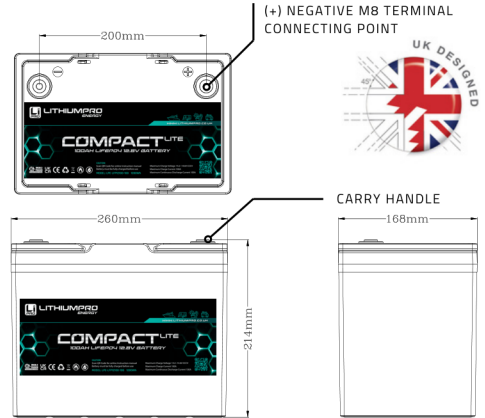


### INTRODUCTION

All Lithium Pro batteries have been designed in Great Britain by British engineers for use in the UK market, so thank you for supporting a British company and for choosing Lithium Pro Energy as your source of 'off-grid' power. This quick start guide will give you the basics for getting setup with your new battery. Lithium Batteries provide a reliable, sustainable and long-lasting auxiliary power supply. They can be used for many applications including Energy Storage Systems ESS, 'off-grid' solar systems, emergency power back systems, as a power source in boats, motorhomes, campervans, caravans, golf carts and many more applications. Your Lithium battery has a nominal voltage of 12.8V and depending on the model purchased, will have an Amp/Hour capacity rating of either 100ah, 105ah or 150ah.



### SAFETY INSTRUCTIONS

- Before using the battery, carefully read and understand the safety instructions provided in the online user manual. To access the user manual, scan the QR on your battery. Or visit [www.lithiumpro.co.uk/qr](http://www.lithiumpro.co.uk/qr)
- Do not expose the battery to direct sunlight, extreme temperatures or water.
- Do not open the battery, this will void the manufacturer's warranty.
- Do not short circuit the battery.
- Store the battery in a well-ventilated area and protect from moisture and heat sources.
- Only use (LiFePO4) Lithium compatible chargers with the recommended charging profile.
- Do not crush, incinerate or modify the battery.
- Recycle the battery according to local regulations.

### INSTALLATION

**WARNING:** Fully charge the battery before use. Due to very strict safety standards surrounding the transportation of Lithium batteries their state of charge cannot exceed 30% during transportation.


Determine the appropriate location to install the battery, make sure it is securely mounted in a well-ventilated area. Once fully charged, connect the battery to your equipment ensuring the correct polarity is observed (+) Positive to (+) Positive and (-) Negative to (-) Negative.

Only use high-quality copper cables and connectors suitable for the batteries current rating. Always use the correct size fuses when connecting loads to the battery, ensuring safe and efficient power transfer.

### CONNECTION

**WARNING:** When connecting batteries always make sure you connect the (+) POSITIVE terminal FIRST and then the (-) NEGATIVE terminal thereafter. This safeguards electrical stability and reduces the risk of a short circuit. If connecting an inverter to the battery, make sure the battery BMS power rating is compatible with that of the inverter. (i.e. the 100A BMS will support continuous inverter loads up to 1280W) NOTE: If connecting an inverter ensure the power is switched OFF before making the connection.

### SERIES & PARALLEL CONNECTIONS

 **WARNING:** Never connect batteries of different brands, amp/hour capacities, or age together. This will lead to charging and discharging imbalances. Internal resistance discrepancies caused by uneven distribution of current flow, may lead to overheating and premature failure of the battery.

**NOTE:** Always fully charge each battery before connecting in Series or Parallel.

All LPE batteries can be put in Series connection to increase the voltage to 24v, 36v or a maximum of 48v providing a flexible range of voltage options. Up to 4 batteries of strictly the same capacity can be connected in Parallel to provide a larger capacity system. (i.e. If two 150ah batteries are connected in parallel the nominal capacity is doubled to 300ah whilst the nominal voltage remains 12.8V.)

### CHARGING

Only connect the battery to a compatible (LiFePO4) lithium battery charger or a MPPT Solar Charge Controller with the correct lithium charging profile selected. If charging in a vehicle it is not recommended to use the cars alternator as the sole charging source as this does not provide the correct charging profile for LiFePO4. A DC to DC battery charger is recommended and will optimise the performance and longevity of your battery when charging in vehicle.

LiFePO4 needs to be charged using CCCV Constant Current Constant Voltage charging method. Lithium can be charged at extremely high currents. LPE batteries are able to be charged in 1hr, due to upgraded and advanced technology in our BMS Battery Management System. However, for longevity it is recommended that all batteries are charged at  $\leq 0.5C$  This is  $0.5 * \text{the rated capacity of the battery}$ . (For example: If the battery has a capacity of 100ah the recommended charging current is  $\leq 50\text{amps}$ .) The recommended Charge Voltage is 14.4V Bulk and Float Charge should be set at 13.8V

### PERFORMANCE & MAINTENANCE

During usage, regularly monitor the battery voltage, temperature and capacity levels to ensure it is operating within specification. Keep the battery terminals clean and free from corrosion.

The BMS Battery Management System safeguards your battery against a range of operational parameters, but if the battery is not operated within the recommended use conditions, such as excessive charging or discharging at high C rates or subjecting it to high temperatures, may ultimately shorten the lifespan of the battery. Our batteries, depending on the model, are designed to last 3000-5000 cycles and still maintain 80% capacity thereafter. If used within the manufacturers guidelines the battery should enjoy a 10-year lifespan.

 Always refer to the user manual for detailed maintenance guidelines specific to your battery model.

### STORAGE

All Lithium Iron Phosphate batteries should be stored in a cool, dry well-ventilated environment. Avoid any exposure to direct sunlight or heat sources. If storing your Lithium Battery for an extended period, it should be isolated from all loads and left at a storage charge level of between 50-80%. LiFePO4 should be charged every 3 to 6 months to prevent over discharging and increasing battery longevity.

### TROUBLESHOOTING & SUPPORT

In case of any issues or concerns not covered above, refer to the troubleshooting section of the user manual or contact our customer support for assistance.