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info on page 13



# LIFEP04 BATTERY - 51.2V 100AH LFP 5KWH/LV User Manual

## Osily Energy Product Manual

Thankyou for purchasing an Osily Energy battery, now you have the opportunity to enhance your solar powered system. By reading this document following the purchase of your Osily Battery storage unit you confirm that you agree to the terms and conditions associated with purchasing and installing an Osily Energy 5kWh battery storage unit.

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This product complies with the design requirements of UK and international battery manufacturing regulations. The storage, use and disposal of the products shall be carried out in accordance with the product manual or as advised by the manufacturing party or Osily Energy.

Please refer to the data sheet and installation guidance set out to correctly install and commission the unit.

Please note that modifying this product will void any warranties associated and provided to you upon purchase of goods.

If you have any enquiries regarding the product, please contact [sales@osily.co.uk](mailto:sales@osily.co.uk)



# LIFEP04 BATTERY - 51.2V 100AH LFP 5KWH/LV User Manual

## Warranty:

Osily LFP Series

Applicable product types:

Osily LFP 5000, LFP 5kWh Lithium batteries

This Limited Warranty Letter (hereinafter referred to as "Warranty") as described below applies to the residential application with Osily New Energy (hereinafter referred to as "Product") supplied by Osily Energy (hereinafter referred to as "OSILY" ) with the types mentioned above to User (User is the buyer who puts the Product into operation for the first time) via the way authorised by Osily.

### 1.1 Product warranty

1.1.1 The Product warranty period is Five (5) years from the date of purchase.

### 1.2 Battery capacity performance warranty

APPLICATION	ENERGY RETENTION	OPERATING LIMITATION
Solar self-consumption /backup only	70% at 10 years following the initial date mentioned in 1.1.1	Unlimited cycles
Any other application or combination of applications	70% at 10 years following the initial date mentioned in 1.1.1	Throughout energy limitation refer to the table below

PRODUCT TYPE	NOMINAL DISCHARGE	MAXIMUM RECOMMENDED DOD
LFP 5kWh/LV	3KW	90%

## Conditions for warranty

The installation of the Product for the User shall be completed within 1 month. The operating temperature during the operation of the Product must not exceed -10 ~50°C temperature range and the Product shall not be exposed and stored in a temperature higher than 50°C, and shall not be exposed in an installed area in direct sunlight. The Product installation location must be ventilated in accordance with the requirements of the User Manual and Installation Guidance. The Product is not suitable for supplying power for lifesustaining medical devices and automotive application.



# LIFEP04 BATTERY - 51.2V 100AH LFP 5KWH/LV User Manual

## **Replacement or Repair**

In the event of any Product covered by this Warranty and confirmed by Osily to be defective or non-conforming, Osily can replace or repair the defective or non-conforming Product at its sole discretion. Any maintenance or replacement shall not be deemed as extension or recalculation of the warranty period.

## **Exclusions of Warranty**

Warranty period specified above has already expired. Product damage and defect caused by End User's improper use, misuse, abuse, which is non-conforming with User Manual. Misuse, abuse, neglect or accident during storage, transportation, handling, installation, application and service. Unauthorised wiring and use with faulty or incompatible devices. Product arbitrarily modified or its function changed without permission by Osily. Any changes to the installation are not done in accordance with the Installation Guidance. Product damage caused by maintenance.

End User fails to provide correct product serial number or is or has been modified without permission by Osily. External influences including unusual physical or electrical stress (power failure surges, inrush current, lightning, flood, fire, accidental breakage) Product damage caused by external force, force majeure (causes of natural disasters such as unforeseeable, unavoidable and insurmountable objective, unavailability of suitable and sufficient labor or materials and other events which are out of control of Osily or other third party.) The defect cannot be overcome under the technology condition when the Product has been sold to End User. Defects of Product arise due to renewal of the national or regional laws or regulations. Product damage caused by End User deliberately or by willful act.

