

evo charge

16V 105Ah LiFePO4 BATTERY

Thank you for purchasing this EvoLife Lithium 16V 105Ah Lithium Iron Phosphate (LiFePo4) battery. With basic maintenance and care this battery will give you many years of trouble-free service. This battery is fitted with an internal Bluetooth device which allows you to monitor your battery via the EvoCharge Lithium App, each battery has a unique serial number / ID to link to the **EvoCharge Lithium App**.



Model No: ECL-16-105-B

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Product Specifications

ITEM	PARAMETER	
Rated Capacity	105Ah	
Rated Voltage	16V	
Standard Charge Voltage	18.25V	
Charging Method	CC-CV	
Charge Current	≤60A	
Cut-Off Voltage	12.5V	
Continuous Discharge Current	≤60A	
Peak Discharge Current	120A (5S)	
Total Weight	Approximately 13.5kg; 33lb	
Work Temperature	Charge	0°C ~ 60°C
	Discharge	-20°C ~ 60°C
Storage Environment	Temperature	10°C ~ 45°C
	Humidity	≤ 75%RH
Battery Dimension	L329×W170×H216mm L12.95" * 6.69" * 8.50"	

General Instructions

1. Make sure the DC charge input voltage is DC 18.25V suitable for 16v LiFePO4 batteries.
2. Make sure the rated power of the load does not exceed 1680W.
3. The positive and negative terminals of the battery are copper terminals with a M8 internal thread complete with M8*16 hexagonal bolt studs. Red is the Positive terminal and black is the Negative terminal.
4. Where possible do not discharge the battery to 100%, 80% DOD is strongly recommended to prolong the battery life.
5. If the battery becomes fully discharged, disconnect battery from the motor/load immediately and charge the battery within 12 hours.

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Battery Management System (BMS) Features

All EvoCharge Batteries come with a built-in Battery Management System (BMS) that protects the cells for long-term cycling. The BMS protects against the following conditions:

High Voltage: > 18.25V

If an individual cell voltage exceeds a prescribed threshold during charging, the BMS will prevent a charge current from continuing. Discharge is always allowed under this condition.

Low Voltage: < 12.5V

If an individual cell falls below a prescribed threshold during discharge, the BMS will prevent further discharge. Although the battery is in "low-voltage disconnect" mode, it will still allow a charging current. (Note: many chargers must detect a voltage over 12.5v to send a charge to the battery).

High Temperature: > 57°C

The BMS will not allow a charging or discharging current.

Low Temperature: < -4°C

The BMS will not allow a charging current.

High Current

The BMS will not allow a current that exceeds 60 (+/- 5%) Amps for 30s, or 120 (+/- 10%) Amps for 5s. Although these thresholds have been verified with a DC load bank, the 30 second high current threshold may be reduced from 120A to around 60A for certain highly variable loads through an inverter – like a microwave or space heater.

After a high current disconnection, the battery will automatically reconnect after 5 seconds. A passive balancing process is activated by the BMS at the top of each charge cycle, when the battery voltage exceeds around 17V. This ensures that all the cells remain at the same state of charge, which helps for pack longevity and performance.

Charging & Storage

1. Only use a 18.25V charger suitable for 16V Lithium Iron Phosphate (LiFePO4) batteries. Speak to us about our range of EvoLife chargers.
2. The charge current must not exceed 60A.
3. Before connecting the charger, confirm the positive and negative terminals of the charger as well as the battery and make sure to connect correctly. NEVER REVERSE CONNECT!!
4. Storage: simply charge the batteries to at least 50% state-of-charge and disconnect from any charge or load. After charging disconnect the charger from the AC supply.

Maintenance

EvoCharge Lithium Batteries require very little maintenance if any at all. If your batteries are in series and not being charged by a multi-bank charger it is recommended that you fully charge the batteries individually once a year. This will balance out the entire battery bank to ensure the batteries will reach its expected life span. If your batteries are in parallel this is not necessary. Our BMS has a built in passive balancing system that will take care of this for you.

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Installation

- 1 The batteries may be mounted in any orientation, but care must be taken in connecting to the battery terminals. The positive and negative terminals are labeled and color coded (red for +, black for -).

DO NOT REVERSE THE POLARITY, THIS WILL DAMAGE BOTH THE BATTERY AND THE DEVICE BEING CONNECTED! WHEN INSTALLING IN BOATS AND VEHICLES MAKE SURE THE BATTERIES ARE SECURELY FASTENED / STRAPPED TO PREVENT THEM FROM BOUNCING ABOUT!!

- 2 The battery terminals are copper terminals with a M8 internal thread complete with M8*16 hexagonal bolt studs. Always make sure terminal connections are safe and sufficiently tight, never have loose terminal connections as this WILL lead to issues.

