



# FB-5100S

## Residential ESS Manual

### About FB-5100S ESS

FB-5100S can be installed in Parallel, more attention should be paid for the DIP and address selection following with part 5.3.2.

### About this Manual

The Manual is intended for the FB-5100S Residential ESS, the hybrid inverter and any other equipment is not included.

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## 1 Safety Instructions

### 1.1 Important Safety Instructions

This manual contains important instructions for:








#### **FB-5100S Residential ESS product**

This manual must be followed when installing and using this product.

The product is designed and tested in accordance with international safety requirements IEC 60364, but as with all electrical and electronic equipment, certain precautions must be observed when installing and/or operating the product. To reduce the risk of personal injury and ensure the safe installation and operation of the product, you must carefully read and follow all instructions, cautions and warnings in this manual.

### 1.2 Warnings in this Document

A warning describes a hazard to equipment or personnel. It calls attention to a procedure or practice, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the FB equipment and/or other equipment connected to the FB equipment or personal injury.

Symbol	Description
	Caution, risk of electric shock
	Heavy enough may cause severe injury
	Keep the battery away from open flame or ignition sources
	Keep the battery away from children
	Do not dispose of the product with household waste
	Recycling
	Read this manual before installation and operation

For safety reasons, installers are responsible for familiarizing themselves with the contents of this manual and all warnings before performing installation.

If the batteries are not used for more than 8 months from the production date, it shall be charged once. The failure caused by the overdue failure to perform the standard operation is not within the scope of warranty.

### 1.3 Battery handing guide

Use the battery pack only as directed.

### 1.4 Response to emergency situations

The FB Residential ESS is designed with multiple safety strategies to prevent hazards resulting from failures. However, FB cannot guarantee their absolute safety for uncertain situations.

#### 1.4.1 Leaking batteries

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. Electrolyte is corrosive and contact may cause skin irritation and chemical burns. If one is exposed to the leaked substance, do these actions:

**Inhalation:** Evacuate the contaminated area, and seek medical attention immediately.

**Eyes contact:** Rinse eyes with flowing water for 15 minutes, and seek medical attention immediately.

**Skin contact:** Wash the affected area thoroughly with soap and water, and seek medical attention immediately.

**Ingestion:** Induce vomiting as soon as possible, and seek medical attention immediately.

#### 1.4.2 Fire

In case of a fire, make sure that an ABC or carbon dioxide extinguisher is nearby and does not use water to extinguish the fire.

### WARNING

The battery pack may catch fire when heated above 130°C.

If a fire breaks out where the battery is installed, do these actions:

- 1) Extinguish the fire before the battery catches fire.
- 2) If the battery has caught fire, do not try to extinguish the fire.

Evacuate people immediately

If the battery catches fire, it will produce poisonous gases. Do not approach.

#### 1.4.3 Wet battery

If the battery is wet or submerged in water, do not try to access it. Contact FB customer careline or your distributor for technical assistance.

#### 1.4.4 Damaged battery

If the battery damaged, please contract FB customer careline or your distributor for help as soon as possible, because damaged battery is dangerous and must be handled with extreme caution. Damaged battery is not suit for use and may pose a danger to people or property. If the battery seems to be damaged, return it to FB or your distributor.

### CAUTION

Damaged battery might release electrolyte or flammable gas, so contact FB for advice and information immediately.

#### 1.5 Installers

FB Energy Storage battery is suggested to be installed by skilled worker or electrician. A skilled worker is defined as a person who has been trained and qualified electrician or has all the following skills and experience:

- ✓ Knowledge of the functional principles and operation of on-grid energy Storage systems.
- ✓ Knowledge of the dangers and risks associated with installing and using electrical devices and acceptable mitigation methods.
- ✓ Knowledge of the installation of electrical devices.
- ✓ Knowledge of and adherence to this manual and all safety precautions and best practices.

#### 1.6 Scrap battery

For scrap battery, please treat with local laws or regulations to recycle or scrap.

## 1.7 Customer careline

Use the contacts below for technical assistance. These phone numbers are available only during business hours on weekdays.

<b>Customer careline</b>	<b>+27 11 741 3600</b>
--------------------------	------------------------

## 2 Product Introduction

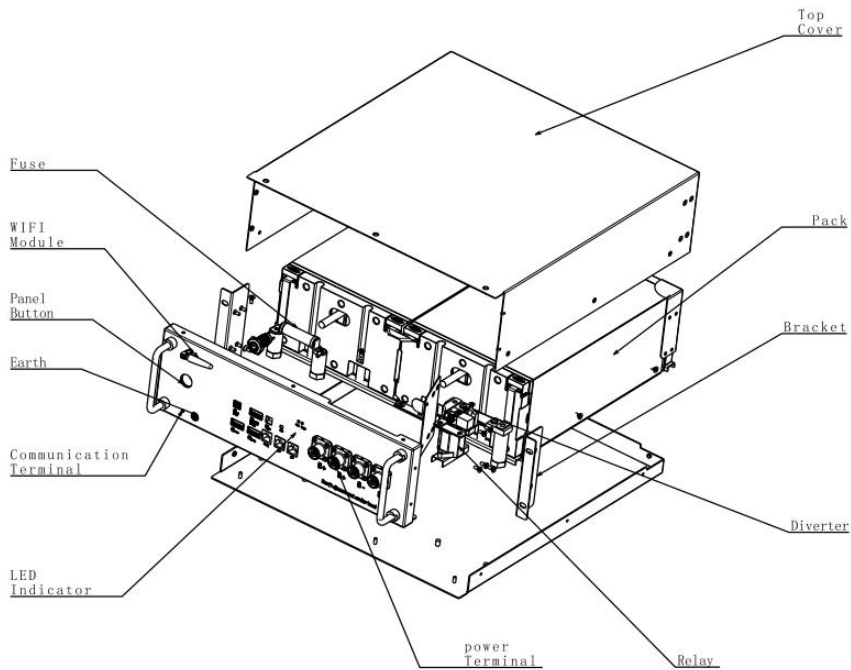
### 2.1 Technical data

<b>Model</b>	<b>FB-5100 S</b>
Total Energy*	5.1kWh
Effective Energy(d.c)*	4.8kWh
Nominal Charge/Discharge Power	5Kw
Voltage	48V-56Vdc
Nominal Voltage	51.2Vdc
Nominal Current	100A
Max. Charge Voltage	56V
Recommended DOD	90%
Operating Condition	Indoor
Operating Temperature (Charge)	0~50°C
Operating Temperature (Discharge)	-10~55°C
Dimensions	442*500*133mm
Weight	44±0.5 Kg
Relative Humidity(R H)	20~60%(No condensed water)
Cooling Type	Ambient cooling
Case Material	Metal
Color	White
Installation	Cabinet or Wall Mounting
IP Rating	IP20
Protective Class	I
Max. Number of Parallel	8
Warranty	10Years
Communication	CAN/RS485
Protection Mode	Triple Hardware Protection
Battery Protection	Over-Current/Over-Voltage/Short Circuit/ Under-Voltage/Over Temperature
Safety Certificate	CE & TUV(IEC 62619, IEC 62040)

Hanzrd Class of Dangerous Goods	9
Transportation	UN38.3

- ✧ Testing Conditions Based on Temperature 25°C at The Beginning of Life.
- ✧ Total Energy/Usable Energy Measured Under Specific Conditions From FB 0.2C CC/CV

### 2.2 Exploded views of battery



### 2.3 Indicator and ports

There are two LED indicators on the front of the battery to show its operating status.