## Safety

### Installation guidelines

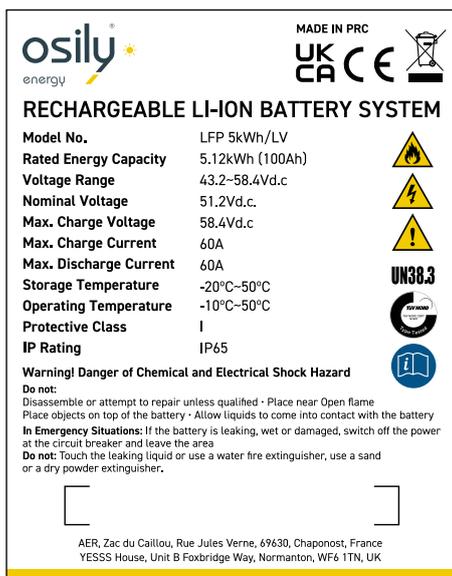
- Take considerable care when unboxing the battery unit, using a small or thin blade, keep it away from the unit itself.
- The total weight of the unit is 65KG, moving this battery requires 2 people.
- Once installed on the wall following instructions from this manual, ensure the cables are not reverse connected and the cables have no visible defects.
- Do not connect positive and negative poles with a conductor or any external unit which is not a hybrid inverter recommended to be compatible in this document.
- If the battery does fall over, is knocked or falls from its rack, please isolate and disconnect for 1 hour.
- Isolate the device when relocating or moving the battery, failure to do so could result in electric shock.
- Ensure the premises has a dry powder extinguisher should there be a battery fire.
- For your safety, do not dismantle the unit.
- If the battery system needs to be relocated or maintenance work carried out the power must be disconnected and the battery is completely shutdown.
- Do not connect the battery with different type of battery.
- Do not connect the batteries with incompatible inverters
- In case of fire, dry powder fire extinguisher should be used, no other extinguisher should be used.
- Please do not open, repair or disassemble the Battery.

### Installation and Storage

- Rigorous testing has been conducted to ensure the batteries are completely functional and operate at the specified level however you should isolate the unit should you believe the unit is not functioning correctly and contact your installer immediately.
- For your safety, the device must be ground connected properly before connection.
- To ensure the battery is only connected to inverters specified by Osily Energy, should you have an alternative inverter
- **Do not install batteries in parallel from alternative manufacturers, new and old batteries or batteries that have alternative voltage requirements, this will void your warranty.**
- Dry storage will assist with increasing the lifespan of the battery, consider the location of the battery and do not store in an area where damp or water could affect its operation.
- To enable the BMS to calibrate system capacity it is strongly recommended to charge the battery to full for 18 hours before discharging, this can usually be configured in your inverter settings.
- It is recommended to enable 'grid charging' on the inverter so if the battery calls for emergency charge it will be allowed by the inverter, this can prevent over-discharge.
- Formula of theoretical standby time:  $T=C/I$  (T is standby time, C is battery capacity, I is total current of all loads).

## Introduction

FIG1-1 Battery Energy Storage System nameplate



Battery is voltage higher than safe voltage, direct contact with electric shock hazard.



Be careful with your actions and be aware of the dangers.

**UN38.3**

The battery product meet the United Nations regulations on transport of dangerous goods.



The scrapped battery cannot be put into the garbage can and must be professionally recycled.



This battery product meets European directive requirements.

**UK  
CA**



All the parts of the battery meets TUV safety requirements.

## Product Specification

### Size and Weight

Table 2-1 LFP 5kWh/ LV Device Model

PRODUCT SERIES	SPECIFICATION MODEL	NOMINAL VOLTAGE	NOMINAL CAPACITY	DIMENSION (MM)	WEIGHT (KG)	IP LEVEL
LFP	5kWh/ LV	5.12V	100Ah	550×700×216	65	IP65

### Performance Parameter

Table 2-2 LFP 5kWh/ LV performance parameter

MODULE TYPE	LFP 5KWH/ LV
Total Energy*	5.12kWh
Usable Energy (DC)*	4.6kWh
Nominal Dis-charge Power	3kW
Peak Power(Only Discharge)	7kW for 3 seconds
Voltage	43.2~56Vd.c
Nominal Voltage	51.2Vd.c
Nominal Current	60A
Max. Charge Voltage	58.4Vd.c
Max. Charge Current	60A
Max. Discharge Current	100A
Safety	CE UN38.3

## Interface Definition

This section elaborates on interface functions of the front panel of the device

Figure2-1 LFP 5kWh/ LV the sketch of front interface.