- 3 Appropriate fuses and circuit breakers are also highly recommended to protect downstream components from current spikes and short circuits.

- 4 **Parallel Connection:** Multiple EvoCharge batteries may be mounted in parallel to increase the current capacity of the system. When batteries are mounted in parallel, the voltage of the system does not change, but the current limits are additive. For example, two 12V 100Ah batteries mounted in parallel can deliver 200A continuously and 400A for 5 seconds. Therefore, all cables and connections MUST be able to accommodate the high currents that can be delivered by the battery. Appropriate fuses and circuit breakers are also highly recommended to protect downstream components from current spikes and short circuits.

- 5 **Series Connection (12V batteries ONLY):** Up to four 12V EvoCharge batteries may be connected in series to increase the voltage of the system up to a 48V system. When batteries are mounted in series, current capacities remain the same, but the system voltage is additive. Two 12V 100Ah batteries mounted in series to form a nominally 24V system should be charged using a bulk and absorption voltage of 28.8V, and a float voltage of 27.2V. Four 12V 100Ah batteries mounted in series to form a nominally 48V system should be charged using a bulk and absorption voltage of 57.6V, and a float voltage below 54.4V. Batteries to be connected in series should be at the same state-of-charge before they are connected. For best results, fully charge each battery using a 12V charger prior to connecting them in series, in order to ensure that they are at the same state-of-charge.

- 6 **Inverter/Chargers (& other devices having large input capacitance <10 microF):** Special consideration must be made for connection to devices that have a large input capacitance, because of the tendency of these devices to draw large current spikes upon initial connection to the batteries. This includes inverter/chargers that are greater than 4000 Watts in size. This applies to 12V, 24V, and 48V inverter chargers. EvoCharge batteries require a current surge limiter to be installed with each inverter/charger greater than 4000 Watts. **DO NOT CONNECT BATTERIES TO AN INVERTER/CHARGER THAT IS GREATER THAN 4000 WATTS IN SIZE WITHOUT A CURRENT SURGE LIMITER. FAILURE TO INCLUDE A CURRENT SURGE LIMITER WILL DAMAGE THE BMS AND PRESENT A POTENTIAL FIRE HAZARD.**

DO NOT SUBMERGE THE BATTERIES

DO NOT SHORT CIRCUIT THE BATTERIES

DO NOT REVERSE POLARITY

DO NOT EXPOSE THE BATTERIES TO EXCESSIVE HEAT

DO NOT MISHANDLE, DROP, THROW, OR APPLY EXCESSIVE FORCE

DO NOT OPERATE WITH LOOSE TERMINAL CONNECTION

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Long Term Storage / Air & Sea Transportation

- 1 According to characteristics of LiFePO4 batteries, a suitable temperature range in transportation/storage is required to protect the battery and to insure safety to carriers
- 2 During transportation / storage, proper protection is required, a 30% – 50% SOC must be kept, making sure no short circuit is possible. Most airlines require a SOC of no more than 30% for airfreight and shipping lines for sea freight a SOC of no more than 50%. Always double check with local authorities.
- 3 If unused the battery should be stored at 0°C ~ 45°C in a facility where it's dry, clean and well-ventilated.
- 4 During the process of loading and unloading the battery should be handled with care to avoid dropping, rolling, or applying heavy pressure.
- 5 Battery recharge is needed every 3-6 months during prolonged storage. Full discharge and recharge is recommended every 6-12 months.

Tips

PREVENT LEAKAGE, OVERHEATING & POSSIBLE FAILURE BY TAKING THE FOLLOWING PRECAUTIONS:

If the battery has been discharged to 100%, disconnect from load at once and charge within 12 hours.	If by any chance leaked electrolyte gets into eyes, rinse with fresh water immediately and seek medical attention.	Check the voltage of battery and relevant connectors before using the battery.	Periodically check the overall status and condition of the battery to insure all is safe and undamaged.
Always store the battery under dry, shady and cool conditions when not use.	If the battery emits a strange smell, feels hot or seems unusual in any way, disconnect all devices and cease use immediately.	If the battery is short-circuited, disconnect all chargers and loads from the battery in order to see if the battery can be recovered.	Always dispose of old batteries in a responsible manner at a suitable recycling facility.
Warnings	Never mix old and new batteries.	Never reverse the polarity.	Never short circuit the battery
Never cut or pierce the battery case	Never throw the battery into a fire.	Avoid dropping or rolling the battery	Never immerse the battery in liquid.
Never use the battery under strong static and magnetic field conditions as will damage the internal protective devices.	Never use or store batteries in excessive heat conditions. (The recommended temperature for long-term storage and use is 10-45°C.	Never mix EvoCharge Lithium Batteries with other types of batteries	Never charge directly from a AC power source and only ever use a special LiFePO4 charger when charging.

