

4U 48V Lithium Iron Phosphate Battery – Operations & Maintenance Manual

Product Description

The PowerUpESS LIFEPO4 battery is the most advanced lithium battery in the industry. The battery uses UltraLifeA™ cells with the longest life in the industry. The PowerUpESS SmartLogicBMS™ battery management system provides advanced battery management with the tools to configure it for any application. The BMS also allows for commutation, monitoring, and data collection for all common invertors.

Product Number

B48LPI5 V2	4Ux17" Lithium Iron Phosphate battery.
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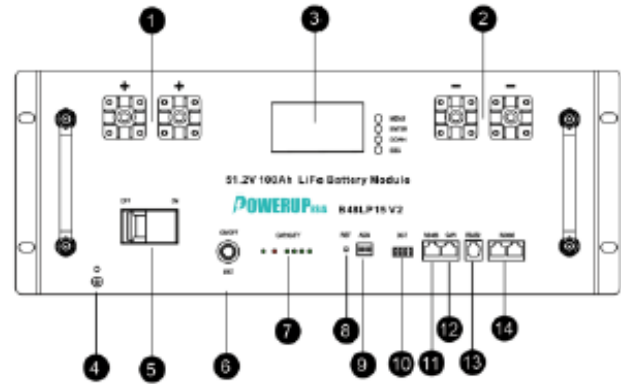
Warning/Caution Notations

CAUTION	All service and repair work should be completed by qualified personnel.
WARNING	Batteries modules are heavy and should be lifted by two people.
WARNING	Electrical Shock Hazard! Appropriate PPE should be worn.

Accessories

Description	Part Numbers
2 Battery bus bar kit. Fits PowerUpESS batteries.	BBK2100
3 Battery bus bar kit. Fits PowerUpESS batteries.	BBK3100
4 Battery bus bar kit. Fits PowerUpESS batteries.	BBK4100
2 Battery communication kit. (1-12" CAT6 cable, 1 terminating resistor)	BCK2RS485
3 Battery communication kit (2-12" CAT6 Cable, 1 terminating resistor)	BCK3RS485
3 Battery communication kit (3-12" CAT6 Cable, 1 terminating resistor)	BCK4RS485
PowerUpESS Battery RS232 cable.	BCR1S232
PowerUpESS Battery PC software	BCSW
2 battery rack, powder coated, 4Ux17" wide x 17" deep	BR2T4U17
3 battery rack, powder coated, 4Ux17" wide x 17" deep.	BR3T4U17
4 battery rack, powder coated, 4Ux17" wide x 17" deep.	BR4T4U17

Product Details



No	Description
1	Battery positive + terminals
2	Battery negative – terminals
3	LCD display
4	Ground
5	Main Circuit Breaker (output)
6	ON/OFF switch
7	LED Indicator
8	Reset button
9	Communication address DIP switch
10	Dry contact outputs
11	RS485 Communication port
12	CAN bus communication port
13	RS232 PC communication port
14	RS485 daisy chain communication ports

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LED Indicators

There are 6 LED indicator lights which display batter condition and operating mode. Starting from the left, the green light indicates a “RUN” condition. The next red light is the alarm indicator. The next 4 lights show the “state of charge” of the battery.

Pack Status	Normal/Alarm/Protection	RUN	ALM	SOC Indication LED				Remark
		•	•	•	•	•	•	
Power Off	Sleep	OFF	OFF	OFF	OFF	OFF	OFF	All OFF
Standby	Normal	Flash 1	OFF	Indication by SOC				Standby
	Alarm	Flash 1	Flash 3	Indication by SOC				Battery undervoltage
Charge	Normal	ON	OFF	Indication by SOC				-
	Alarm	ON	Flash 3	Indication by SOC				-
	Over Charge Protection	ON	OFF	Indication by SOC				-ALM LED is off when overcharge protection
	Temperature/Overcurrent protection	OFF	ON	Indication by SOC				Stop charge
Discharge	Normal	Flash 3	OFF	Indication by SOC				-
	Alarm	Flash 3	Flash 3	Indication by SOC				-
	Over Discharge Protection	OFF	OFF	Indication by SOC				Stop discharge
	Temperature/Over current /Short circuit protection	OFF	ON	Indication by SOC				Stop discharge
Fault		OFF	ON	OFF	OFF	OFF	OFF	Stop charge & discharge

Flash	ON	OFF
Flash1	0.25Sec	3.75Sec
Flash2	0.5Sec	0.5Sec
Flash3	0.5Sec	1.5Sec

Buzzer (Optional)

Each battery is equipped with a buzzer, the default is off.

Mode	Duration/Description
Fault	0.25 per 1 second
Protection	0.25 per 2 seconds / overcharge
Alarm	0.25 per 3 seconds / overcharge alarm

Warning/Caution Notations

CAUTION	Electrical Hazzard!!
WARNING	Batteries modules are heavy and should be lifted by two people.

