MAXON QUANTIUM Q-LBS SLIMLINE SERIES USER GUIDE

Before setting up the battery, please consider all mechanical and environmental conditions and that the battery is suited to the application you intend to operate.

Maxon Batteries offer these general guidelines; however, you should seek Maxon Batteries advice or that of a qualified electrical tradesman if you are in doubt.

Maxon's Quantium Q-LBS lithium series battery contains lithium iron phosphate cells.

Although Lithium Iron Phosphate (LiFePO4) is one of the safest lithium chemistry, the stored chemical energy does represent a risk of fire, burns or explosion if misused.

For longevity and safe usage from your Quantium Q- LBS Series battery, please ensure you read the user guide and adhere to the following cautions:

1. Do not use for Cranking or starting.

Quantium Lithium batteries are designed for deep cycle applications and are not to be used for starting applications. You should never exceed the maxim current draw as per the datasheet

2. Do not short the terminals.

Whilst the BMS is designed to protect the internal cells from short circuits, it is highly recommended to avoid short-circuiting the battery.

Exercise due care when working on live circuits and always use insulated tools where possible. If you are unsure how to install the battery, seek advice from Maxon batteries or a suitably qualified electrical tradesperson.

3. Ensure the battery is adequately secured.

Lithium batteries are much lighter than their lead-acid counterparts, and they still need to be adequately secured. Do not over tighten hold-down clamps on the lead-acid replacement models.
Always fix Slimline batteries using the brackets supplied.

4. Do not drill or pierce the battery case.

Drilling or piercing the case may inadvertently penetrate one of the cells which could result in thermal runaway and vapour emissions.

5. Maintain an acceptable temperature range

The operational temperature of the battery is 0-45ºC however, keeping it in a range between 10ºC and 25ºC will increase performance and longevity. If operating outside this temperature range, then you should seriously consider changing the battery's location or actively controlling its environment. If the ambient temperature that the battery reaches over 600C, you should cease use immediately.

6. Avoid excessive vibration

While Quantium Q-LBS batteries are of robust construction, they are not designed to operate continuously in big shock or high vibration environments. Everyday use in a 4WD environment is acceptable, and the battery has been developed under these expected conditions.

7. Avoid exposure to water or salt spray.

Do not expose the battery to direct water spray or be mounted in a situation where the case will come in contact with water. Q-LBS Slimline is not designed for a wet environment.

BATTERY MANAGEMENT SYSTEM

Maxon Quantium Lithium-Iron LiFeP04 batteries come with an electronic solid-state inbuilt Battery Management System (BMS).

The BMS not only manages the internal balancing of the cells but protects the battery across a range of scenarios, including protection from over/under voltage, over current, over-temperature and short circuit.

Installation

When connecting devices and loads, you must install high-quality external fuses to the wiring. If unsure of sizing, you should seek Maxon Batteries advice or that of a qualified electrical tradesman.

Ensure battery is safely securely fixed down while during transport.

Always use the brackets supplied if mounting permanently. Batteries can be installed upright and on their side. Do not install upside down. Always disconnect the load when connecting the battery. Batteries can be series up to 51.2V or be paralleled up to 4 batteries.

Never series a parallel bank of batteries.

When setting up multiple battery banks, ensure that all batteries have been fully individually charged and all have an Open Circuit Voltage (Voc) within 0.1V of each other. The Voc is measured after the battery has been rested for at least 40 mins after being fully charged and with no loads connected.

Ensure you are using wiring that can carry higher amperage. By paralleling the batteries, you have kept the nominal voltage the same at 12V but increased the Ah capacity. Therefore the discharge and charge will be higher. Keep the length of the wiring between the batteries consistent. Having one or two cables longer than others changes the resistance within the pack of batteries. Never replace only one battery in the pack; always replace the full bank; this is more crucial with lithium than it is with lead-acid chemistries.

Charging

Although you can charge Quantum Lithium batteries with some lead-acid chargers, chargers, it is recommended you use a quality lithium charger for longevity and safety.

Refer to the specifications for charging voltages, currents and temperature range on individual batteries.

Fully charged battery open-circuit voltage (Voc) without load 13.3V - 13.6V If the battery is below 13V Voc, it should be charged for longevity

Discharging

Refer to the specifications for discharge rates and temperatures of individual batteries. Low voltage disconnect (LVD) is set at 10.0V.

Cycle Life

Maxon Quantium Lithium-Iron LiFeP04 batteries have a cycle life of approx 5,000 cycles @ 50% DOD and 2000 cycles @80% DOD like all Batteries, the less DOD, the longer the life and economical.

Storing of Batteries

Batteries should always be fully charged and isolated from any external loads before storing, a top-up charge should be done every six months. This will increase the performance and longevity of the batteries.

Lithium batteries can offer substantial benefits longer term, and for extended off-grid camping providing proper maintenance and care is maintained.