON	OFF	OFF	BATTERY VOLTAGE LOW
			ON	ON	OFF	OFF	CELL VOLTAGE HIGH
			OFF	OFF	ON	OFF	CELL VOLTAGE LOW
			ON	OFF	ON	OFF	CHARGING CURRENT HIGH
			OFF	ON	ON	OFF	DISCHARGING CURRENT HIGH
			ON	ON	ON	OFF	BMS TEMPERATURE HIGH
			OFF	OFF	OFF	ON	BMS TEMPERATURE LOW
			ON	OFF	OFF	ON	CELL TEMPERATURE HIGH
			OFF	ON	OFF	ON	CELL TEMPERATURE LOW
			ON	ON	OFF	ON	CURRENT SENSOR ABNORMAL

## 9. LCD DISPLAY ICONS

	
Icon	Function Description
Display Information	
	Indicates the voltage, current, temperature, SOC of the module. (Short press the button to display the information of each parallel module.)
	Indicates SOC
	Indicates battery level, each LED represents 5%. (When charging, this icon flashes; when discharging, the icon displays constant)
	Indicates settings.
	Indicates a fault.
	Indicates communication signs.

### 9.1 BMS Information Page

The basic information will be displayed in turn after power on.

<b>BMS power on information</b> BMS information is all on. 	<b>BMS version</b> Eg: "516" is the software version, "500" is the IAP version and temporary version. 
<b>BMS type</b> Eg: Rated voltage is "48V", model is "100AH". 	<b>BMS data</b> This interface indicates that it is in SOC calibration. 
<b>BMS data</b> Eg: "70%" refer to battery SOC, "C" indicates that the battery is charging, and if it is discharging, "d" is displayed. "2" indicates that the data currently displayed is for module 2, "65%" represents the SOC of module 2. Short press the button to display the information of each parallel module. 	<b>BMS data</b> Eg: "70%" refer to battery SOC, "52.0V" refer to battery voltage, "35A" refer to battery current. Short press the button to display the information of each parallel module. 
<b>BMS fault code / flag</b> Eg: "52.0V" / "C09" / "70%" are battery voltage, fault code and SOC respectively, and Fault icon constant. 	

## 9.2 Fault Code Table

Fault Code	Fault information	Trouble Shooting
C01	Battery overvoltage	Restart the unit, if the error happens again, please return to repair center.
C02	Battery undervoltage	Restart the unit, if the error happens again, please return to repair center.
C03	Cell overvoltage	Restart the unit, if the error happens again, please return to repair center.
C04	Cell undervoltage	Restart the unit, if the error happens again, please return to repair center.
C05	Charge overcurrent	Restart the unit, if the error happens again, please return to repair center.
C06	Discharge overcurrent	Restart the unit, if the error happens again, please return to repair center.
C07	MOS overtemperature	1 .The inner temperature is over the limitation. 2. Check whether the ambient temperature is too high.
C07	MOS overtemperature	1 .The inner temperature is over the limitation. 2. Check whether the ambient temperature is too high.
C08	MOS undertemperature	1. The internal temperature is lower than the limit range. 2. Check whether the ambient temperature is too low.
C09	Cell overtemperature	Restart the unit, if the error happens again, please return to repair center.
C10	Cell undertemperature	Restart the unit, if the error happens again, please return to repair center.
C11	Abnormal current sampling	Restart the unit, if the error happens again, please return to repair center.
C12	Abnormal output impedance	Restart the unit, if the error happens again, please return to repair center.
C13	Parallel failed	1. Please check if single unit is installed to parallel system. 2. If this error happens during parallel installation, please check wires connection. If they are connected correctly, please finish parallel installation first, and then Restart the unit. 3. If the problem remains, please contact your installer.
C14	Output loss	1. Please check whether the circuit breaker is closed; 2. Please check whether the fuse is normal; 3. Restart the unit, If the error happens again, please return to repair center.

## 9.3 DIP switch SW1-SW4 Description

DIP switch SW1-SW4 Description ①										
Sw1	SW2	SW3	SW4	Remarks	DIP switch SW5 Description②					
0	0	0	0	means ID=0,communication address is0x00/0x10③	SW5	Remarks				
1	0	0	0	means ID=1,communication address is0x01④	1	means connect 120Ω resistor				
0	1	0	0	means ID=2,communication address is0x02						
1	1	0	0	means ID=3,communication address is0x03	0	means disconnect 120Ω resistor				
0	0	1	0	means ID=4,communication address is0x04						
1	0	1	0	means ID=5,communication address is0x05						
0	1	1	0	means ID=6,communication address is0x06						
1	1	1	0	means ID=7,communication address is0x07						
0	0	0	1	means ID=8,communication address is0x08						
1	0	0	1	means ID=9,communication address is0x09						
0	1	0	1	means ID=10,communication address is0x0A						
1	1	0	1	means ID=11,communication address is0x0B						
0	0	1	1	means ID=12,communication address is0x0C						
1	0	1	1	means ID=13,communication address is0x0D						
0	1	1	1	means ID=14,communication address is0x0E						
1	1	1	1	means ID=15,communication address is0x0F						
Remark①: 1 in SW1-SW5 indicates ON status, and 0 indicates OFF status.										
Remark②: When multiple battery packs communicate, the last battery pack SW5 needs to be in the ON status, otherwise the communication may have interference.										
Remark③: When the battery pack ID is set to 0, it means stand-alone operation, and it is not necessary to detect whether the parallel condition is satisfied ⑤										
Remark④: When the battery pack ID is set to 1-15, it means that the parallel operation is required, and it is necessary to detect whether the parallel condition is satisfied ⑤										
Remark⑤: The parallel condition is that the difference between the battery voltage of the local battery and all the battery pack voltages is <3V, otherwise wait until the condition is satisfied										