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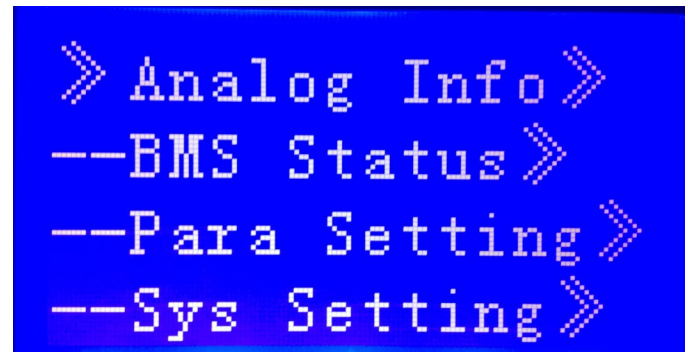
Operating Instructions

Before powering on battery, ensure all installation instructions have been followed. Verify the integrity of electrical connections.

- Turn on Main Circuit Breaker
- Turn on ON/OFF switch, press for 3-6 seconds.
- View LED indictor lights to determine battery status.
- Go to the troubleshooting section if needed.

LCD Display functions

The battery has an LCD display to view battery conditions and configure battery parameter and system settings. Upon power up a common message will be displayed. Press the menu button to display the main menu.

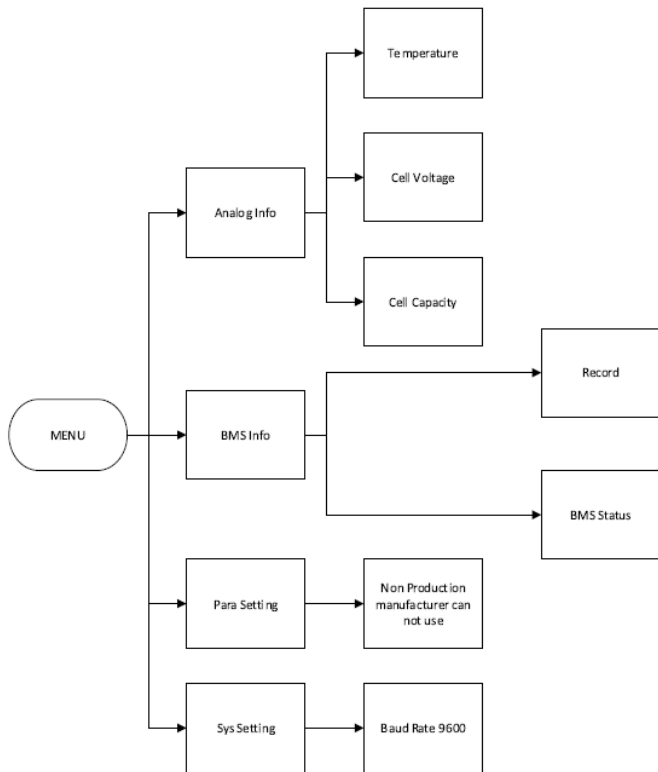


The four buttons on the right of the display allow for navigation. The double chevron » sign on the left indicates the current selection or cursor position.

Button	Function
Menu	Displays the main menu
Enter	Selects the menu item
Down	Move the cursor down
ESC	Returns to the previous menu

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LCD Menu Structure



BMS Info	Record (Indicates past records)	SCP: O/UTP: OCP: UVP: OVP:	Short circuit Over temp. Overcurrent Undervoltage Overvoltage
BMS Info	BMS Status (Indicates current BMS status)	OT: OTP: OV: OVP: UV: UVP: OC: OCP: SCP: -- Failure	Over temp Over temp protect. Overvolt Overvolt protect. Under volt Under volt protect. Overcurrent Overcurrent protect. Short circuit protect. BMS failed
Para Setting			Not configurable from LCD
Sys Setting		Baud Rate	Communication speed (baud)

Battery Reset

The battery BMS will be reset after pressing this button for 6 seconds. All the LEDs will flash at the same time.

Troubleshooting

Menu	Submenu	Information	Description
Analog Info		PackV: Im:	Total Voltage Total Current
Analog Info	Temperature	T1 – T4 PCB_T ENV_T	Battery temp BMS temp External temp
Analog Info	Cell voltage	Cell01 – Cell16	Individual cell voltage
Analog Info	Cell Capacity	SOC: FCC: Rm: CC:	State of Charge Full cycle count Remaining Cycle Count
BMS Info		Status:	Idle Charge Discharge

Symptom	Possible Cause	Solution
No indication or alarm on the front panel	Battery is in sleep mode	Toggle on/off switch or press reset button
No indication of alarm on the front panel after rest	Batter voltage too low	Charge battery
Red LED flashing in standby mode	Battery cell voltage low	Charge battery
Red LED flashing when charging.	Alarm	Consult Dealer
Red LED flashing when discharging	Alarm	Consult Dealer
Red LED on continuous	Alarm	Consult Dealer

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If the battery has been sitting idle for a long time the battery should be bulk charged to reset the “State of Charge” indicator.

Storage and Maintenance

Battery should be stored in a clean dry location. Recommended long term storage temperature is 60 degrees F to 75 degrees F. Before storing, the battery should be charged for at least 7 hours. The battery should also be charged fully in order to reset the State of Charge counter before reuse.

Basic maintenance requirements include keeping the batteries clean and free of dust. Clean with a dry cloth and do not touch the open battery terminals.

Cautions and Warnings

The battery system operates with hazardous voltages. Repairs may be carried out only by qualified maintenance personnel.

When replacing the batteries, install the same number and same type of batteries.

When replacing the parallel batteries, make sure the new battery is fully charged.

Do not disassemble the battery system. Warranty will be void if battery is disassembled.

The shelf life of this product is within 24 months after it is delivered.

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