Lithium Iron Phosphate (LiFePO4) Battery

CMP205135-BH150 (12.8V, 135AH)

Features of the *CMPower* High Power Density LiFePO4 Battery

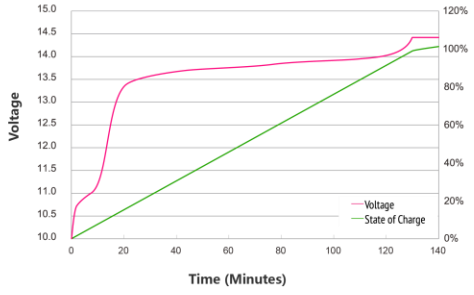
- **Bluetooth Battery Monitor:** Built in real time monitoring of battery State-of-Charge
- **Longer Cycle Life:** Up to 10 times longer cycle life and 5 times longer calendar life than lead acid batteries.
- **Lighter Weight:** Up to 50% lighter than a comparable lead acid battery. Up to 4 times more power per pound than lead acid batteries.
- **Efficient charging and discharging:** Up to 20% more efficient. Store 20% more generated charging power. Up to 4X faster charging than lead acid.
- **Superior Safety:** LiFePO4 chemistry eliminates the risk of combustion due to overcharging, short circuit, high impact.
- **Increased Flexibility:** Modular design enables deployment of up to 4 batteries in series and up to 10 batteries in parallel.
- **Compatibility:** The built in BMS (Battery Management System) compensates for various charging profiles and protects the LiFePO cells.
- **Maintenance:** Replaceable Battery Management System (BMS)
- **Applications:** House battery bank, trolling motor, engine start (<50hp), bow thruster, windlass, electric winches

Specifications

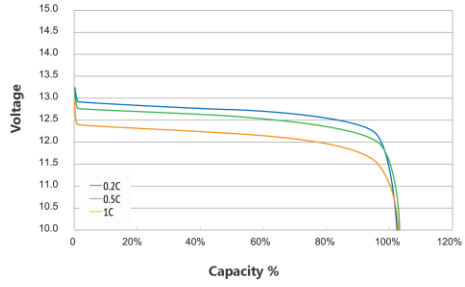
Electrical Characteristics	Nominal Voltage	12.8V
	Nominal Capacity	135Ah
	Energy	1,728 Wh
	Internal Resistance	≤20mΩ ± 1mΩ
	Cycle Life	>3000 cycles @1C 100% DOD, >6000 cycles @1C 80% DOD
	Self Discharge	<3% per month
	Efficiency of Charge	100% @ 0.2C
	Efficiency of Discharge	98~100% @ 1C
Standard Charge	Charge Voltage	14.4V±0.2V
	Charge Mode	0.2C to 14.4V, then 14.4V,charge current to 0. 02C (CC/CV)
	Charge Current	27A-67A (0.2C - 0.5C)
	Max Charge Current	100A
	Charge Cut-off Voltage	14.6V±0.1V
Standard Discharge	Continuous Current	150A
	Max. Pulse Current	600A(300ms)
	Discharge Cut-off Voltage	10V
Environmental	Charge Temperature	0℃ to 55℃ (32°F to 131°F) @60±25% Relative Humidity
	Discharge Temperature	-20℃ to 60℃ (-4°F to 140°F) @60±25% Relative Humidity
	Storage Temperature	-5 ℃ to 45℃ (23°F to 113°F) @60±25% Relative Humidity
	Water Dust Resistance	IP65
Mechanical	Cell & Method	Cylindrical 26700 cell 142-165wh/kg
	Plastic Case	ABS+PC UL V-0 flame resistant
	Dimensions (mm./in.)	L305xW169xH210mm / L12xW6.7xH8.3 in. (Group 27)
	Weight (kg./lbs.)	14kgs/31lbs.
	Terminal	M8
	Features	Bluetooth battery monitor app

Performance Characteristics for a CMPower High Power Density LiFePO4 12.8V Battery