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Warranty Policy

Evolife Pty Ltd. ("the Supplier") warrants each EvoCharge Lithium LiFePO4 battery ("the Product") sold by EvoLife, or any of its authorized distributors or dealers, to be free of defects for a period of 5 years ("the Warranty Period") from the date of sale as determined by either the customer's sale receipt, the shipping invoice and/or the battery serial number, with proof of purchase. Within the first 3 years of the Warranty Period, subject to the exclusions listed below, the Supplier will credit, replace or repair, if serviceable, the Product and/or parts of the Product, if the components in question are determined to be defective in material or workmanship. After 3 years and up to 5 years, if the components in question are determined to be defective in material or workmanship, and the supplier deems the components to be repairable, the Product will be repaired and returned. If the Supplier deems the components to be not repairable, a new, similar Product will be offered at a discount rate off of the price listed at the time of the offer. The offer will be valid for a period of 30 days after the date of notification.



Non-Transferable

This Limited Warranty is to the original purchaser of the Product and is not transferable to any other person or entity. Please contact the place of purchase regarding any warranty claim.

Warranty Exclusions

The Supplier has no obligation under this Limited Warranty for Product subjected to the following conditions (including but not limited to): 1. Damage due to improper installation; loose terminal connections, under-sized cabling, incorrect connections (series and parallel) for desired voltage and AH requirements, or reverse polarity connections. 2. Environmental damage; inappropriate storage conditions as defined by the Manufacturer; exposure to extreme hot or cold temperatures, fire or freezing, or water damage. 3. Damage caused by collision. 4. Damage due to improper maintenance; under- or over-charging the Product, dirty terminal connections. 5. Product that has been opened, modified or tampered with. 6. Product that was used for applications other than which it was designed and intended for, including repeated engine starting. 7. Product that was used on an over-sized inverter/charger (any inverter/charger that is rated to 3500 Watts or greater) without the use of a supplier-approved current surge limiting device. 8. Product that was under-sized for the application, including an Air Conditioner or similar device having a locked rotor startup up current that is not used in conjunction with a Supplier-approved surge-limiting device. 9. Product not stored in adherence to the Suppliers storage guidelines, including storage of the Product at low state-of-charge. 10. This Limited Warranty does not cover a Product that has reached its normal end of life due to usage which may occur prior to the Warranty Period. A battery can deliver only a fixed amount of Energy over its life which will occur over different periods of time depending on the application. 11. The Supplier reserves the right to deny a warranty claim if the Product is determined, upon inspection, to be at its normal end of life even if within the Warranty Period.

Warranty Disclaimer

This limited warranty is in lieu of, and the Supplier disclaims and excludes, all other express warranties. The Supplier further limits the duration of all, whether statutory, express or implied warranties, including, without limitation, any warranty of merchant ability or fitness for a particular purpose, to the warranty period. The Suppliers exclusive liability for breach of any warranty on the Battery shall be to replace the Battery within the warranty period in accordance with the terms of this limited warranty. In no event shall the Supplier be liable for any loss or damages of any other kind, whether direct, incidental, consequential including lost profits, exemplary, special or otherwise, including any lost profits or removal, shipping, or installation expenses.

EXCEPT FOR THE WARRANTY SET FORTH ABOVE, THE SUPPLIER MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE GOODS, INCLUDING ANY (A) WARRANTY OF MERCHANTABILITY; OR (B) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.

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Legal Rights

Some countries and/or states do not allow limitation on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, which may vary from country to country and/or state to state. This warranty shall be governed by and interpreted in accordance with the laws of South Africa. This warranty is understood to be the exclusive agreement between the parties relating to the subject matter hereof. No employee or representative of the Supplier is authorized to make any warranty in addition to those made in this agreement.

Non EvoCharge Warranties

This Limited Warranty does not cover Product sold by the Supplier or any authorized distributor or dealer to an Original Equipment Manufacturer ("OEM"). Please contact the OEM directly for warranty claims regarding such Product.

Non-Warranty Repairs

If outside of the Warranty period or for damage not covered under the Warranty, customers may still contact the Supplier for battery repairs. Costs will include, shipping, parts, and labour.

Shipping

You will be responsible for paying for your own shipping costs for returning your item. Shipping costs are nonrefundable. If you receive a refund or replacement the cost of return shipping will be deducted from your refund. If you have any questions on how to return your item to us, please contact us.





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CONTACT DETAILS

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