## 10. Configure Network

### 10.1 Download APP

Scan the QR Code on the right side and download the APP.

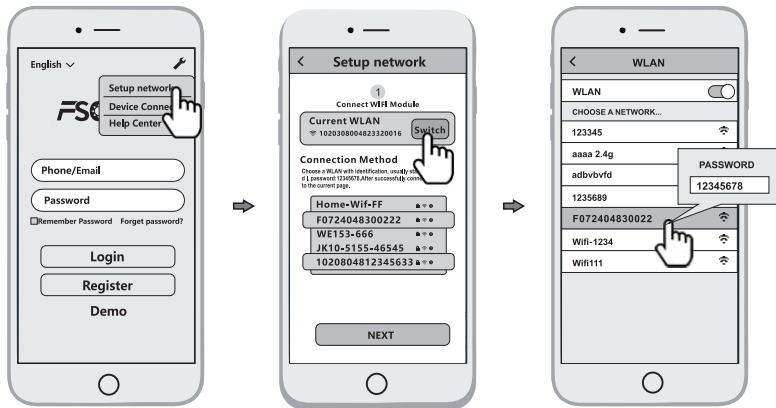


Fsolar APP

### 10.2 Connect to Built-in WIFI wireless network

Configure the mobile phone WLAN to connect to the wireless network of the Built-in WIFI

- 1) Run the APP, enter the login page, click the [Setup network] button to enter the network configuration page.
- 2) On the network configuration page, click the [Switch] button to enter the mobile phone WLAN page.



Configure the mobile phone WLAN to connect to the wireless network of the Built-in WIFI.

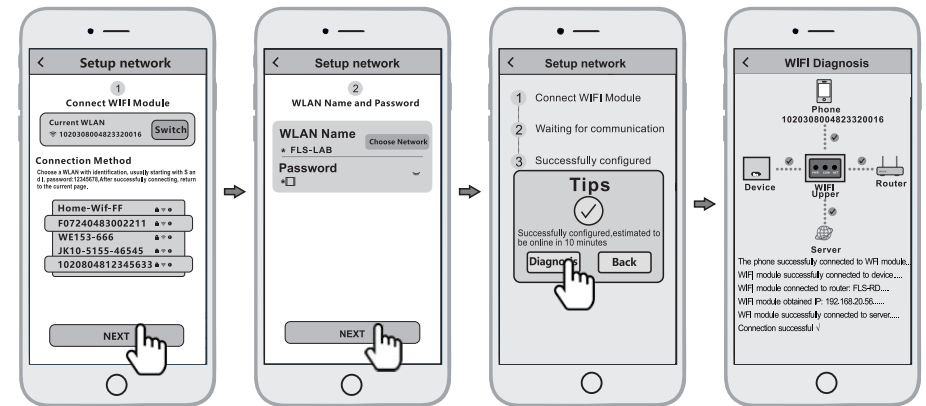
- 1) Run the APP, enter the login page, click the [Setup network] button to enter the network configuration page.
- 2) On the network configuration page, click the [Switch] button to enter the mobile phone WLAN page.
- 3) On the WLAN page of the mobile phone, find the corresponding wireless network name (SSID) of the Smart WiFi module, starting with F (e.g. Fxxxxxxxxxxxxxxxx, the xxxxxxxxxxxxxxxxxxx is the same as the device serial number). enter the module wireless network password (default password: 12345678), and connect to the wireless network of the Built-in WIFI.

### 10.3 Configure the network

- 1) After the mobile WLAN is connected to the wireless network of the Built-in WIFI, return to the network configuration page of the APP and click the [NEXT] button to enter the WiFi network page.
- 2) On the WiFi network page, select the router wireless network to which the Built-in WIFI needs to connect, or directly enter the route name, enter the router wireless network password and click the [NEXT] button.

3) And then wait for the Built-in WIFI to connect to the router's wireless network, which will take some time.

Then you can use the diagnostic function of the APP or according to the fault appendix to troubleshoot the problem.