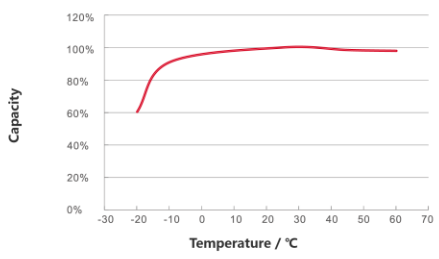
Charging Characteristics (0.5C @25℃)



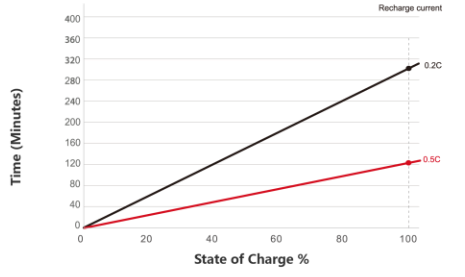
Disharging Characteristics (0.2C, 0.5C, 1C @25℃)



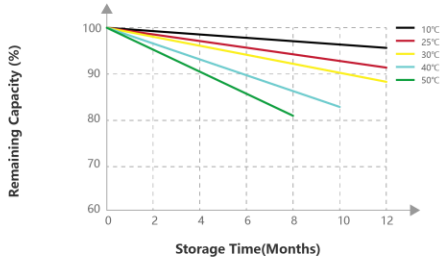
Different Temperature Capacity Curve



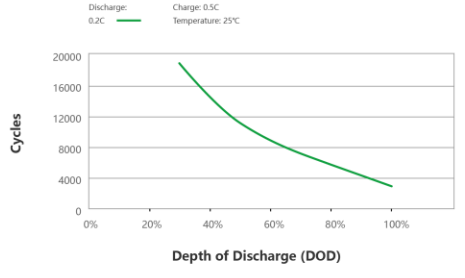
Typical Charge Time Curve



Different Temperature Self Discharge Curve



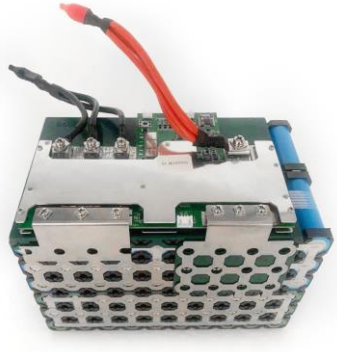
Different DOD Discharge Cycle Life Curve



Certifications

- UL1642 (Cell)
- IEC62133 (Cell)
- IEC62619 (Cell)
- CE (Pack)
- UN38.3 (Cell / Pack)
- ROHS (Cell)

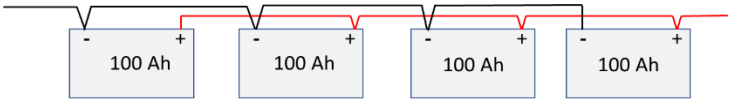
MSDS UN38.3



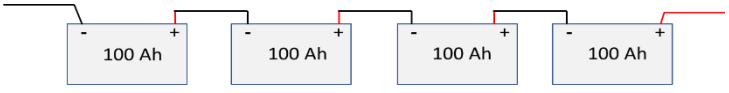
Installation and Operating Considerations

Mounting - The batteries can be positioned and secured in any direction; bottom or side. There is nothing to leak out. The area around the batteries should be ventilated for heat dissipation. The batteries should be located in a moderate temperature environment.

Wiring – **Parallel** – Up to ten batteries may be connected in parallel to increase the current capacity of the battery bank. When batteries are connected in parallel, the voltage of the system does not change, but the current capacity of each battery is additive. For example, two batteries with a 150A continuous current rating connected in parallel can deliver 300A continuously. All cables and connections MUST be able to accommodate the high currents that can be delivered by the battery bank. Appropriate fuses and circuit breakers are also highly recommended to protect downstream appliances.



Wiring - Series - Up to four 12V batteries may be connected in series to increase the voltage of the battery bank up to a 48V. When batteries are connected in series, current capacity remains the same, and the system voltage is additive. For example, two 12V 100Ah batteries connected in series can deliver 100A continuously at a nominal 24V.