Table 2-3 Interface Definition

ITEM	NAME	DEFINITION
1	Negative socket	The battery DC output positive pole, which is connected to the negative pole often inverter through the cable
2	Positive socket	The battery DC output negative pole, which is connected to the negative pole often inverter through the cable.
3	RS485	The RS485 communication interface is used for parallel communication between batteries
4	CAN	CAN communication interface is used for communication between battery and inverter
5	LED1	Module capacity status indicator light
6	LED2	Module capacity status indicator light
7	LED3	Module capacity status indicator light
8	LED4	Module capacity status indicator light
9	ADD switch	Use the switch to adjust the address when the battery is in parallel mode
10	Reset switch	Press the switch and the battery system turn on. When the battery is in the non use state such as storage, transportation etc., it need to be turn off by switch button, and the battery system will automatically sleep after the device without external load power
11	Main switch	Open or cut off the main circuit, and ensure transportation safety after cutting off

Flashing 1 = bright 0.25s Light out 3.75s

Flashing 2 = bright 0.5s Light out 0.5s

Flashing 3 = bright 0.5s Light out 1.5s

SYSTEM STATE	RUNNING STATE	RUN	ALM	SOC				EXPLAIN
		●	●	●	●	●	●	
Shut down	Dormancy	OFF	OFF	OFF	OFF	OFF	OFF	ALL OFF
Standby	Normal	Flashing 1	OFF	OFF	OFF	OFF	OFF	
Charging	Normal	Flashing 1	OFF	According to the power prompt				
	Over current alarm	Flashing 1	Flashing 2	According to the power prompt				
	Over voltage protection	Flashing 1	OFF	OFF	OFF	OFF	OFF	
	Temperature Over current protection	Flashing 1	Flashing 1	OFF	OFF	OFF	OFF	
Discharge	Normal	Flashing 3	Flashing 3	According to the power prompt				
	Alarm	Flashing 3	Flashing 3	According to the power prompt				
	Temperature, Over current, Short circuit protection	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge, Mains offline 48h no action forced sleep
	Under voltage protection	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge

## Battery Management System (BMS)

### Voltage Protection

Discharging Low Voltage Protection -

When battery cell voltage is lower than the rated protection value or total voltage below 42V during discharge over-discharge protection is activated and the battery alerts the user via alarm. The battery will then isolate and cut-off. When the voltage of each cell recovers to rated value and total voltage restored to above 45V, the protection resides.

Charging Over Voltage Protection -

When charging, the system stops charging when the total voltage of the battery pack is higher than 54.75V or the voltage of any single cell reaches the protection value. When the total voltage returns to below 52V and the cell voltage returns to below the rated protection value, the protection is release.

### Current Protection

Over Current Protection in Charging -

When the charging current is greater than the protection value an internal alarm is activated and the system stops charging. After the system delays the rated time for 1 min, the protection is released.

Over Current Protection in Discharging:

When the discharging current is greater than the protection value, the battery signals an alarm and the system stops discharging. After the system delays the rated time for 1 min, the protection is released.

### Temperature Protection

Less/ Over temperature protection in charging:

When the battery's temperature is beyond range of 0 ~+45 during charging, temperature protection is enforced and device stops charging. The protection is released when it recovers to rated return range.

Less/ Over temperature protection in discharging:

When battery's temperature is beyond range of -10 ~+45 during discharging, temperature protection starts and the device stops supplying power to the outside. The protection is released when it recovers to rated return range.

### Other Protection

Short Circuit Protection:

When the battery is activated from the off state, if a short circuit occurs, the DC circuit breaker will act first. If the DC circuit breaker does not operate, the BMS will start the short circuit protection function and cut off the external voltage output.

Self Shutdown:

When device connects no external loads for over 72 hours the device will activate dormant standby automatically.

#### Caution:

The maximum working current of the load which needs to be powered should be less than the maximum discharge current capacity of the battery system

## Installation and Configuration

### Installation Safety

- The safety regulations and local safety regulations listed below should always be followed during the installation.
- All circuits connected to this power system with an external voltage of less than 48V must meet the SELV requirements defined in the IEC60950 standard.
- If operating within the power system cabinet, make sure the power system is not charged. Battery devices should also be switched off.
- Distribution cable wiring should be reasonable and has the protective measures to avoid touching these cables while operation power equipment.
- When installing the battery system, please wear the protective items below:



Gloves



Safety Glasses



Safety Shoes

### Environmental Requirements

- Working temperature:  $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$
- Charging temperature range is  $0^{\circ}\text{C} \sim +45^{\circ}\text{C}$ ,
- Discharging temperature range is  $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$
- Relative humidity: 4%~100%RH (No condensed water)
- Elevation: no more than 4000m
- Operating environment: Indoor or outdoor installation, sites avoid the sun and no wind, no conductive dust and corrosive gas.