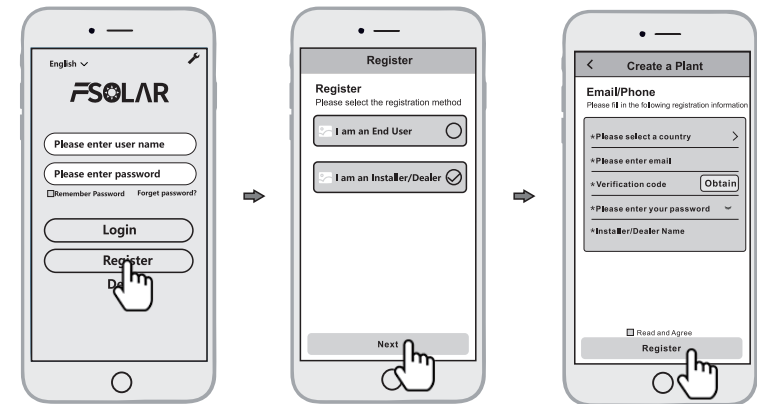
## 11. Create the plant

After the Built-in WIFI is connected to the server, it will transmit the data of the device to the server. And after the plant is created, users can view and manage the device via the APP or web browser.

### 11.1 Manage device via APP

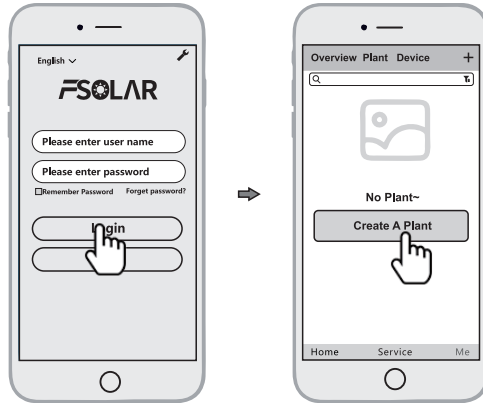
#### 11.1.1 Register an account

Run the app, enter the login page, click the [Registration] button, select the role you want to register, enter and fill in the relevant information (optional email/phone number) to register.



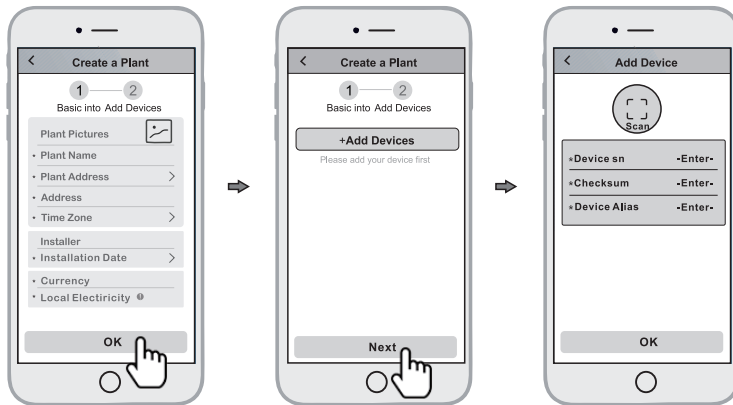
### 11.1.2 New power station construction

1) Log in with the newly registered account, enter the homepage, and click on [ Create A Plant ]



2) Fill in the corresponding information and click [OK]

3) Click [Add device], click the above icon [scan], align the bar code/two-dimensional code on the side of the inverter or battery pack to scan, or fill in the SN and activation code on the label.



4) Manage the device via a web browser, please refer to: <https://shine.felicitysolar.com>

## 12. EMERGENCY SITUATIONS

Felicitysolar cannot guarantee battery absolute safety.

### 12.1 Fire

In case of fires, make sure that the following equipment is available near the system.

- SCBA (self-contained breathing apparatus) and protective gear in compliance with the Directive on Personal Protective Equipment 89/686/EEC.
- NOVEC 1230, FM-200, or dioxide extinguisher

Batteries may explode when heated above 150°C. KEEP FAR AWAY from the battery if it catches fire.

### 12.2 Leaking Batteries

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. If one is exposed the leaked substance, immediately perform the actions described below.

- Inhalation: Evacuate the contaminated area, and seek medical attention.
- Contact with eyes: Rinse eyes with running water for 5 minutes, and seek medical attention.
- Contact with skin: Wash the affected area thoroughly with soap and water, and seek medical attention.
- Ingestion: Induce vomiting, and seek medical attention.

### 12.3 Wet Batteries

If the battery pack is wet or submerged in water, do not let people access it, and contact your supplier for help.

### 12.4 Damaged Batteries

Damaged batteries are not fit for use and are dangerous and must be handled with the utmost care. It may leak electrolyte or produce flammable gas. If the battery pack seems to be damaged, pack it in its original container, and then return it to your supplier.

### 12.5 Warranty

Products that are operated strictly in accordance with the user manual are covered by the warranty. Any violation of this manual may void the warranty.

#### Limitation of Liability

Any product damage or property loss caused by the following conditions, Felicitysolar does not assume any direct or indirect liability.

- Product modified, design changed or parts replaced.
- Changed, or attempted repairs and erasing of series number or seals;
- System design and installation are not in compliance with standards and regulations;
- The product has been improperly stored in end user's premises;
- Transport damage (including painting scratch caused by movement inside packaging during shipping). A claim should be made directly to shipping or insurance company.