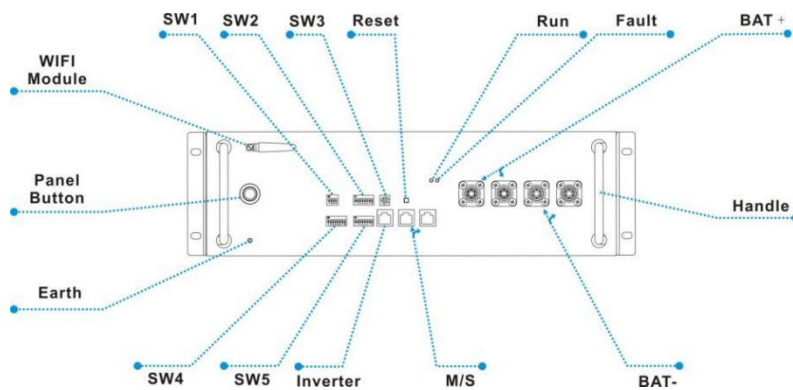
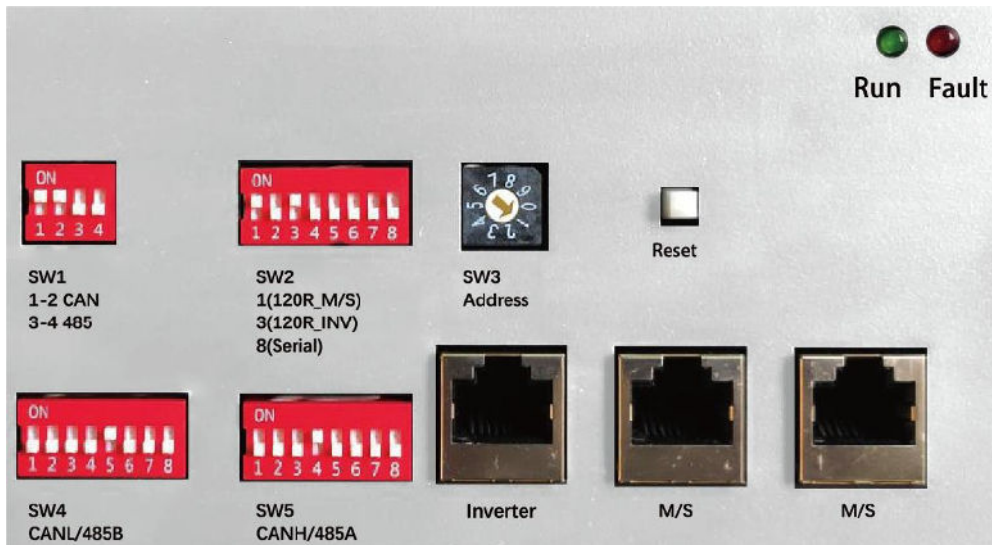




Table 2-1 Designations on the battery

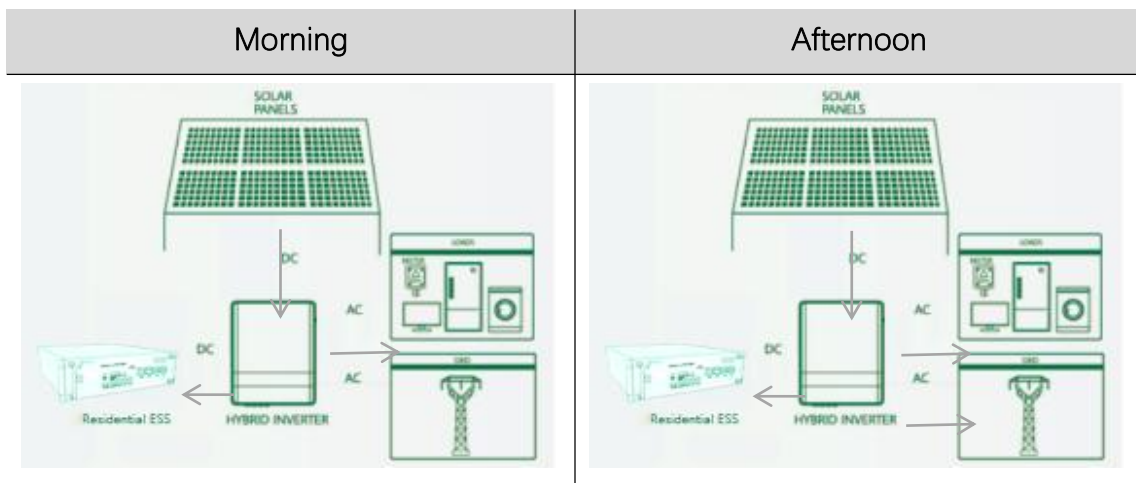
Item	Designation	Definition
1	Running	Battery normal function without fault
2	Fault	Battery is in a warning state, refer troubleshooting in Chapter 8

## 2.4 Communication interface plat (DVC-A<sub>2</sub> voltage)



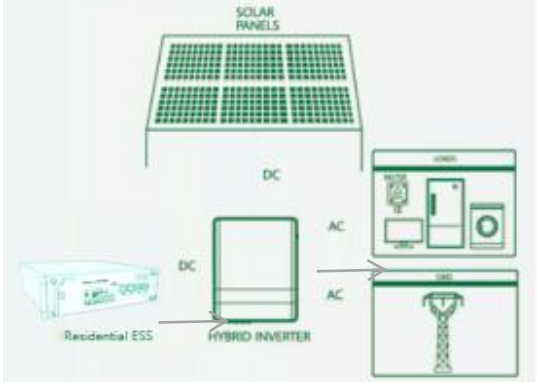
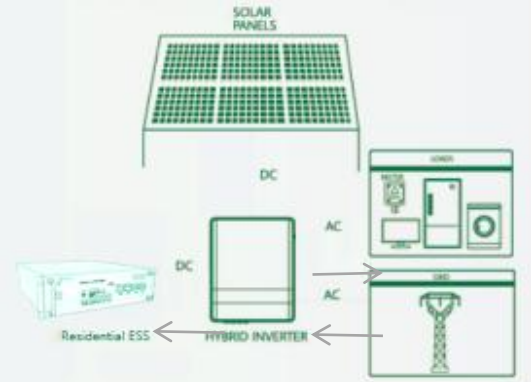
SW1	DIP switch select for CAN or RS485
SW2	Resistance for communication and DIP switch for parallel connection
SW3	Switch for battery's Address select
SW4 & SW5	Communication interface for battery or master battery with Inverter
Reset	Reset the WIFI or GPPS/GPS module configuration

## 2.5 How it works



Optimized self consumption will be achieved. ESS are used to store the excess energy produced by PV system.

Extra energy will be fed into the grid ESS are fully charged and system has already its self consumption requirement.

Evening	Night
	
<p>ESS will power the AC load when the sun sets.</p>	<p>If the ESS capacity is insufficient to meet self consumption requirement, electricity will be obtained from the grid.</p>

## 2.6 Feature

The FB Residential ESS has following features:

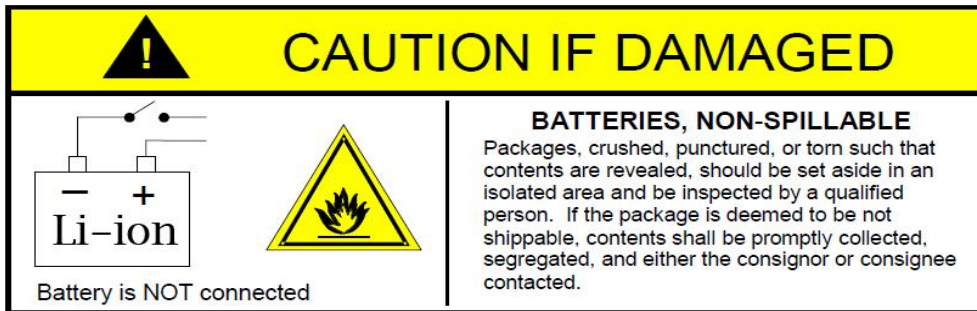
- ✓ **Energy storage unit:** This battery is suitable for PV solar system compatibility.
- ✓ **Battery management system (BMS):** The battery built-in BMS prevents the battery from running outside of the design limitations. Refer **Troubleshooting in Chapter 8**.
- ✓ **Monitor:** The battery BMS is built-in with WIFI module. The battery running information can be seen through the mobile phone APP and PC..
- ✓ **Expandability:** The battery capacity can be increased by adding another battery. Refer **part 5.4 cable connections**.

## 3 Guidance for disconnection of batteries during shipment

- 1) Cartons that have been crushed, punctured, or torn in such a way that contents are revealed shall be set aside in an isolated area and inspected by a skilled person. If the package is deemed not shippable, the contents shall be promptly collected, segregated and either the consignor or consignee contacted.
- 2) The DC circuit of FB Residential ESS has been disconnected before packaging.
- 3) A precautionary label must be placed on the shipping carton to alert individuals

that the battery within the package has been disconnected; otherwise the battery must not be transported.

- 4) We have conducted comprehensive tests to ensure the equipment being distributed around the world is safe for transport. These products shall be handled with care and immediately inspected if visibly damaged. If the carton is visibly damaged, please contact FB customer careline to confirm whether the battery could be used safely or not.