And the following conditions are met:

- Installation location should be away from the sea to avoid brine and high humidity environment.
- The ground is flat and level.
- There is no flammable explosive near to the installation places.
- The optimal ambient temperature is  $+15^{\circ}\text{C} \sim +30^{\circ}\text{C}$ .
- Keep away from dust and dirty areas.

### Electrical Interface Check

Devices that can be connected directly to the battery can be user equipment, power supplies, or other power supplies.

- Confirm whether the user equipment, the PV equipment or other power supply equipment has the DC standby interface, and measure whether the output voltage of the standby interface meets the requirements of the voltage range of table 2-2.
- Verify that the maximum discharge current capacity of the user equipment, the PV equipment or other power supplies, the DC standby interface, and the maximum discharge current shall be greater than the maximum charging current of the products used in table 2-2.
- If the user equipment DC prepared interface maximum discharge capacity is less than the maximum charging current products using table 2-2, the user interface should have the power equipment of DC current limiting function, give priority to ensuring the normal work of user equipment.

Attention should be paid to the following items before construction:

- Power line specification.
- The power line specification shall meet the requirements of maximum discharge current for each product.
- Mounting space and bearing capacity.
- Make sure that the battery has enough room to install, and that the battery rack and bracket have enough load capacity.

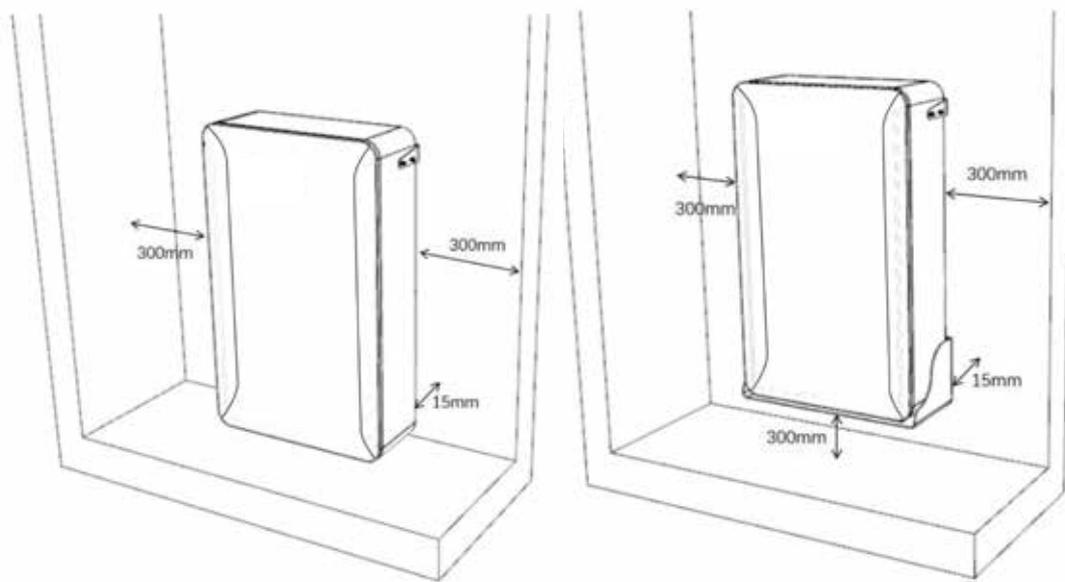
### Equipment installation:



**Strongly recommended: floor installation;**  
**If it is wall-mounted installation, strictly follow the requirements below.**

The wall for battery installation shall be solid brick or cement wall with strong bearing capacity and wall thickness no less than 100mm.

Mounting space requirements:



**Floor installation**

**Mounted on the wall installation**

## Installation

<b>STEP 1</b>	System outage	Ensure that the battery is in a shutdown state
<b>STEP 2</b>	Mechanical installation	<ol style="list-style-type: none"> <li>1. Hanger mounting</li> <li>2. Equipment installation</li> </ol>
<b>STEP 3</b>	Electrical installation	<ol style="list-style-type: none"> <li>1. Connect the ground cable</li> <li>2. Electrical installation</li> <li>3. Connect inverter</li> <li>4. Communication interface connection</li> </ol>

When the battery system is placed directly on the ground, a fixed support must be used to fix the top of the battery box with the wall.



