

USER'S GUIDE

11.1Ah LITHIUM BATTERY

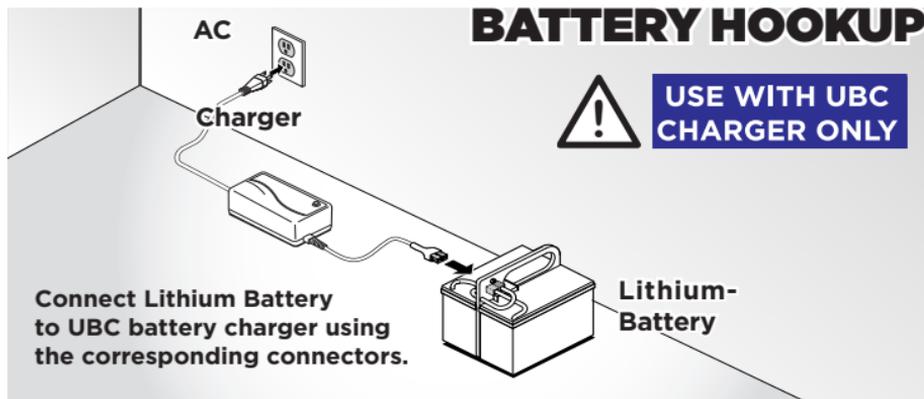


Smith-Root's new Lithium Battery is half the weight of our standard lead-acid battery and has a much higher recharge cycle capacity, resulting in less stress for the user and greater usage life.



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BATTERY HOOKUP



Each of our lithium batteries contain a battery management circuit that monitors the condition of each individual cell. During charging, the battery management circuit works to distribute an even charge in each cell of the battery. During discharge, if the voltage of a single cell in the battery drops too low, the management board turns the battery off, helping to maximize the cycle life of the battery.

It is possible for the battery management circuit to turn the battery off even before the electrofisher indicates the battery is low. If this happens, the electrofisher may exhibit one or more of these conditions: *the display may be difficult to read or even be blank; the audio alarm may be on continuously; the flashing red light may stop flashing and be on continuously.* If you see one or more of these conditions it does not necessarily indicate a problem with the battery or the electrofisher, it simply means the battery is discharged and needs to be recharged as soon as possible.

SERVICE LIFE

Batteries that have been properly maintained should last for several years depending on ambient temperature, depth of discharge (D.O.D) and number of cycles. For batteries to maintain at least 80% of original capacity, they are rated 600 cycles for 100% D.O.D. or 1000 cycles for 60% D.O.D., and 1500 cycles for 30% D.O.D. Battery temperatures above 40C, (104F) will reduce battery life slightly. Battery temperatures above 60C, (140F) will significantly reduce battery life. Batteries which have reached their end of life condition may still be useful where shorter operating time is acceptable.

SHIPPING

When packaged for transport, the terminals must be protected from short circuit and movement that can cause a short circuit.

Shipping of these batteries requires special package labeling that may vary slightly from shipping company to shipping company. Check with your preferred shipper for their requirements.

Shipping of these batteries by air requires special training and certification as well as special packaging due to their IATA classification as '*dangerous goods*'. These batteries can only be shipped on cargo aircraft. It is illegal to transport or attempt to transport these batteries on a passenger aircraft.

TIPS AND PRECAUTIONS

Lithium Iron Phosphate batteries have a much lower self-discharge rate than lead-acid batteries.

Remove them from the charger as soon as the charger indicates the battery is charged. Consistently overcharging these batteries may damage them and reduce their useful life. Recharge stored batteries before taking them into the field.

Heat kills batteries. Avoid storage in exceedingly warm areas and avoid leaving lithium batteries in a vehicle on hot days. Recommended operating temperatures are between 5 and 35 degrees C (maximum range of -15 to 50 degrees C). The energy available on a given discharge cycle decreases at low temperatures and increases at higher temperatures. Do not operate Lithium Batteries at a battery temperature above 60 degrees C. Lithium batteries have a higher internal resistance than lead-acid batteries this will lead to internal heating when charged or discharged at high rates. Try to avoid using settings of your electrofisher that result in excessive battery currents.

Avoid heavy vibration or shock which may cause internal damage. Foam packing is cheap insurance.

Avoid contact with oils and solvents which may attack the battery case (ABS plastic resin). Clean with soap and water only. These batteries are not guaranteed to

be sealed against liquid incursion. Avoid submerging these batteries. Do not crush, incinerate, or dismantle the battery. Dispose of old batteries at a battery recycler.

CAPACITY

The Lithium Battery pack is 11.1Ahr and falls between the 12Ahr heavy duty lead-acid battery and the 7Ahr standard lead-acid battery.

RECHARGING

Batteries should never be allowed to remain in a discharged state. Recharge as soon as possible after each use, even if the battery is only slightly discharged (these batteries do not have a memory). The total number of charge/discharge cycles varies inversely with the depth of discharge on each cycle. Over-discharging or completely discharging the battery will greatly reduce the cycles possible and a battery left in a discharged condition may be ruined. Recharging with the UBC battery charger is automatic and consists of two stages:

STAGE 1 – Constant Current Mode. The charger starts with maximum current until the battery reaches a preset voltage. (cont. on PAGE 5)

STAGE 2 – Timed Constant Voltage Mode. Once the charger indicates the battery is fully charged remove

the battery from the charger. **Do not charge Lithium Batteries with a lead-acid battery charger.** Doing so may result in over-charging and possible battery damage and reduced battery life.

Smith-Root UBC battery chargers provide full electronic protection against short circuit and reverse battery connection.

Time to recharge will vary depending on state of charge and condition of the battery. It will typically take 7 or 8 hours to recharge a fully discharged 11.1Ahr battery. Do not leave the battery connected overnight or over a weekend. This may result in over-charging of the battery and possible damage to the battery and reduced battery life.

STORAGE

All batteries self-discharge during storage. Lithium Batteries have very low self-discharge rates. Fully charge the batteries before storing. We recommend

they be recharged once every 6 months of storage at 20 degrees centigrade. Storing batteries at temperatures above 40C can reduce their cycle life and increase their self-discharge rate. Batteries store better at low temperatures. Ideal storage temperatures are between 32°F and 39.2°F (0° and 4°C). Do not expose these batteries to temperatures lower than 4°F (-20°C). Batteries removed from storage should be recharged before being placed back into service.

DISPOSAL

All batteries are subject to disposal and recycling regulations that vary by country and region. Always check and follow your applicable regulations before disposing of any battery. Contact your local battery recycling organization or return to Smith-Root for recycling.



LITHIUM BATTERY



- Ultra-light: It's just one-half the weight of our standard lead-acid battery
- Increased service life over lead-acid batteries
- Compatible with all 24V Smith-Root backpack electrofishers
- Super-fast recharge rate
- Improved safety: No explosive gasses during charge (no lead and no acid!)
- Environmentally friendly
- Low maintenance: No periodic discharge is needed; there is no memory

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