#### 4 Installation Prerequisites

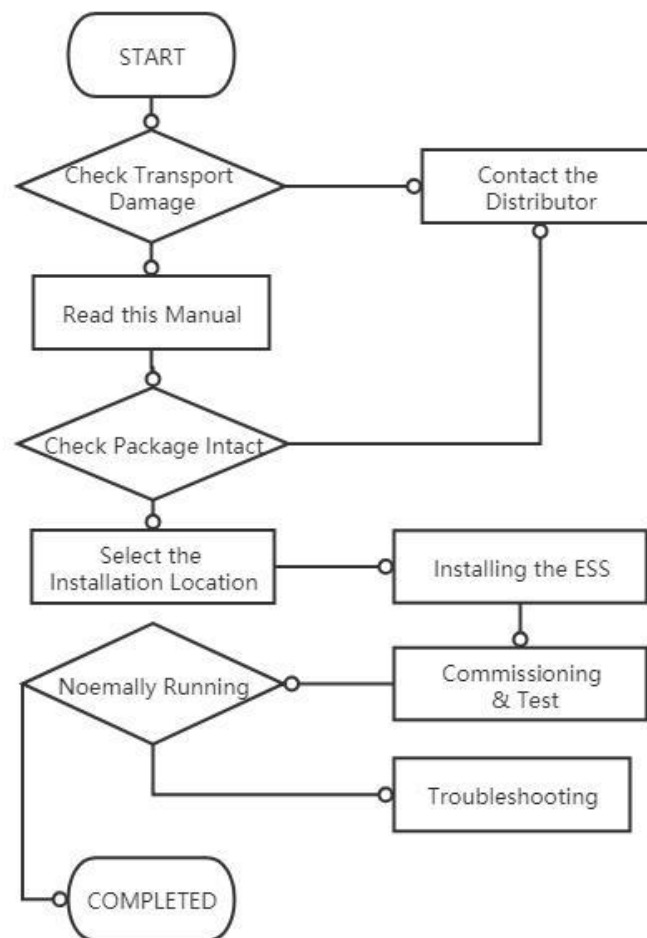
##### 4.1 Installation location

Make sure that the installation location meets the following conditions:

- ✓ The building is designed to withstand earthquakes.
- ✓ Far away from the sea to avoid salt water and humidity.
- ✓ The floor is flat and level.
- ✓ No flammable or explosive materials nearby.
- ✓ Optimal ambient temperature is between 15°C and 30°C.
- ✓ Temperature and humidity stays at a constant level.
- ✓ Minimal dust and dirt in the area.
- ✓ No corrosive gases present, including ammonia and acid vapor.
- ✓ The FB Residential ESS is rated at IP20, so the battery could be installed indoor.
- ✓ If the ambient temperature is outside the operating range, battery will protect itself by shutting down. The battery optimal operate temperature is 15°C to 30°C. Frequent exposure to severe operating condition would exacerbate the performance and lifetime of the battery.

## 4.2 Installation process

The battery should be installed according to the following flow chart.



## 4.3 Installation materials

Following installation materials should be prepared by installers.

- ✓ Power cable
- ✓ Data cable
- ✓ Ground wire
- ✓ Bipolar external isolator, when two or more battery systems in connection, each of them shall have a bipolar isolator.



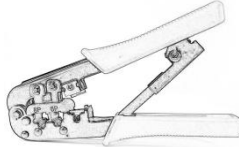
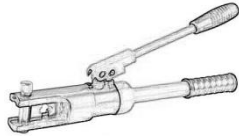




### NOTICE

Make sure that the cross-sectional area of charging cables is 25 to 35 mm<sup>2</sup>

A breaker between FB battery and inverter is recommended, and the breaker's min. current should be over 150A or according to local regulations.

#### 4.4 Tools


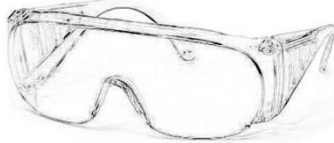

To install the battery pack, those following tools are probably required:

			
Phillips screwdriver	Torque wrench	Cable crimper	Wire clamp
			
Voltmeter	Tape measure	Drill	Flat-head screwdriver

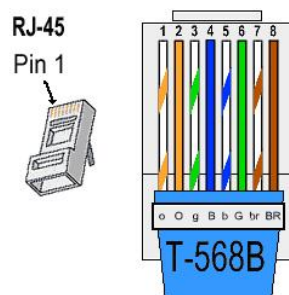
In order to protect the operator and installer's safety, please select and use suitable tools and measuring instruments that are certified for precision and accuracy.

#### 4.5 Safety instruments

When dealing with the battery, following safety gear should be used. Installers must meet the relevant requirements of IEC 60364 or the local regulations and other relevant international standards.

		
Insulated glove	Safety goggles	Safety shoes

#### 4.6 Network cable



If needed, the network cable should be made per the above diagram. The network cable between battery and Inverter should be made following the definition of Inverter. If available, use a LAN cable tester to check whether the cable is faulty.

## 4.7 Storage

If the battery is not installed immediately, or removed from operation and needs to be stored for a long period, please choose an appropriate location to store it. Instructions for storage are:

- ✓ Do not stack more than 8 battery boxes.
- ✓ The temperature of battery stored recommended in the range of  $-20^{\circ}\text{C}$  to  $25^{\circ}\text{C}$ .
- ✓ Do not expose to the battery water.

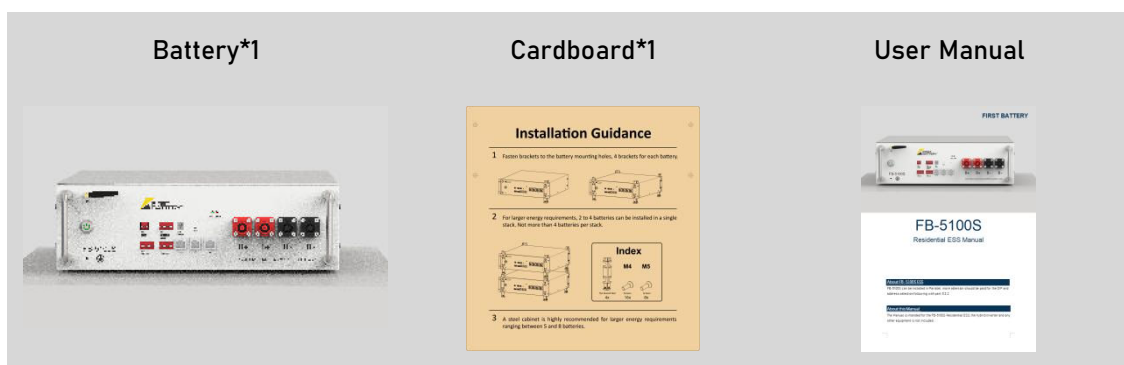
The ESS box should be upright and not stacked upside down when storing the ESS box.

If the ESS needs to be stored for longer than 3 months, the DC circuit of the battery should be disconnected. Otherwise the battery will self-discharge at a minimum rate and the capacity will degrade depending on the storage time. The battery's self-discharge is less than 5w. If the battery is stored for longer than 6 months, it is suggested to connect the battery to the inverter and commission the system.

## 5 Battery Installation

### 5.1 Package items

These items are included in the package.



### 5.2 Checks before installation

There are a few things to check before installing the battery to ensure that it has no defects.

Check item 1: Check the battery voltage.

### **WARNING**

If this checking process is executed for any reason after the battery is fully installed, make sure that the inverter is turned off or break the

connection between battery and inverter while checking the battery.

Press and hold the panel button for about 4s and then release it after the two LED lights on, measure the voltage at the terminal interface with a voltmeter. If the voltage is lower than 48 V, do not use the battery and contact FB customer careline or your distributor.

### 5.3 Installation the battery

#### NOTICE



The earthing symbol is located on the front of battery, It is necessary to properly ground the battery and system.

Apply silica gel or paint around the ground terminal after the ground cable is connected.

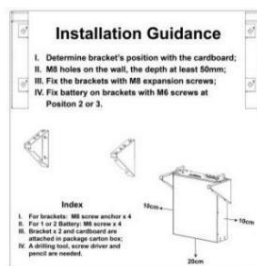
#### 5.3.1 Connect with 51.2Vdc Inverter

To prevent the battery from moving, make sure the battery fixed to a wall.

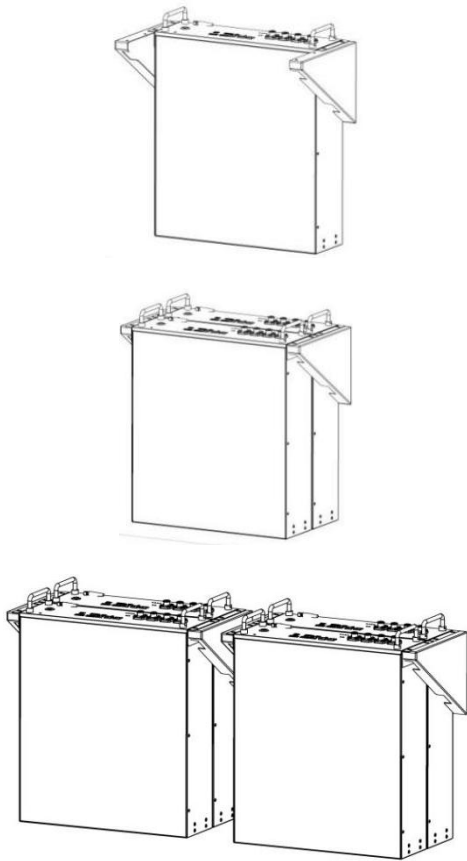
#### NOTICE

If the battery is installed above the floor or on a platform, make sure that the wall or platform is capable of supporting the battery's weight.