Use the positioning cardboard to draw screw hole positions on the wall



Drill 4 holes, hole depth greater than 70mm for expansion bolts.



Attach the fixings using the M6 bolts, Torque at 6NM. (Floor installation)



Install the battery bracket with M6 expansion bolts (Wall installation)



Slot the battery onto top rack (floor) or hoist battery (wall mount)

### Electrical installation

Before connecting the power cables, using a multimeter to measure cable continuity, short circuit, confirm positive and negative, and mark well the cable labels.

Measuring methods:

- Switch off cables: select the buzzer and use the probe to measure the ends of the same color cable. If the buzzer calls, it means the cable is available.
- Short circuit judgment: choose multimeter resistor file, probe the same end of positive and negative pole, if the resistor shows infinity, means that the cable is available.

After visual testing of power line is connected well, the positive and negative poles of the battery shall be connected respectively to the positive and negative poles of another device

## Connected inverter

When the system is used independently:

**Note:** Before installation, please confirm whether the DIP switch mode of No.1 module in battery is correct according to the inverter used. For specific dialing methods, please refer to "3.4.2 battery module DIP switch definition and description." Except for the inverter specified by the customer's special requirements, the factory default DIP switch mode of Module No.1 is DIP Switch model 1( ADD: 0000). If the inverter is equipped with other DIP switch mode, open the cover and set DIP switch mode of the module No.1 to the correct mode.

- When connecting the battery and the inverter, please use the appropriate power and communication cables, these accessories are provided in the box when unpackaging the unit.
- Keep the battery system on standby, connect the power cable to the interface on the input side of the inverter first, and then connect the power cable to the interface on the battery side.
- The battery out put interface is a quick connector, and the power cable (Positive, Negative) plug can be directly inserted into the battery socket.

## Communication port interface

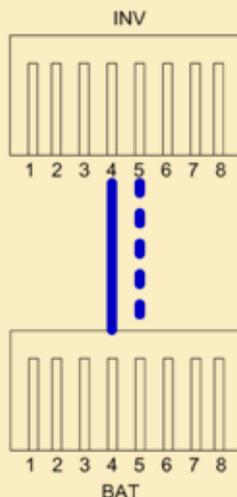
Connect the CAN Cable of the battery to the CAN communication interface of the inverter using the RJ45 cable. Factory default CAN communication mode.

Table 3-3 PIN Definition

FOOT POSITION	COLOUR	DEFINITION
PIN1	Orange/ White	485A
PIN2	Orange	XGND
PIN3	Green/ White	485B
PIN4	Blue	CANH
PIN5	Blue/ White	CANL
PIN6	Green	NC/NULL
PIN7	Brown/ White	XIN
PIN8	Brown	NC/NULL

**IMPORTANT:** Especially when using Solis inverters, only pins 4&5 should be connected on the CAN RJ45 cable see diagram, connecting the other pins can cause communication interference which may damage the battery and cause a non-resettable fault.

Your distributor can help with this special cable or modify the inverter-supplied cable manually to retain the inverter connection seal (Solis).



## Battery module DIP switch definition and description

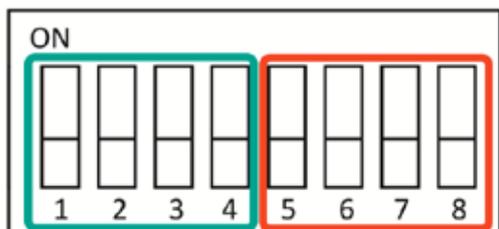


Table3-4-1 Slave setting

ADDRESS	DIP SWITCH POSITION				INSTRUCTION
	#1	#2	#3	#4	
1	ON	OFF	OFF	OFF	Slave 1
2	OFF	ON	OFF	OFF	Slave 2
3	ON	ON	OFF	OFF	Slave 3
4	OFF	OFF	ON	OFF	Slave 4
5	ON	OFF	ON	OFF	Slave 5
6	OFF	ON	ON	OFF	Slave 6
7	ON	ON	ON	OFF	Slave 7
8	OFF	OFF	OFF	ON	Slave 8
9	ON	OFF	OFF	ON	Slave 9
10	OFF	ON	OFF	ON	Slave 10
11	ON	ON	OFF	ON	Slave 11
12	OFF	OFF	ON	ON	Slave 12
13	ON	OFF	ON	ON	Slave 13
14	OFF	ON	ON	ON	Slave 14
15	ON	ON	ON	ON	Slave 15