All positive wires should be fused near the battery bank per ABYC standards.
Lead acid or AGM batteries should not be connected with LiFePO4 batteries.

It is important that all batteries be of equal charge greater than 70% before connecting them in series or parallel.

Battery monitor – Most battery monitors are compatible with LiFePO4 batteries however, the Peukert coefficient should be set to 1.02 - 1.04 (1.25 for typical lead acid) for accurate measurement.

Parameters for Charging - Charging parameters for charging sources may need to be adjusted.

- Bulk/Absorption Voltage – 14.4V (acceptable range is 13.6V to 14.4V ± .5V, 28V to 28.8V)
- Absorption Time - 0.3 to 0.5 hours per 100 Ah of battery capacity. (2-100Ah batteries set to 0.6 to 1 hour)
- Float Voltage – 13.8V A float stage is not required for charging. A float voltage of 13.4V to 13.8V is acceptable.
- Equalization – 14.2V Do not equalize LiFePO4 batteries. If equalization cannot be turned off, set a maximum voltage of 14.2V.
- Charging Amperage - The charging amperage range should be 0.2C to 0.5C (C is the battery Ah rating).
- Temperature Compensation – LiFePO4 batteries do not require temperature compensation.
- Over voltage Disconnect – 15V
- Over voltage Reconnect – 14.2V
- Charging Limit Voltage – 14.6V
- Discharging Limit Voltage – 10.0V
- Low Voltage Disconnect – 10.0V
- Low Voltage Reconnect – 11.2V
- Under Voltage Warning – 10.6V

Installation and Operating Considerations Continued

Operating and Storage Temperature Range - LiFePO4 batteries can be stored in temperatures of 23°F (-5°C) to 113°F (+45°C). It is recommended they not be charged and discharged at temperature below -4°F (-20°C). It is recommended that the negative terminals be disconnected for winter or long term storage so there is no chance of draining the batteries while in storage. Full discharge of LiFePO4 batteries for an extended period of time will likely damage the cells. LiFePO4 batteries should be recharged every 6 months.

Downloading and Using the Bluetooth App

The built in Bluetooth feature enables the monitoring of each battery via a Smartphone app. The app displays the battery charge or discharge current, the voltage, SOC % (state-of-charge), internal temperature, the time to full charge, the time to full discharge, the number of charge/discharge cycles the battery has incurred and incurred protection alarms.

Loading the app - Android - Go to Google Play Store and search **CMPower 2.0** to download the app.
- IOS Apple - Go to the Apple Store and search for **CMPower 2.0** to download the app.

Using the app - Select the app. The first screen lists the batteries paired with Bluetooth and the SOC of each battery. Select the battery to be monitored. The screen showing the state-of-charge and battery status will appear. Swipe right to left to see additional screens showing battery status data. Press the back key to exit the battery data, select Confirm to return to the battery list.

Caution

- Do not reverse polarity of the battery as this will damage both the battery and the devices being connected.
- Do not submerge the battery.
- Do not expose battery to excessive heat or fire.
- Do not short circuit the battery. Do not mishandle, drop, throw or apply excessive force to the battery.
- Do not operate with loose terminal connections
- Do not combine lead acid and LiFePO4 batteries in the same system.
- Disposal - LiFePO4 batteries marked with the recycling symbol must be processed via a recognized recycling agency. Batteries must not be mixed with domestic or industrial waste.
- All batteries in a battery bank should be of the same make and model.
- Be sure all batteries are at the same State-of-Charge before connecting in series or parallel.
- Recharge batteries every 6 months at a minimum when in not in use. Remove all connections from the negative terminal when storing for long periods of time.

7 Year Warranty Summary

Custom Marine Products (CMP) warrants each branded battery to be free of defects for a period of 1 year from the date of sale as determined by either the customer's sale receipt, or other proof of purchase plus an additional 6 years prorated. Within the warranty period CMP will credit, replace or repair the product and/or parts of the product if determined to be defective in material or workmanship. ***CMPower*** batteries are built to last a minimum of 2,000 cycles and still maintain 80% of rated energy capacity. This warranty applies to the original owner. Contact CMP directly with any and all warranty claims.