##### 5.3.1.1 Wall mounting



- Determine bracket mounting place to be fixed using this Positioning cardboard.
- Drill holes in the wall for the M8 expansion screw anchors, which depth should be at least 50mm. Tighten the screws to a torque around 2.5 N·m.



3. Fasten the battery to bracket fasten hole with M6 screws with 2.0N·m roughly.

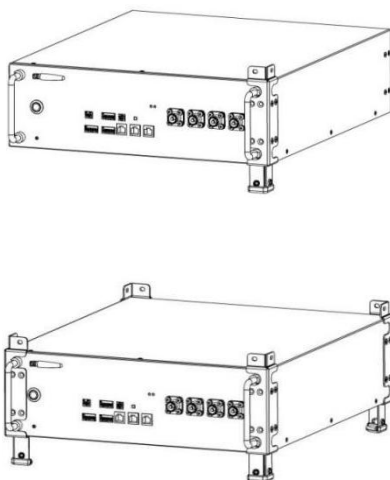
4. Two to four batteries can be installed using these brackets.

**Note:** if more than 4 batteries need to be installed, a steel cabinet is recommended to be used.

The installed location shall be restricted access or the batteries to be installed in a cabinet which provides a safe guard from pets and children.

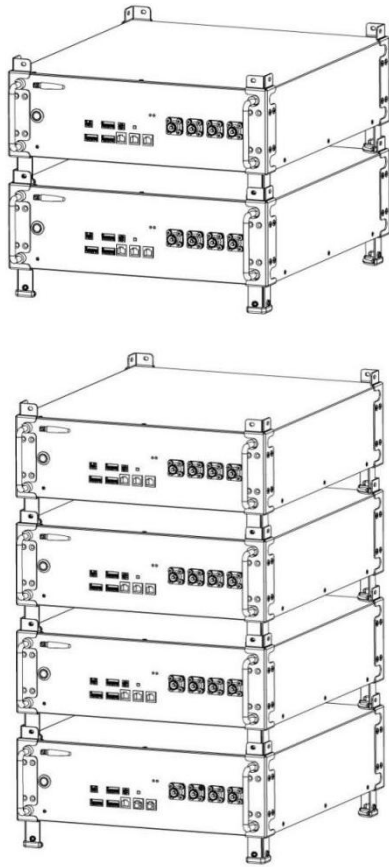
### 5.3.1.2 Ground installation

The FB-5100S battery can also be installed on the floor, Installation steps as follows:



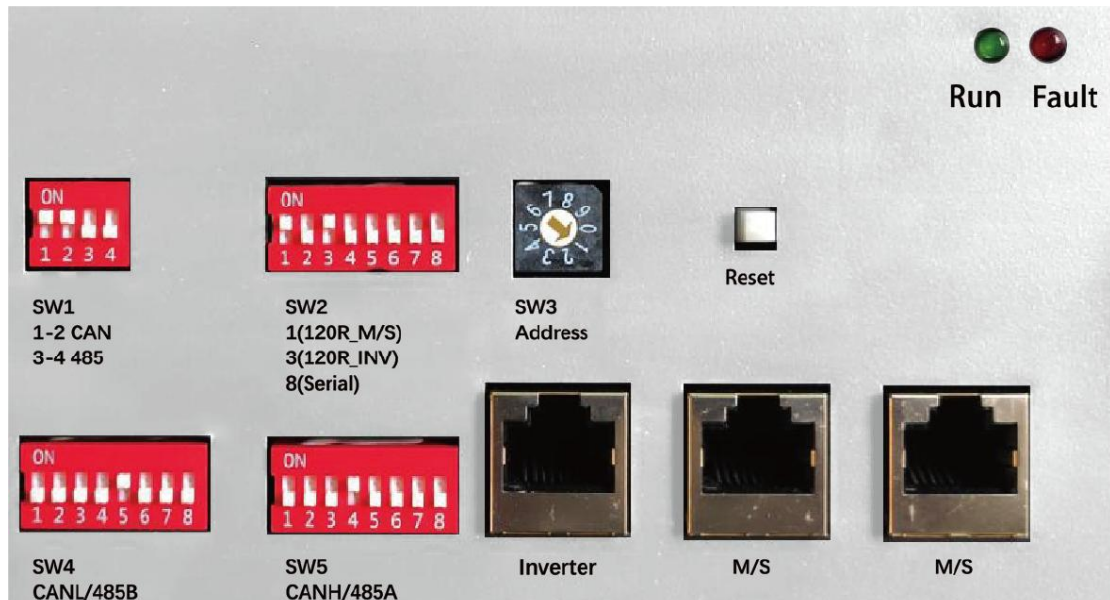
1. Fasten brackets to the battery mounting holes , 4 brackets for each battery.





































2. For larger energy requirements, 2 to 4 batteries can be installed in a single stack. Not more than 4 batteries per stack.
3. A steel cabinet is highly recommended for larger energy requirements ranging between 5 and 8 batteries.









































### 5.3.2 Address selection of Master and Slave Battery (Batteries) connection



## WARNING

When the batteries are used in parallel, please ensure that the SW2 DIP switch is selected correctly. If batteries are connected in parallel but SW2 DIP8 is in ON position, this can lead to a serious battery failure or even a hazardous situation.

Connected battery number	Group	Set of SW2	Address Set (SW3)
		Parallel connect	
1	—	 13	 1
2	Master	 13	 2
	Slave	 1	 1
3	Master	 13	 3
	Slave 1	 0	 1
	Slave 2	 1	 2
4	Master	 13	 4
	Slave 1	 0	 1
	Slave 2	 0	 2
	Slave 3	 1	 3
5	Master	 13	 5
	Slave 1	 0	 1
	Slave 2	 0	 2
	Slave 3	 0	 3
	Slave 4	 1	 4
6	Master	 13	 6

	Slave 1		
	Slave 2		
	Slave 3		
	Slave 4		
	Slave 5		
7	Master		
	Slave 1		
	Slave 2		
	Slave 3		
	Slave 4		
	Slave 5		
	Slave 6		
8	Master		
	Slave 1		
	Slave 2		
	Slave 3		
	Slave 4		
	Slave 5		
	Slave 6		
	Slave 7		

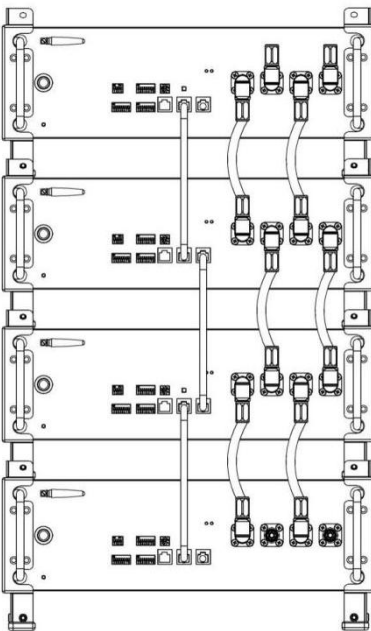
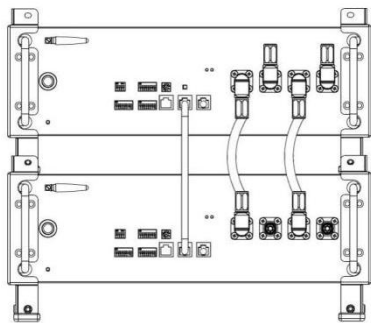
## 5.4 Cable connections

### WARNING

Before connecting battery with inverter, please ensure that the inverter is turned off.

