



FlinAmp 150
5kWh-48V LiFePO4 Battery

USER MANUAL

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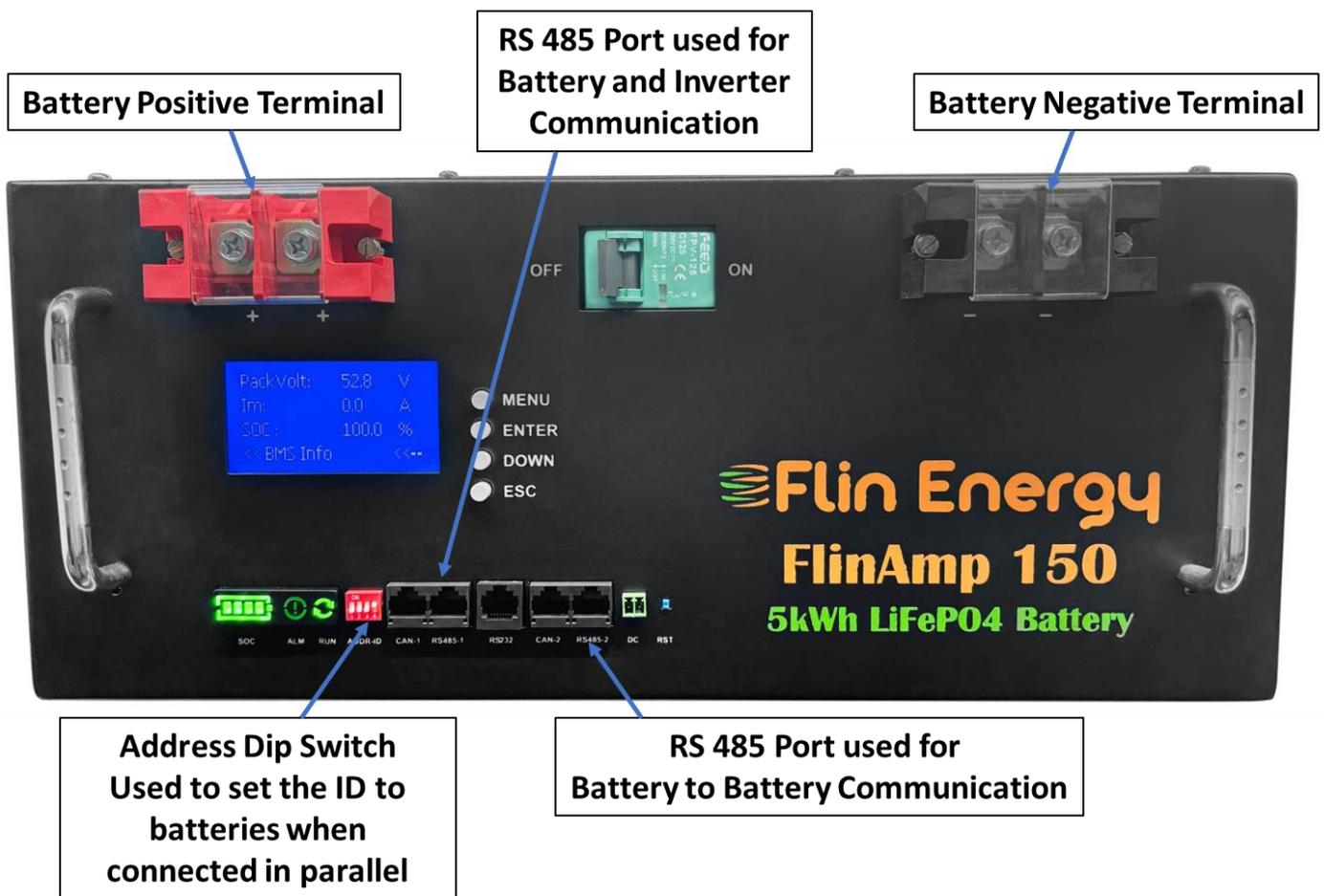


I. Product Information:

FlinAmp 150 Leading the way in energy storage, our 5kWh LiFePO4 Battery offers cutting-edge design for optimal performance, safety, and longevity. This rechargeable lithium iron phosphate (LiFePO4) battery stands out with advanced features, making it the reliable choice for diverse applications.