Table3-4-2 Host setting (Table 2)

NUMBER OF SLAVES CONNECTED	DIP SWITCH POSITION				TOTAL
	#5	#6	#7	#8	
1	ON	OFF	OFF	OFF	parallel 2
2	OFF	ON	OFF	OFF	parallel 3
3	ON	ON	OFF	OFF	parallel 4
4	OFF	OFF	ON	OFF	parallel 5
5	ON	OFF	ON	OFF	parallel 6
6	OFF	ON	ON	OFF	parallel 7
7	ON	ON	ON	OFF	parallel 8
8	OFF	OFF	OFF	ON	parallel 9
9	ON	OFF	OFF	ON	parallel 10
10	OFF	ON	OFF	ON	parallel 11
11	ON	ON	OFF	ON	parallel 12
12	OFF	OFF	ON	ON	parallel 13
13	ON	OFF	ON	ON	parallel 14
14	OFF	ON	ON	ON	parallel 15
15	ON	ON	ON	ON	parallel 16

Table3-4-3 Parallel dialing code setting example (Table 3)

NUMBER OF PARALLEL MACHINES	SLAVE DIP SWITCH				HOST DIP SWITCH				INSTRUCTION
	#1	#2	#3	#4	#5	#6	#7	#8	
Stand alone use	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Parallel 2	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	
	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Parallel 3 (see diagram below)	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	
	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	
Parallel 16	OFF	OFF	OFF	OFF	ON	ON	ON	ON	First host
	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Second slave
	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Third slave
	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	Forth slave
	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	Fifth slave
	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	Sixth slave
	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	Seventh slave
	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	Eighth slave
	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	Ninth slave
	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	Tenth slave
	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	Eleventh slave
	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	Twelfth slave
	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	Thirteenth slave
	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	Fourteenth slave
	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	Fifteenth slave
	ON	ON	ON	ON	OFF	OFF	OFF	OFF	Sixteenth slave

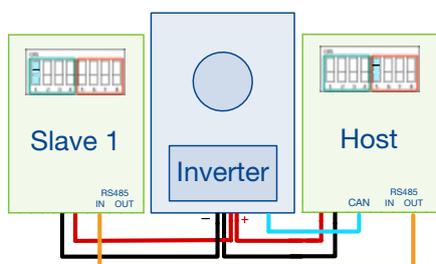
### DIP switch description

When the battery pack is connected in parallel, the host can communicate with the slave(s) through the RS485 interface. The host summarises the information of the entire battery system and communicates with the inverter through CAN.

please see connection and dip-switch examples on the next page

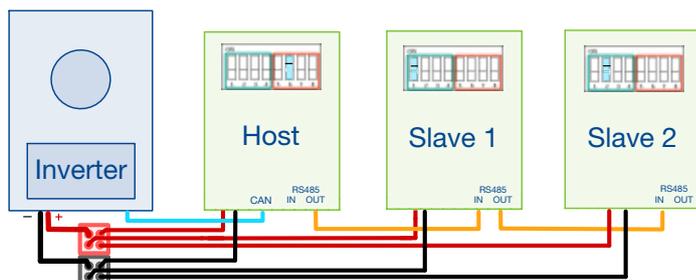
### Connection examples for multiple batteries

Below examples are for SunSynk Inverters, other manufacturer connections may differ slightly.



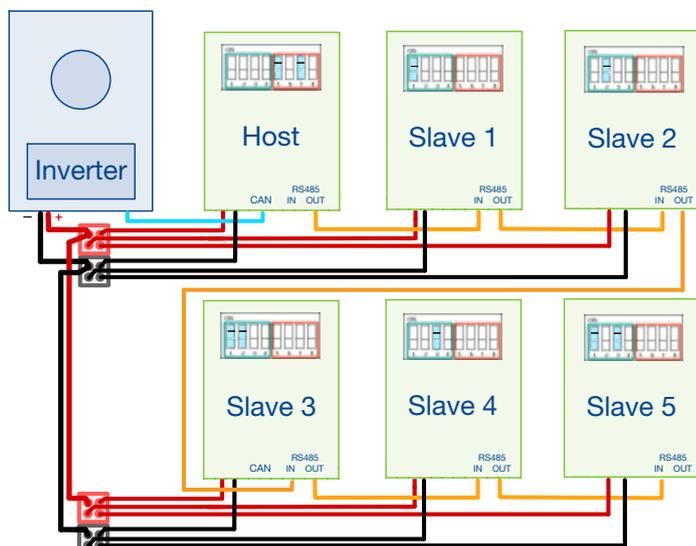
#### 2x Batteries

Both battery cables (supplied) connect directly to invert connection studs.