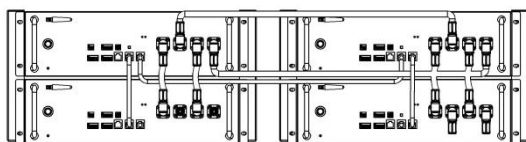
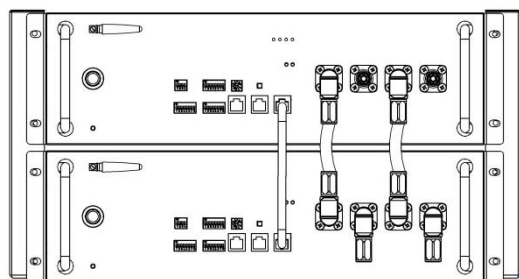
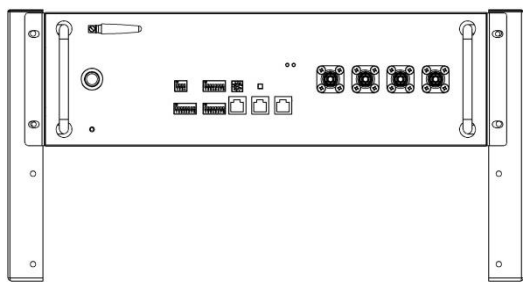
### 5.4.1 Cable connection for Parallel connection

#### 5.4.1.1 Ground installation



For parallel installation, please pay attention to cable connection. There is no need to change DIP8 of SW2, let it remain on Initial Factory state.

### 5.4.1.2 Wall mounting installation



For wall mounting, the maximum number of battery parallel connections to be not more than 4. A steel cabinet is recommended for larger installations.

#### NOTICE

Before two or more batteries are installed in parallel, please check the voltage of each battery and make sure the voltage difference is less than 2.0V.

## 6 Configuration

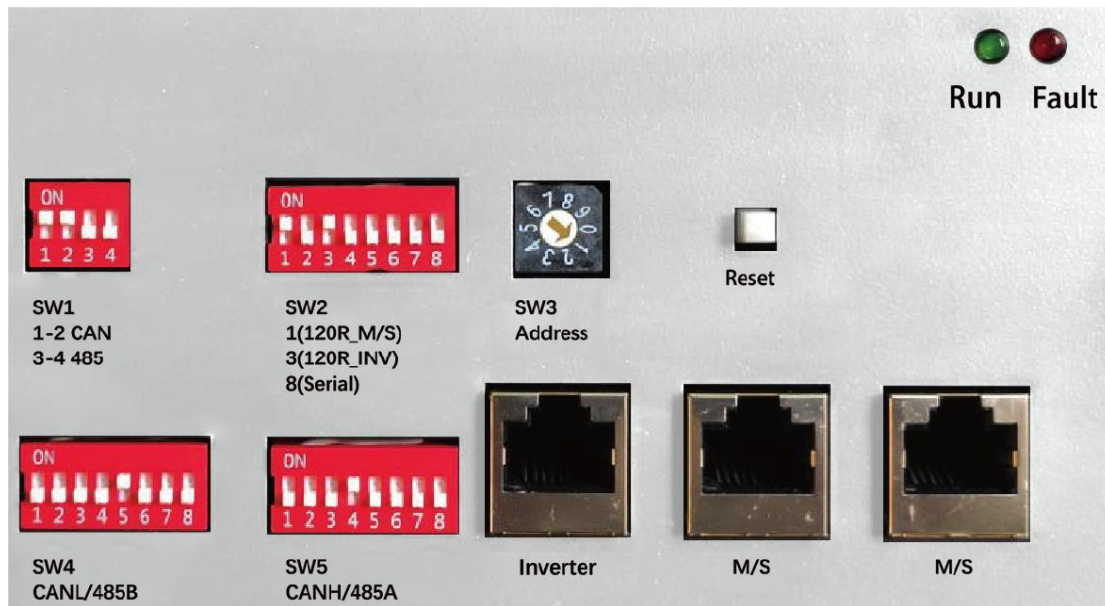
DIP switch should be set correctly for proper communication between inverter and battery.

For parallel connecting of multiple batteries, please set the DIP switches in follows:

### 6.1 Configure device WIFI

The FB Residential ESS has a built-in WIFI module for use with Smart BESS APP.

The WIFI setting of battery should be as follows:



## 6.2 Register your account

### 6.2.1 Software Overview

#### 6.2.1.1 Summarize

Smart BESS is a data information system made for users to apply battery management. It can query the data update battery configuration key network, fault warning and other functions. It is uploaded to the battery network through the battery management system. Comprehensive management of mobile phone query system to create a more comfortable battery management experience for users

#### 6.2.1.2 Function

User registration: the user registers the APP account to realize the online data query and management of the battery under the personal name.

Battery distribution network: Users can upload real-time battery data and operating status to the Internet through one-key distribution of the battery.

Battery addition: add the battery to the user account for the battery that has been

distributed to the network (you need to log in in advance to use the user account) to realize the battery View data in real time.

Data query: Support users to view the current, voltage, temperature and other operating data of the bound battery, support to view any 24-hour battery operation data in the data record, support to view the battery operation status, and the off-grid status.

Fault warranty: support battery fault self-check, record battery fault status and fault information in real time, and keep data on battery faults

#### 6.2.1.3 Operating environment

APP supports running on Android 7.0 and IOS 8.0 and above mobile phones

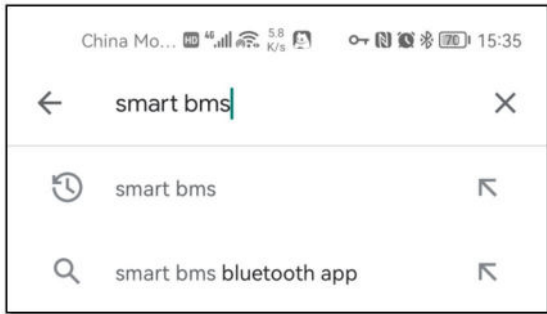
#### 6.2.1.4 Software Installation

(1) Installation on Android

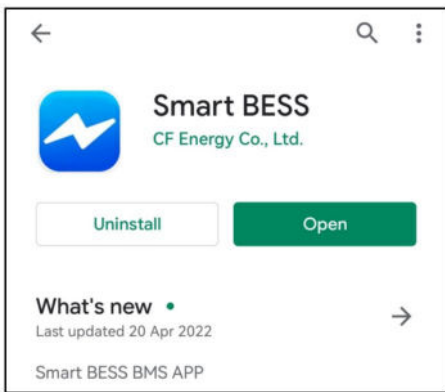
- ① Google Play Store installation
- Open Google Play Store



- Search Smart BESS on Google Play Store



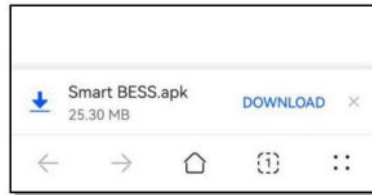
- Select to enter the Smart BESS application details page, click to download and install



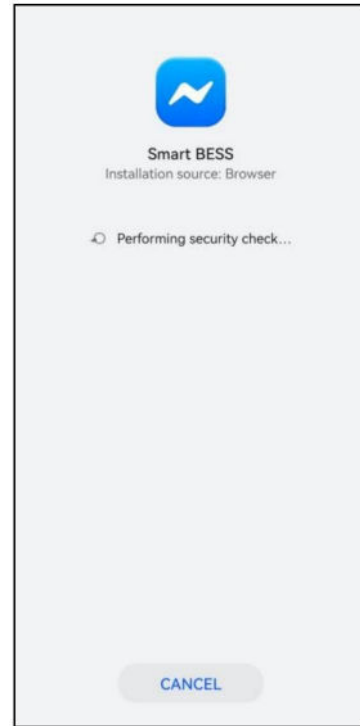
- ② APK installation page
- Scan the QR code of the APK installation package to download



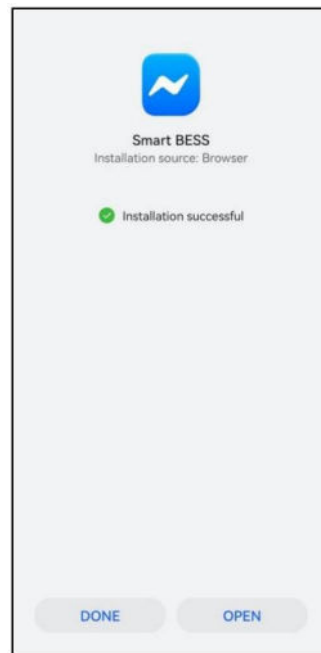
- The application download prompt pops up, choose to agree to download the Smart BESS installation package



- Manually install the downloaded Smart BESS installation package

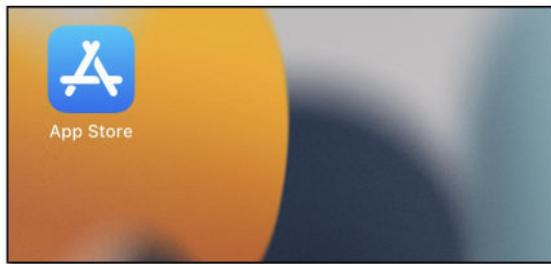


- Wait for the installation of the Smart BESS installation package to complete, you can open it for use

