



12.8V 280Ah



# PRODUCT (200A BMS) MANUAL

Lithium Iron Phosphate (LiFePO<sub>4</sub>) Battery

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# PRODUCT OVERVIEW

## 12.8V 280AH BATTERY

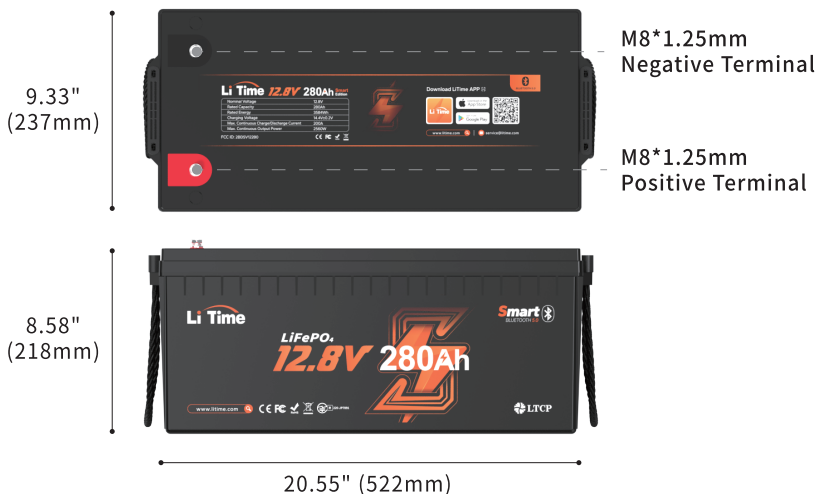
Operating Voltage: 12.8V

Charging Voltage:  $14.4 \pm 0.2V$

Recommended Charge Current: 56A (0.2C)

Max. Continuous Discharge Current: 200A

Max. Continuous Output Power: 2560W

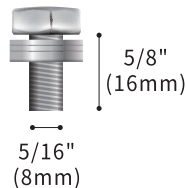


## ADDITIONAL COMPONENTS

### 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](mailto:service@litime.com) for further analysis.

# BATTERY PARAMETERS

|                                       |                     |
|---------------------------------------|---------------------|
| Cell Type                             | LiFePO <sub>4</sub> |
| Nominal Voltage                       | 12.8V               |
| Rated Capacity                        | 280Ah               |
| Energy                                | 3584Wh              |
| Internal Resistance                   | ≤40mΩ               |
| Cycle Life                            | ≥4000 times         |
| Battery Management System (BMS) Board | 200A                |
| Charge Method                         | CC/CV               |
| Charge Voltage                        | 14.4V±0.2V          |
| Recommended Charge Current            | 56A (0.2C)          |
| Max. Continuous Charge Current        | 200A                |
| Max. Continuous Discharge Current     | 200A                |
| Surge Discharge Current               | 1000A@1 second      |
| Max. Continuous Output Power          | 2560W               |

|                                                                  |                                          |
|------------------------------------------------------------------|------------------------------------------|
| Dimension                                                        | L20.55*W9.33*H8.58 inch                  |
|                                                                  | L522*W237*H218 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: 0°C to 50°C / 32°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   |
| Low Temperature Charging Protection (LTCP) Function <sup>①</sup> | Yes                                      |
| Resume Charging Temperature Under LTCP                           | 5°C/41°F (Battery Temperature)           |

① 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.

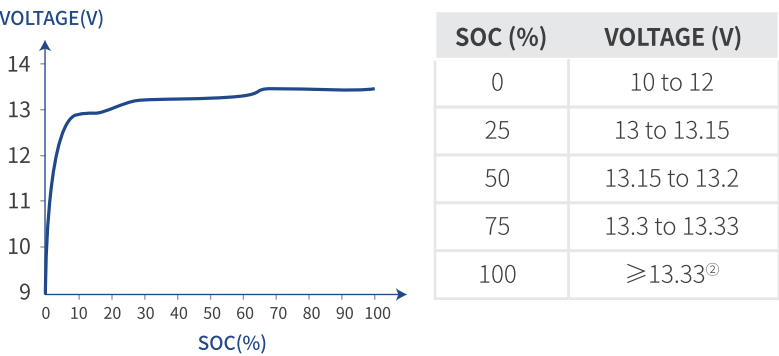
# HOW TO ESTIMATE THE BATTERY CAPACITY

## STATE OF CHARGE (SOC)

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

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.



- ① Based on the characteristics of LiFePO<sub>4</sub> batteries, the voltage measured by all LiFePO<sub>4</sub> 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.

# SERIES / PARALLEL CONNECTION

## THE PREMISE OF CONNECTION

To connect in series or /and 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

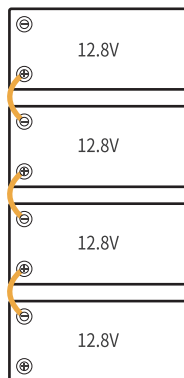
Support connecting up to 16 identical batteries for up to:

4 in series as 48V (51.2V) battery system or

4 in parallel as 1120Ah battery system.

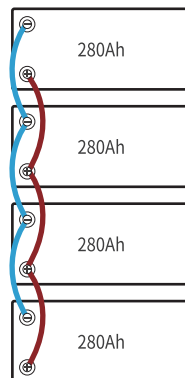
### Series Connection

48V(51.2V) 280Ah

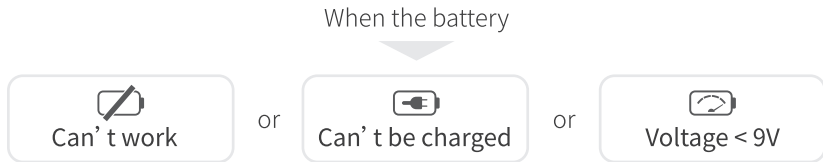


### Parallel Connection

12V(12.8V) 1120Ah



# WHAT TO DO WHEN THE BATTERY STOPS WORKING?



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 (>10V) and can be used after fully charged.

If the battery is unable to recover itself after the above steps, please try activating by **ONE OF BELOW TWO METHODS.**

After activated (voltage > 10V) and fully charged by the normal charging method, it can be used normally.

### Method ①

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

### Method ②

Connect a controller that supports 12V LiFePO<sub>4</sub> battery charging to charge the battery for 3~10s in sunny daytime.

**Li Time**

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