FlinAmp 150 5kWh LiFePO4 Battery is not just a power storage solution; it is a smart, reliable, no-maintenance, and safe choice for those seeking advanced energy storage technology with seamless integration capabilities. It can be used both for 48V and 51.2V DC applications. Each 5kWh unit supplies reliable energy and has the ability to put modules in parallel. The unit is ideal for home, office, and industrial installations. It comes with WIFI, Bluetooth and RS-485 communication and distinct protective features.

II. Battery Panel Functions



Run

Run light: Green LED flashing to show the battery running status.

Alarm

Alarm light: The red LED blinks to indicate that the battery is alarming, and the red LED blinks to indicate that the battery is protected, as shown in the following table.

Battery Running Status	State	RUN	ALM	DESCRIPTION
				
Off / Sleep	Dormancy	OFF	OFF	OFF
No Charge & Discharge	Normal	Flash 1	OFF	STANDBY
	Warning	Flash 1	Flash 3	MOD LV
Charging Mode	Normal	Light	OFF	
	Warning	Light	Flash 3	
	Overcharge Protection	Light	OFF	If no main supply, the indicator turns to standby
	Temperature, over Current, Failure Protection	OFF	Light	Stop Charging
Discharge Mode	Normal	Flash 3	OFF	
	Warn	Flash 3	Flash 3	
	Low Voltage Protection	OFF	OFF	Stop Discharging
	Temperature or Current Protection	OFF	Light	Stop Discharging

SOC Indicator lamp SOC instructions

Status		Charge				Discharge			
		L4	L3	L2	L1	L4	L3	L2	L1
Capacity indicator light									
Percentage (%)	0 ~25 %	OFF	OFF	OFF	Flash 2	OFF	OFF	OFF	Solid Green
	25~50 %	OFF	OFF	Flash 2	Solid Green	OFF	OFF	Solid Green	Solid Green
	50~75 %	OFF	Flash 2	Solid Green	Solid Green	OFF	Solid Green	Solid Green	Solid Green
	75~100%	Flash 2	Solid Green	Solid Green	Solid Green	Solid Green	Solid Green	Solid Green	Solid Green
Running indicator light 		Solid Green				Flash (Flash 3)			

LED Flash Description

State	Light	OFF
Flash 1	0.25S	3.75S
Flash 2	0.5S	0.5S
Flash 3	0.5S	1.5S

During battery installation or maintenance, you can determine the battery status based on the RUN and ALM displays.

Reset

This reset has the functions of manual wake up and start, manual shutdown and sleep, and reset. Users can flexibly use it according to the actual situation. The specific operation methods are as follows:

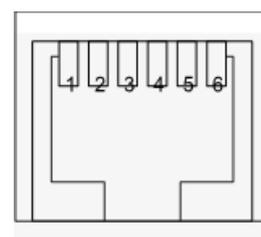
1. Manual wake up function: When BMS is in hibernation state, press the button for 3 seconds and release it. BMS will be activated and the battery will return to normal working mode.
2. Manual sleep: When the battery is in the normal working state, press the button for 3 seconds and release the button. The battery enters the low-power sleep state.
3. Reset function: Press for more than 6 seconds to reset the battery when the battery is in normal working state.

RS 232

It can communicate with the upper computer through RS232 interface and monitor various battery information through the upper computer. The default baud rate is 9600 bps.

Pin Definitions of the RS232 Port	
Pin Number	Function Definition
Foot 1, 2, 6	NC
Foot 3	TX
Foot 4	RX
Foot 5	GND

RS232-- 8P vertical socket	
RJ11 pin	Defined Declaration
1	485B1
2	481A1
3	ISO_GND
4	CAN1_H
5	CAN1_L
6	ISO_GND
7	232T
8	232R

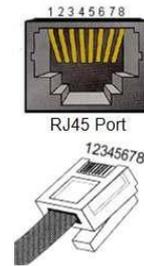


RS 232 Port

RS 485

RS485 terminal: (RJ45 port) the RS485 terminal outputs battery information. The default baud rate is 9600 bps. When batteries are deployed in parallel, you need to set the address of each battery using a dip switch.

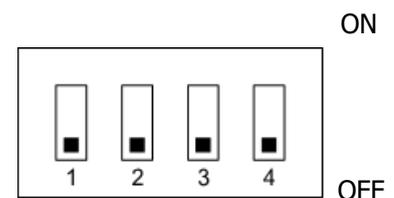
Pin Definitions of the RS485 Port	
Pin Number	Function Definition
Foot 1 and Foot 8	RS485-B
Foot 2 and Foot 7	RS485-A
Foot 3 and Foot 6	ISO -GND
Foot 4 and Foot 5	CAN H and CAN L



ID Switch Settings

If battery strings are connected in parallel and need to communicate in cascading mode, the hardware address of each battery must be configured. The hardware address can be set using the dip switch on the board. When the batteries are in parallel, address 1 is the host and other addresses are slave.

