Automatic
Self-Heating

Li Time

16V 100Ah

Smart BLUETOOTH 5.0 x Marine Electronics x Group 27 and More

PRODUCT (100A BMS) MANUAL

Lithium Iron Phosphate ($LiFePO_4$) Battery

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PRODUCT OVERVIEW

16V 100AH BATTERY

Operating Voltage: 16V

Charging Voltage: 18V±0.25V

Recommended Charge Current: 20A (0.2C)

Required Minimum Charge Current (for Heating Function): 10A

Max. Continuous Discharge Current: 100A

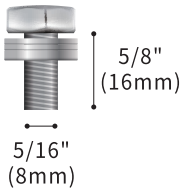
Max. Continuous Output Power: 1600W

ADDITIONAL COMPONENTS

M8- 5/8" (16mm) TERMINAL BOLTS

Recommended terminal torque: 106.2 to 123.9 inch · lbs / 12 to 14 N · m.

The terminal bolts are used to secure multiple cable lugs to a single battery terminal. The bolts can be replaced with M8 bolts of other lengths based on actual needs.



INSULATING CAPS FOR BOLTS

Cover the battery with the insulating caps after tightening the bolts. If the cap melts, stop using the battery and reach out to service@litime.com for further analysis.

BATTERY PARAMETERS

Cell Type	$LiFePO_4$
Nominal Voltage	16V
Rated Capacity	100Ah
Energy	1600Wh
Internal Resistance	⩽40mΩ
Cycle Life	⩾4000 times
Battery Management System (BMS) Board	100A
Charge Method	CC/CV
Charge Voltage	18.0±0.25V
Recommended Charge Current	20A (0.2C)
Required Minimum Charge Current for Heating Function①	10A
Max. Continuous Charge Current	100A
Max. Continuous Discharge Current	100A
Surge Discharge Current	500A@1 second

Max. Continuous Output Power	1600W
Dimension	L12.13*W6.69*H8.31 inch
	L308*W170*H211 mm
Housing Material	ABS
Recommended Terminal Torque	106.2 to 123.9 inch · lbs / 12 to 14 N · m
Protection Class	IP65
Temperature Range	Charge: -20°C to 50°C / -4°F to 122°F
	Discharge: -20°C to 60°C / -4°F to 140°F
	Storage: -10°C to 50°C / 14°F to 122°F
Heating Temperature	Charge: -20°C to 5°C / -4°F to 41°F
Approx. Heating Time @10A	70-90mins (From -10°C / 14°F)
	100-150mins (From -20°C / -4°F)
Low Temperature Charging Protection(LTCP) Function②	Yes
Resume Charging Temperature Under LTCP	5°C/41°F (Battery Temperature)

① The charge current should be greater than 10A to activate the automatic self-heating function.

② This product supports Low Temperature Charging Protection (LTCP), where the BMS stops battery charging when the battery temperature falls below 0°C/32°F and resumes charging when the temperature rises above 5°C/41°F.

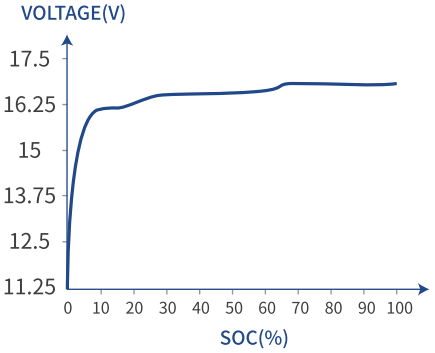
HOW TO ESTIMATE THE BATTERY CAPACITY

STATE OF CHARGE (SOC)

The battery capacity could be roughly estimated by its resting voltage (not charging/discharging voltage).①

Since the voltage of each battery is slightly different, and the voltage measurement is affected by the measuring instrument, ambient temperature, etc., the following parameters are for reference only. The actual SOC of the battery is based on the discharge capacity under load.

Resting Voltage:The voltage is measured after the battery has been disconnected from the charger and loads with zero current, and left alone for 3 hours.



SOC (%)	VOLTAGE (V)
0	12.5 to 15
25	16.25 to 16.44
50	16.44 to 16.5
75	16.63 to 16.66
100	⩾16.66②

① Based on the characteristics of $LiFePO_4$ batteries, the voltage measured by all $LiFePO_4$ batteries during charging/discharging is not the real voltage of the battery. Therefore, after charging/discharging and disconnecting the battery from the power source, the voltage of the battery will gradually drop/increase to its real voltage.

② After this battery is protected from overcharge, the tested battery voltage (not the real voltage) will be lower than the real voltage. To calculate the SOC (%), add 0.5V to 0.7V to the tested battery voltage.

PARALLEL CONNECTION

THE PREMISE OF CONNECTION

To connect in parallel, batteries should meet the below conditions:

a. identical batteries with the same battery capacity (Ah) and BMS (A);

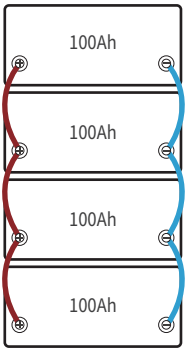
b. from the same brand (as lithium battery from different brands has their special BMS);

c. purchased in near time (within one month).

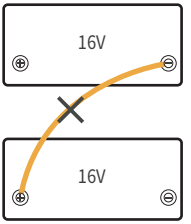
LIMITATION FOR SERIES/PARALLEL CONNECTION

Support connecting up to 4 identical batteries in parallel for up to: 16V 400Ah battery system.

Parallel Connection
16V 400Ah



DO NOT Support Series Connection



WHAT TO DO WHEN THE

BATTERY STOPS WORKING?

When the battery

Can’ t work or Can’ t be charged or Voltage < 11.25V

It has 85% chances that BMS has shut it off for protection, and you could try one of below ways to activate the battery.

GENERAL STEPS

If the BMS has cut off the battery for protection, follow the below steps to activate it.

Step 1 Cut off all the connections from the battery.

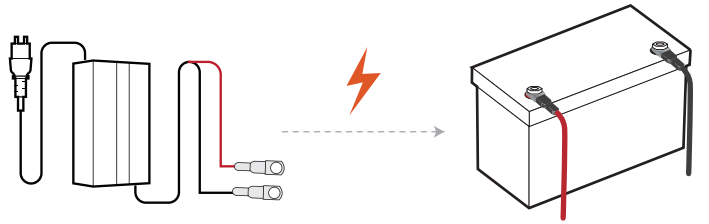
Step 2 Leave the battery aside for 30mins.
Then the battery will automatically recover itself to normal voltage (>12.5V) and can be used after being fully charged.

If the battery is unable to recover itself after the above steps, please try activating by **THE BELOW METHOD.**

After being activated (voltage >12.5V) and fully charged by the normal charging method, it can be used normally.

Activation Method

Use a charger with lithium battery activation function to fully charge the battery.



Charger with Lithium Battery Activation Function

Activate & Fully Charge

Li Time

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