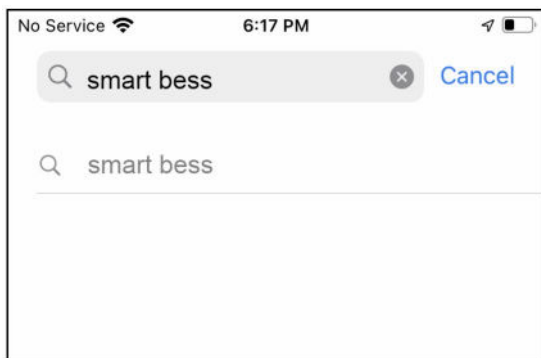


## (2)IOS installation

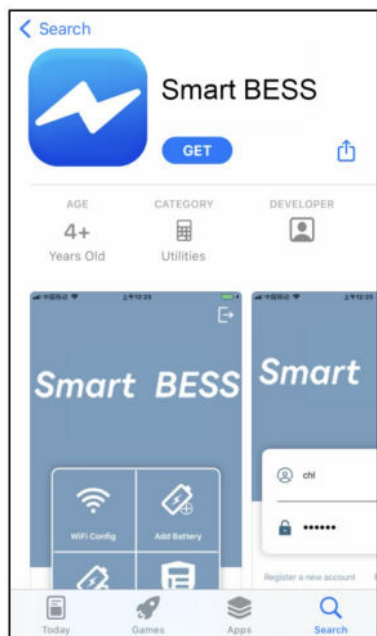
- Open IOS's own application store



- Search for Smart BESS in the APP Store



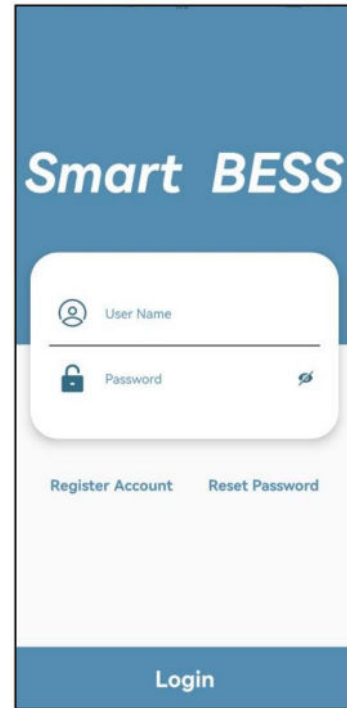
- Enter the Smart BESS application details page, click GET to install



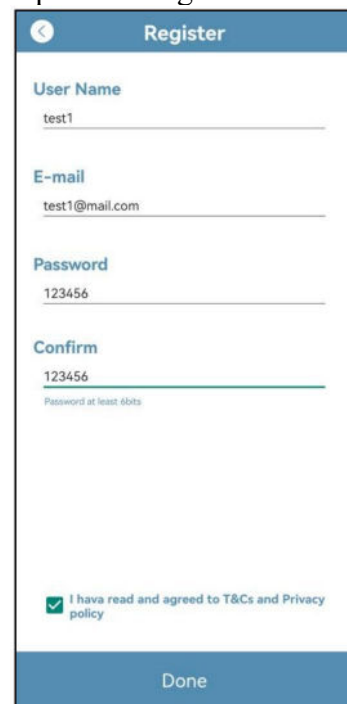
## 6.2.2 Instructions

### 6.2.2.1 User registration

- Open the Smart BESS APP and Click Register to continue



- Enter the Register page, enter the user name, email, and six-digit string password, click T&Cs and Privacy policy, you can view the user agreement, agree to the agreement to confirm the check, and then click the Done button to complete the registration

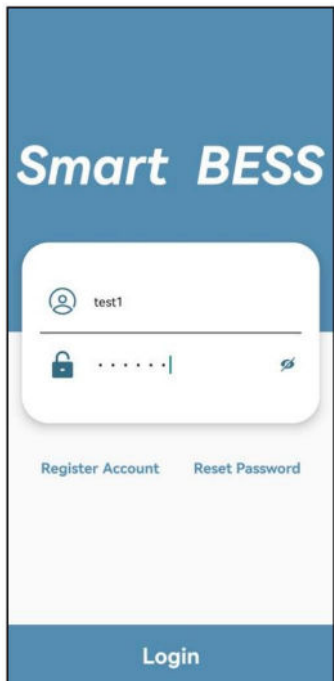






### 6.2.2.2 User Login

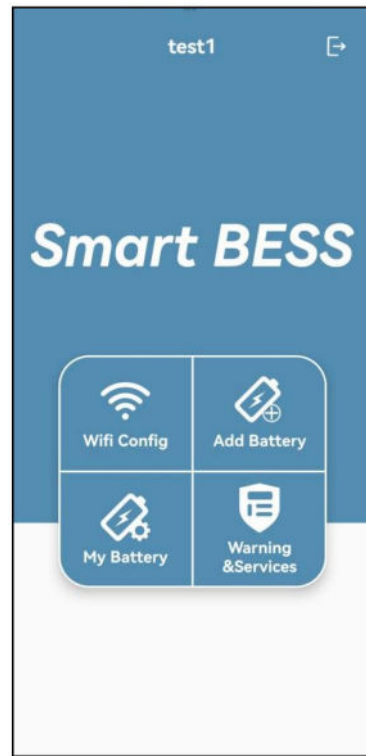
- After successful registration, it will automatically return to the login page, enter the registered user name and password, and click Login to log in



### 6.2.2.3 Homepage introduction

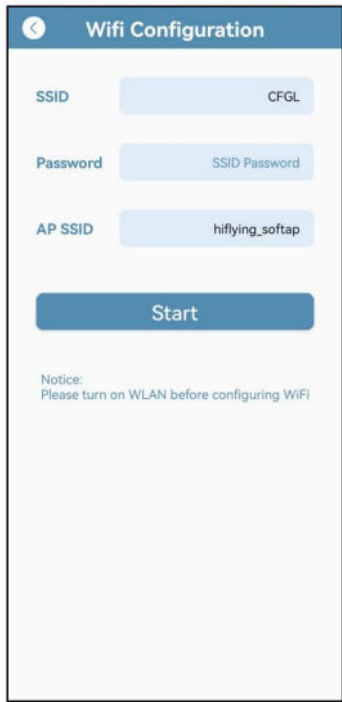
- After the login is completed, you will enter the main function page of the APP, which are: **WiFi Config**,

### Add Battery、 My Battery、 Warning & Services



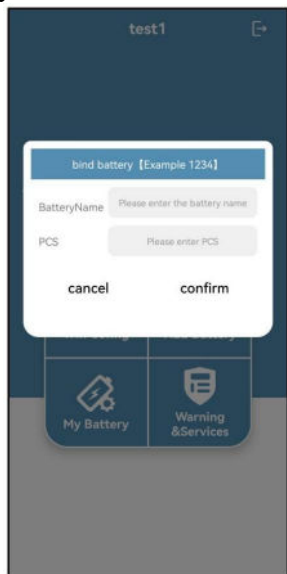
### 6.2.2.4 WIFI Distribution Network

- Select WiFi Config to configure the battery network. Before operation, please pay attention to connecting to the WIFI with network communication, and turn on the battery at the same time; SSID is the name of the current mobile phone connected to the WiFi, this item is obtained automatically; Password is the current WiFi password, This item needs to be entered manually; AP SSID is the hot spot name generated by the battery device, and this item is obtained automatically; after clicking Start, the APP will automatically connect to the battery for battery distribution network operation, and return to the main page after completion to add the battery



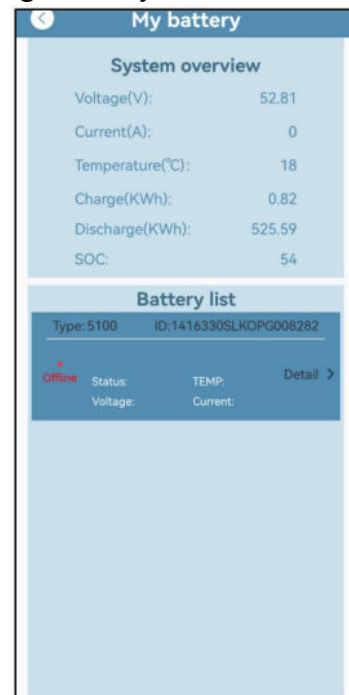
### 6.2.2.5 Add Battery

- After the battery is connected to the network, select Add Battery to add the battery, click it to enter the automatic code scanning page, scan the bar code of the battery shell at this time, and a battery information dialog box will pop up after success. You can customize the battery name and connect the PCS name. Click confirm to save the battery information, and you need to add as many batteries as there are here