The Battery at address 1 is connected to the inverter; If the address is 0, it is in single-battery mode. For details about the switch, see the following table.



Switch Position				Address	Battery Address Definition
1	2	3	4		
OFF	OFF	OFF	OFF	0	PACK 0 (Let it be HOST)
ON	OFF	OFF	OFF	1	PACK 1 (Let it be Slave)
OFF	ON	OFF	OFF	2	PACK 2(Let it be Slave)
ON	ON	OFF	OFF	3	PACK 3(Let it be Slave)
OFF	OFF	ON	OFF	4	PACK 4(Let it be Slave)
ON	OFF	ON	OFF	5	PACK 5(Let it be Slave)
OFF	ON	ON	OFF	6	PACK 6(Let it be Slave)
ON	ON	ON	OFF	7	PACK 7(Let it be Slave)
OFF	OFF	OFF	ON	8	PACK 8(Let it be Slave)
ON	OFF	OFF	ON	9	PACK 9(Let it be Slave)
OFF	ON	OFF	ON	10	PACK 10(Let it be Slave)
ON	ON	OFF	ON	11	PACK 11(Let it be Slave)
OFF	OFF	ON	ON	12	PACK 12(Let it be Slave)
ON	OFF	ON	ON	13	PACK 13(Let it be Slave)
OFF	ON	ON	ON	14	PACK 14(Let it be Slave)
ON	ON	ON	ON	15	PACK 15(Let it be Slave)

Display Screen

Main page

When the battery management interface is displayed:

Pack V lot: Total battery pressure

Im: Current

SOC: State Of Charge

ENTER /Press the ENTER to enter the home page.

(You can select items up and down, then press the ENTER button to enter, long press the confirmation button to switch English display)



DOWN

Press DOWN to enter the battery parameter details

Cell Volt : Single-unit voltage query

TEMP : Temperature query

Capacity : Capacity query

BMS Status : BMS A BMS status query



ESC: Exit (under the entry interface to return to the superior interface)

Note: If the inactive button exceeds 30s, the interface will enter a dormant Status; awaken the interface with any boundary.

III. Installation Tools

Please note before installation

- a. Insulated tools should be used to prevent short circuit during installation.
- b. Power terminal installation must be checked for tightness, whether there is rust, corrosion, or other foreign bodies. If there is any wipe clean and tighten the bolt. This is important, if the terminal bolt contact is improper, there will be a voltage drop at the bolt, which may lead to temperature rise and can consequently lead to damage of the battery terminals.

Following tools are required to install the battery module:

Sr No	Items	Qty
1	Ratchet spanner set	1
2	Slotted screw driver	1
3	Philips screw driver	1
4	Plier	1
5	Nose plier	1
6	knife	1
7	Insulation tape	1
8	Multi meter	1
9	Clamp meter	1
10	Crimping Tool	1

NOTE: Use properly insulated tools to prevent accidental electric shock or short circuits. If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

III. Installation Steps:

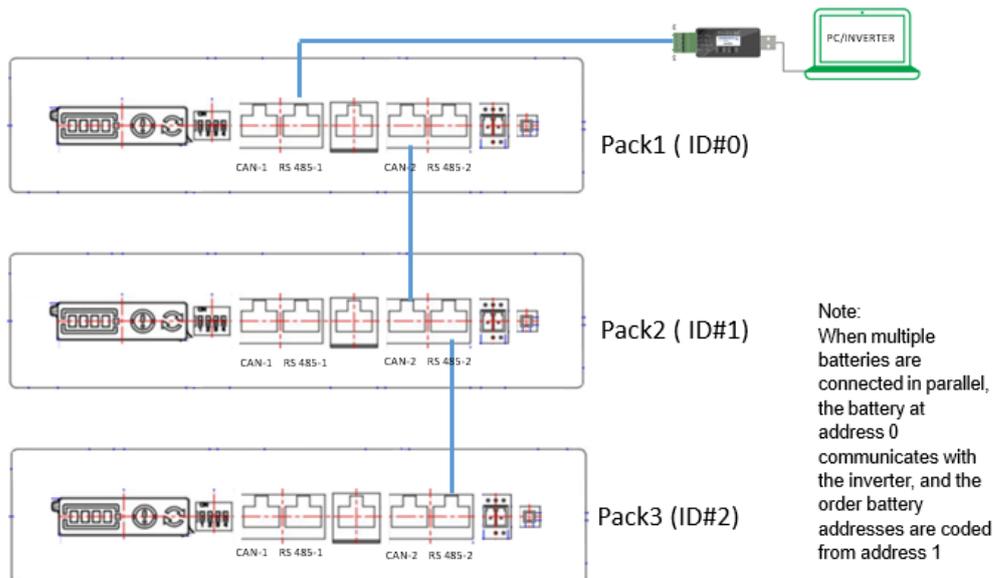
When installing batteries, strictly follow the following steps. Do not change the installation sequence at will:

- a. Before installing the battery, ensure that the battery is powered off or in hibernation. If the battery is turned on, press the "RESET" button on the battery panel. Hold down the button for 3 seconds before releasing it. At this time, the battery will enter the hibernation state, and the battery has no voltage output.



Reset Button

- b. Place the batteries to be installed into the rack one by one and install the screws that secure the batteries to the rack
- c. Connect the negative wires: After the battery is fixed, connect all the negative terminals of the battery together, and finally connect the negative terminal of the inverter DC input to the negative terminal of the battery.
- d. Connect the positive wires: Connect all the positive terminals of the battery. Finally, connect the positive terminal of the inverter dc input to the positive terminal of the battery.
- e. Connect the communication cable between the batteries and the inverter.



- f. Setting the Battery Address: After the preceding operations are complete, set the IP address of the battery connected to the inverter to 1, and set other IP addresses from 2 until all the settings are complete.
Note: The address of each battery should be unique. Otherwise, communication will be affected.
- g. Check that all connections are correct and firm.
- h. Start the inverter to charge the battery. In normal state, all the batteries will be activated and enter the working mode.

V. Trouble Shooting Steps:

I. Preliminary determination steps:

The battery can be turned on, but red light is lighting, and cannot charge or discharge. If the red light is lighting, that means system is abnormal, please check values as following:

- **Temperature:** Above 55°C or under -20°C, the battery could not work.
- **Solution:** to move battery to the normal operating temperature range between -20°C and 55°C.

- **Current:** If current is greater than 110A, battery protection will turn on.
- **Solution: Check whether current is too high or not, if it is, change settings on power supply side.**

- **High Voltage:** If charging voltage above 57.6V, battery protection will turn on.
- **Solution: Check voltage if it is too high or not, if it is, change the settings on power supply side.**

- **Low Voltage:** When the battery discharges to 44.8V or less, battery protection will turn on.
- **Solution: Charge the battery for some time, the red light turns off.**

Excluding the four points above, if the fault is still cannot be located, turn off power switch of the battery and repair.

II. The battery cannot be charged or discharged.

- i. **No charging:** First check that the charging voltage of the charging device is normal, if the charging voltage is normal (56V-57.6V), then use computer to connect with the battery, read the detailed data of the battery, check whether the voltage and temperature of the single battery is normal, if the charging equipment is normal, the general reason for not charging is: the single charging over voltage protection or high temperature protection.

- ii. **Fail to discharge:** Disconnect the battery from the load and measure whether the voltage of the battery is normal, If the battery has no output voltage, press the Reset button to sleep the battery first and then wake up (restart the battery), and test the battery voltage again. If the battery voltage returns to normal, it indicates that the battery is protected, Check the load. If there is no voltage output after the battery is restarted, connect the battery to the host computer through the RS485 port and check whether the battery voltage and temperature are normal. Generally, cannot discharge the reason is temperature protection, over current protection, under voltage protection.

VI. Emergency Measures:

- a. **Leaking Batteries** If the battery module leaks electrolyte, avoid contact with the leaking liquid or gas. If one is exposed to the leaked substance, immediately perform the actions described below:
 - Evacuate the contaminated area and seek medical attention.
 - If the body is exposed to harmful substances such as electrolytes, wash it thoroughly with soap and water immediately. If you feel unwell, seek medical attention immediately.

- b. If smoke or open flame is found in the battery, use only a dry powder extinguisher. If possible, the battery should be removed and placed in a safe place before the battery module catches fire to avoid greater damage.

- c. Damaged batteries are dangerous and must be handled with great care. If faulty batteries need to be stored, store them in a special warehouse and take fire control measures.

- d. If the electrolyte of the battery is found to leak, then the battery needs to be scrapped, contact a professional battery recycling company in your area.