#### 3x Batteries

All battery cables (supplied) connect to distribution block (OE-BATT-BLOCK-2P4) 25mm (180A) or 35mm (225A) cable and M10 lugs connect the block to the inverter.



#### 6x Battery Example

## Use, maintenance and troubleshooting

### Battery system usage and operation instructions

After completing the electrical installation, follow these steps to start the battery.

- Press the switch, the system self-check, the indicator lights turn on successively (4.1.1).
- The RUN indicator blinks slowly if the battery is not connected to the inverter (4.1.2).
- If the battery is connected with the inverter, the battery start working and the indicator lights up (4.1.3).



4.1.1



4.1.2



4.1.3

### Note:

After pressing the power button the status indicator on the front panel continues to indicate red, please refer to the “4.2 Alarm description and processing”. If the failure cannot be eliminated, please contact your supplier.

- Use a voltmeter to measure whether the voltage across the BAT+/ BAT- terminals of the inverter is greater than 42V, and check whether the voltage polarity is consistent with the input polarity of the inverter. If the voltage across the terminals BAT + / BAT- of the inverter is greater than 42V, at this time the battery has begun to work normally.
- After confirming that the battery output voltage and polarity are correct, turn on the inverter, then close the circuit breaker switch.
- Check whether the indicator light of the inverter and the battery connection ( The communication indicator and the battery access status indicator.) is in normal condition. If normal, the connection between the battery and the inverter is completed. If there is an abnormality in the indicator light.

## Alarm description and processing

When protection start or failure, the ALM indicator on the side panel will alarm, through net management can query specific alarm class and take appropriate action.

Alarm and countermeasure influence system output

If there are any abnormalities affecting the output, such as battery cell over-voltage or over-current during charge / discharge, undervoltage protection and temperature protection protocols should be followed, please deal with them according to Table 4-1.

Table 4-1 Main alarm and Protection

STATUE	ALARM CATEGORY	ALARM INDICATION	PROCESSING
Charging State	Cell over-voltage	RUN light flashing 1	Stop charging and release when discharging
	Over-current when charging	Run light on RED flashing 2	Reduce the charging current below the rated value
	High temp protection	RED light flashing 1	Stop charging and find out the cause of the trouble
Discharge State	Over-current protection when discharge	RED light on	Stop discharge and reduce discharge current below rated value
	High temp protection when discharge	RED light on	Stop discharging and find out the cause of the trouble
	Total voltage under voltage protection	ALL lights OFF successively	Start charging

Alarm and countermeasure without affecting the output of the system

If a low SOC alarm occurs, the battery system also issues a corresponding alarm signal. Maintainer should check the equipment and determine the type and location of the fault. Ensure the correct countermeasures are carried out so that the system is in the best working condition to avoid disrupting future power distribution. The countermeasures are shown in Table 4-2.

Table 4-2 minor alarm

ALERT CATEGORY	ALARM INDICATION	COUNTERMEASURE
5% SOC < 10%	System operating status: The indicator blinks red slowly	Stop discharge and charging the battery system in time.

## Analysis and treatment of common faults

Analysis and treatment of common faults in the Table 4-3:

Table 4-3 Analysis and treatment of common faults

ITEM	FAULT PHENOMENON	REASON ANALYSIS	SOLUTION
1	The indicator does not respond after power on the system	Make sure press and hold the power switch (Reset switch) for 3s	Check the power switch
2	No DC output after power on the system	Check if the main cable is inserted into the installation position	Check and ensure the main cable is firmly inserted
3	No DC output and red light flashing	Battery voltage is too low	Charging the battery system
4	The battery cannot be fully charged.	Charging voltage is too low	Adjust charging voltage within 53.5V range
5	The power line sparks once power on and ALM indicated Red light on	Power connection short-circuit	Turn off the battery, check the cause of the short circuit