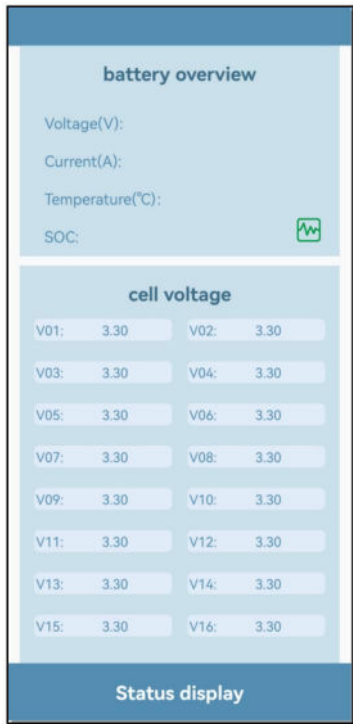


### 6.2.2.6 Battery Management

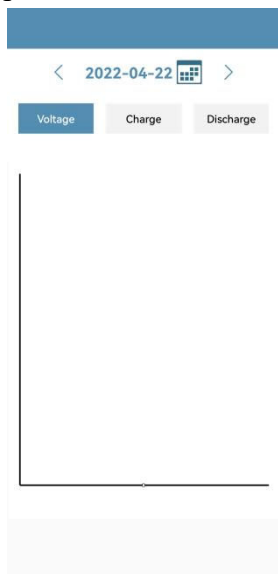
- After completing the distribution network and adding batteries, click My Battery to view the information of the added batteries, and the System overview displays the current battery system comprehensive data Voltage(V), Current(A), Temperature(°C), Charge(KWh), Discharge(KWh), SOC, all currently added batteries are displayed in the Battery List, Status, TEMP, Voltage, and Current information are displayed in the single battery list, and Online/Offline shows that the current battery is offline. Click Detail to view the details of the single battery data



- The battery overview details page displays the current battery cell data Voltage(V), Current(A), Temperature(°C), SOC, and the single cell voltage of the battery is displayed under Cell Voltage. Click Status display to view the single cell data curve



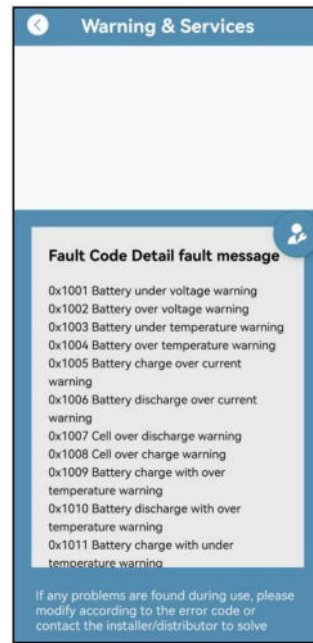
- The Status display page supports querying the 24-hour battery voltage, charge and discharge history at any time point



### 6.2.2.7 Fault Warning

- After clicking on the Warning & Services page, the battery number, failure type, failure time, solution cycle and other information will be automatically displayed when the battery is faulty; if there is a problem that cannot be solved, you

can also contact the local supplier to solve it

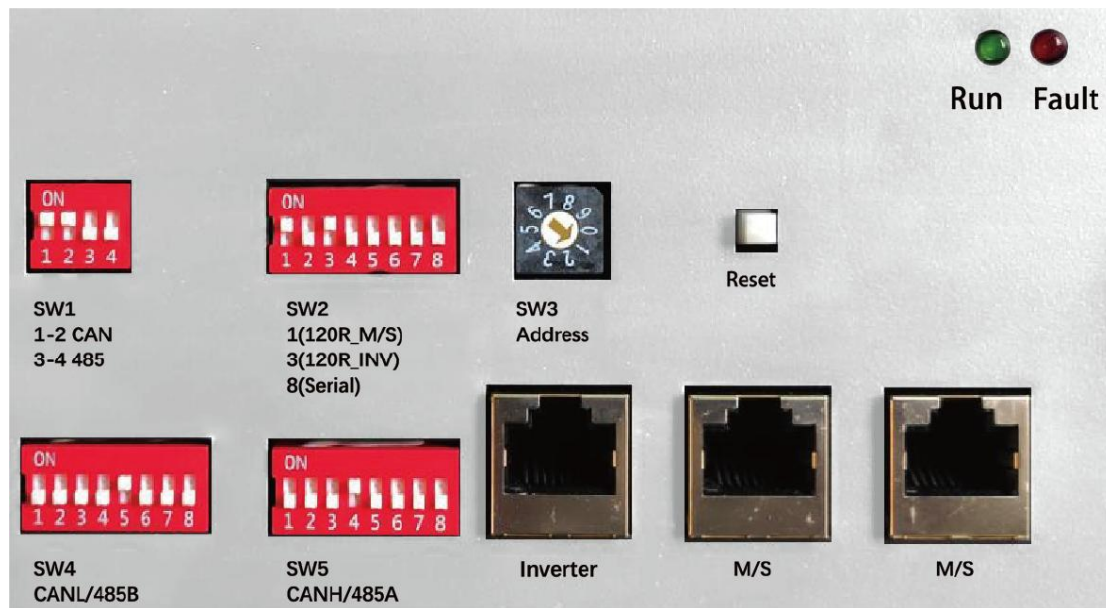


### 6.2.2.8 Other Functions

- User password modification: Click Reset Password on the login page to enter the password reset interface, enter the current user name in the User Name column, and enter the battery ID bound by the current user for Battery id or scan the code to enter the battery ID. After clicking Done, the password will be the default reset to 123456



## 6.3 Settings for CAN /485 bus pins



Confirm CAN/485 DIP switch settings according to the inverter user manual, SW4 is used for CANL/485B, SW5 is used for CANH/485A.

SW1 is used for CAN or 485 communication selection, installer should confirm the DIP switch settings according to the inverter user manual.

### NOTICE

The battery default protocol is CAN bus, if the inverter communication mode is RS485 or other, please contact FB customer careline before installing the battery.

## 7 Commissioning

### 7.1 Commissioning battery

If there is only one battery installed, use the following steps to put it in operation:

- 1) Press and hold the panel button on the left side of the unit for about 4s, once the indicator lights on, release the panel button.
- 2) Make sure that the Run light is on. If it stays off, do not use the battery and contact FB or your distributor.
- 3) Turn the inverter on and wait for the start-up sequence to complete fully.

For two or more batteries connected in parallel mode, ensure all charging cables and data cables have been correctly connected before following these steps:

- 1) Check that the battery voltage level is above 48V

If the battery voltage is under 48V contact your distributor or FB customer service for technical assistance.

2) Press and **HOLD** the panel button for about 4s. After about four seconds the indicator lights will turn on.

3) Release the panel button.

**Ensure that the Run lights are on for all the batteries.**

a. Make sure the maximum voltage difference between batteries is less than 2.0V.

b. If not, the installer should balance the battery voltage and then connect the batteries in parallel again.

c. Set the DIP switches according to section 6.3 for CAN /485 bus pins.

4) Turn the inverter on, and wait for the start-up sequence to complete fully.

## 7.2 Shutting down the battery

Only shut down the battery when the battery is not on charge or discharge. You can check this using your smart phone APP..

1) Press and hold the Panel Button for about 8s. Once the disconnect relay is heard, then release the Panel Button..

2) Make sure that all lights on the battery are off.

## 8 Troubleshooting

1) All faults are displayed as fault codes. If the battery fault light comes on, check the Fault code on the Homepage.

2) If the battery fault light comes on, check the Troubleshooting number on the Homepage on the Smart BESS APP. If the code is 0x1\*\*\*, this problem would be recovered by itself. But if the code is 0x2\*\*\* or 0x3\*\*\*, contact your distributor or FB customer service for technical assistance.

3) If the information of battery cannot be seen in the monitoring system, check the battery status first. If the battery status is OFF, please turn the battery on and then check that the WLAN is accessible for the battery.

4) If Register the battery failure, please check that there is adequate and stable internet network near to the battery installation.

Table 8-1 Fault Code of Battery

Fault Code	Detail fault message
0x1001	Battery under voltage warning
0x1002	Battery over voltage warning
0x1003	Battery under temperature warning
0x1004	Battery over temperature warning
0x1005	Battery charge over current warning
0x1006	Battery discharge over current warning
0x1007	Cell over discharge warning
0x1008	Cell over charge warning
0x1009	Battery charge with over temperature warning
0x1010	Battery discharge with over temperature warning
0x1011	Battery charge with under temperature warning
0x1012	Battery discharge with under temperature warning
0x2001	Battery under voltage protect
0x2002	Battery and cell over discharge protect
0x2003	Battery over charge protect
0x2004	Battery over voltage and cell over charge protect
0x2005	Battery under temperature protect
0x2006	Battery over temperature protect
0x2007	Battery charge over current protect
0x2008	Battery discharge over current protect
0x2009	Cell over discharge protect
0x2010	Cell over charge protect
0x3000	Communication broken between master and slave Battery
0x3001	Address select fault

# RED Declaration of Conformity (DoC)

Unique identification of this DoC: .....

**We,**

Manufacturer's name: FIRST BATTERY.

Manufacturer's Address: 64 Liverpool Rd, Benoni South, Benoni, 1501, South Africa

.....

**declare under our sole responsibility that the product:**

product name: Lithium ion battery

trade name:

type or model: FB-5100S

relevant supplementary information: .....

(e.g. lot, batch or serial number, sources and numbers of items)

**to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the RED Directive (2014/53/EU).**

**The product is in conformity with the following standards and/or other normative documents:**

HEALTH & SAFETY (Art. 3(1)(a)): IEC 62040-1:2017, IEC 62619:2017, EN 62311:2008; EN 50665:2017

EMC (Art. 3(1)(b)): EN IEC 61000-6-1:2019, EN 61000-6-3:2007/A1:2011, EN 301 489-1 V2.2.3:2019, Draft EN 301 489-17 V3.2.2:2019

SPECTRUM (Art. 3(2)): EN 300 328 V2.2.2:2019

OTHER (incl. Art. 3(3) and voluntary specs): N/A

Accessories: N/A

Software: N/A

Technical file held by: FIRST BATTERY.

Place and date of issue (of this DoC): .....

Signed by or for the manufacturer: .....

(Signature of authorised person)

Name (in print): .....

Title: .....

# Warranty of FB Residential ESS

This warranty specified below applies to ESS supplied by FB, FB LFP battery to consumer through authorized reseller. The accessories and tool kits provided are not included. If the unit suffers major failure you will be provided with a replacement unit and your warranty will be transferred to the new unit. The units must only be used with controllers or equipment which is explicitly deemed compatible by FB. In order to supply a high quality service, you should make sure the unit remains connected with Internet so that it can be remotely checked.

## 1. Purpose

The purpose of this warranty is to define the matters related to warranty policy of products.

## 2. Warranty Condition

### 2.1 Warranty Period

The products warranty period is ten(10) years from the sales date as mentioned in the Seller's invoice to the End User("Invoice Date") or six(6) month from the date of manufacturing whichever comes first.

This Warranty period covers a capacity equivalent to one (1) full cycle per day. Full cycle:Discharge the nominal capacity of a fully charged battery and fully charge it afterwards.Micro cycles sum up to full cycles according to amount of energy charged and discharged. Note:Products are unavailable to protect itself from the deep discharge/charging in condition of without communication connection.

The products without communication connection warranty period is 5(five)years(1 full cycle per day) from the sales date as mentioned in the seller's invoice to the End User("Invoice Date") Regarding Self-discharging degradation,180 days after ex-work is ensured.

### 2.2 Limitation of Warranty scope

Under this Warranty, FB is responsible for either battery replacement or battery repair. The Period of Performance Guarantee will continue on any repaired unit. In the event of a replacement units then the Period of Performance guarantee will transfer to the replacement unit.

In no event will FB be liable for any consequential, incidental or punitive damages (including without limitation of loss of profit, harm to goodwill or business



reputation, or delay damages) arising from or out of the Product or its installation, use, performance or non-performance, or any defect or breach of warranty, whether based on contract, warranty, negligence, strict liability, or any other theory. FB's aggregate liabilities, if any, in damages or otherwise, shall not exceed the purchase price paid by the Original Buyer for the product.

### 2.3 Exclusions of Warranty

Damage or impairment to the Products resulting from any of following activities are NOT covered by this Warranty:

- ✓ Installation or use with any devices not approved as compatible by FB.
- ✓ Failure to install or use the battery in the way intended, or as demonstrated in the installation manual including incorrect-installation of cables and connections.
- ✓ Failure caused by charger or inverter unit.
- ✓ Incorrect transportation, storage, installation or wiring by consumer or installer; if buyer fails to use the original packing materials provided by seller during the transportation of equipment the products damage or failure shall not fall under the warranty scope of the product.
- ✓ Mistreatment of the product including incorrect installation environment, incorrect temperatures or using the units other than in the specified manner.
- ✓ Damage caused by any impact, physical trauma to the unit such as dropping or mishandling.
- ✓ Attempts to change the functionality of the unit in any way, exposure of the Product to movement or shaking following installation, or temperatures of more than 50°C or below -10°C;
- ✓ Using the battery outside of the clearly stated performance criteria for the unit.
- ✓ Water ingress, corrosive gas damage or installation in dirty environments causing particles to affect performance.
- ✓ Anyone other than those authorized by FB may not modify, disassemble, repair or replace the product;
- ✓ The unit must have clearly identifiable and authentic serial number and labels on the unit.
- ✓ Products suffered any external influences including unusual physical force, electrical stress (power failure surges, inrush current, lightning, flood, fire, accidental breakage, etc)
- ✓ Extensive superficial damage to the case demonstrating impact or mishandling or poor protection of the battery.
- ✓ Product damage and defect caused by deliberately or willful act.
- ✓ Products failure is not reported to seller or FB authorized service partner within 1 week of appearance.
- ✓ The Product not being operated for any period of 6 months or more.
- ✓ Unusual physical or electrical stress caused by **Force majeure**, such as power

failure surges, inrush current, lightning, flood, fire, accidental breakage, etc.;

### **3 Performance Warranty**

FB guarantees that FB-LFP battery will retain greater than or equal to 70% of output energy capacity for 10 years from the Invoice date and follow the specification and the user manual provided by FB.

- ✓ Capacity measurement condition (referenced IEC: 62619)
- ✓ Ambient temperature:  $25 \pm 2^{\circ}\text{C}$
- ✓ Total energy/Usable energy measured under specific conditions from FB 0.2CC-CV at DC side.

But, if you suspect FB's verification, the Product must be tested by an EU certified origination or a certified 3rd party testing company. Meanwhile, the cost of any 3rd party evaluation service charge should be borne by yourself, unless your claim is proven to be valid, in which case FB will be responsible for the testing costs.

### **4 Warranty Policy**

If on arrival the product is not of acceptable quality the customer is entitled to have the goods repaired or replaced.

### **5 About Service Products/Parts**

Service product or accessory could be used as new or refurbished condition and FB guaranteed which performance is equal to or higher than replaced device.

If the product is no longer sold in the market, FB would replace it with different kind of product with equal or higher functions and performances, or the residual annual depreciation value of the buyer paid price within the time limit for performance guarantee.

### **6 Claim Policy**

Whether to repair or replace the Product will be determined by FB in its sole discretion. Claims under this warranty must be made from authorized distributor whom the product was purchased. Meanwhile, you must notify your distributor or FB of a claim by:

- ✓ Give a call or E-mail to your distributor;
- ✓ Contact with FB hotline or Email us directly within 48 hours of a faulty discovered.

The following items must be included:

- ✓ The original purchase receipt or equal valid document;

- ✓ Description of the alleged defect(s) to your distributor or FB after service hot;line or send email to FB;
- ✓ The product's serial number and the initial installation date.

If you suspect the battery to be faulty, the unit should be returned to appointed distributor at the cost of the customer at approved costs. Having been checked by designated expert, if the unit is deemed faulty, we will dispatch a REPLACEMENT or FIXED unit and would credit the cost of returning the unit to us for testing (based on standard acceptable logistical costs).

## **7 Out Of Warranty**

In the event the Product is out of warranty, FB may (in its discretion) provide certain after-sales service to Original Buyer, but all the costs and expenses, such as parts,labour costs and travel expenses, shall be borne by Original Buyer. To request such after-sales service Original Buyer must provide sufficient information about any defects, to enable FB Partner to determine whether such defects are capable of repair.

### **Note:**

Warranty period could be extended to Ten (10) years FOR FREE by successfully register your product on FIRST BATTERY website: [www.battery.co.za/](http://www.battery.co.za/),and the Minimum Capacity/remaining capacity in this document would be not less than 70% of the Nominal Capacity at the end of Warranty Period.