



BATTERY & CHARGER TIPS

Battery Types:

- **Lead Acid in Water Base (AGM)** – EV Rider scooters use sealed lead acid batteries. Do not store in freezing temperatures!
- **Lead Acid in GEL Base (GEL)** – Gel-based batteries are used for cold climates because the gel has a lower freezing temperature. Most retail battery dealers will special order gel batteries.
- **Lithium Ion** – Will be introduced when reliable and economical.

Battery Usage:

- **Surge Protectors** – Always use a surge protector if you leave your charger plugged into the wall. The US electricity grid is deteriorating. Your charger will thank you!!
- **Initial Charging** – All EV Rider units arrive fully load-tested but the battery is still on it's 'storage' charge. Before using an EV Rider unit for the first time, the end-user must charge the battery for 4 – 6 hours. Running on the 'storage' charge will damage the scooter's controller (electronic brain).
- **Battery Replacement** – Batteries must be purchased and used in matched pairs with the same manufacturing date code. AGM batteries cannot be used with GEL batteries. EV Rider chargers do not operate with GEL batteries.
- **Charging** – Always fully charge the batteries before use or on a daily basis. Overcharging is not an issue with current charger technology. Today's chargers are 'voltage limited' and will shut off automatically. MK AGM (sealed lead acid) batteries do not have a "use it or lose it" capacity robbing effect known as "memory."
- **Usage Estimates** – Manufacturer usage specifications are based on riding the scooter on hard flat surfaces with *average* load capacities for each model. Usage characteristics do vary: weight, riding style, local terrain, primary use, etc. High load weights, hilly terrain and hard acceleration will deplete the battery faster.
- **Storage** – When storing, you MUST complete one full charging cycle every month or the batteries will dry out. Fully charged AGM batteries can hold some charge for up to 6 months, but they should always be fully charged before use.
- **Temperature During Storage** – Avoid hot and cold extremes. Lead acid (AGM) batteries with no charge may freeze. At lower temperatures (and especially with lower or storage charge levels), the acid separates from the water. The frozen water expands and may crack the sealed plastic battery case destroying the battery. With a 40% charge, a battery's solution will freeze at approx. 16° F (-9° C). Fully charged batteries freeze at approx. -92° F (-69° C). Fully charged batteries are more durable than batteries on a low or storage charge.
- **Commercial Use** – Commercial clients purchase an extra battery pack (box & batteries) for rotating use.

Battery Lifecycle:

- **Life Cycle** – Most batteries have a life measured in "Charging Cycles." Approximately 175 charging cycles are expected for a set of batteries.

EV Rider uses MK batteries. MK batteries can be charged every night without using up cycles at the same rate. With MK batteries, end-users should match their charging to their use: daily use = nightly charging; intermittent use = intermittent charging; infrequent use/storage = charge at least once every month.



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Charger Tips:

- **Chargers** - All chargers are dedicated to the model type. You cannot use the charger from one model on another model. **Doing this can burn up the charger and will void the warranty** ☐ **Not all chargers have the same polarity (positive and negative connections inside).**
- **Charger Types** – There are (4) ways to charge the batteries: The main charger types are:
 - **Off-Board Chargers** – All EVR scooters come with an “off-board” charger. These chargers are small, external to the unit, and are carried with the unit (in the back pocket of the seat or in the basket).
 - **On-Board Chargers** – Are hard-wired to the unit at all times. EV Rider does not sell this type.
 - **Charging Adaptors** – The Batteries are placed in a tray and brought into the house. The Charging adaptor plugs into an outlet for in-home charging.
 - **Car Chargers & Inverters** – For charging batteries in between rides while traveling. Make sure your vehicle is running while you are charging to prevent draining down your car battery. Note: *Never use an automotive or ‘wet-type’ charger on AGM or Sealed Gel batteries. It will damage them.*
- **Depth of discharge** – The harder a battery has to work the shorter it’s life expectancy.
- **Extreme Use - Avoid deep discharging and never drain your batteries completely.** Draining batteries completely disables the scooter’s diagnostic capability because there isn’t enough energy for the scooter to “see” itself... and sometimes, they cannot be re-charged at all.

Safety – Batteries Can Be Hazardous:

- BE CAREFUL! Batteries produce explosive gases. Keep sparks, flames & cigarettes away from batteries at all times. ALWAYS wear safety glasses and a face shield when working on or near batteries. Do not install in an airtight container. DO NOT ATTEMPT TO OPEN VENTS.
- Dropping a tool or touching a watch or bracelet across the terminals can result in an electrical shock, sparks, smoke, fire and even an explosion. Use extreme caution around exposed battery terminals.
- Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling. All old batteries are considered “hazardous material” and must be recycled through an approved agency. Lead-acid (AGM) batteries are 100% recyclable. Be sure to return your used AGM batteries to a retailer. In most areas, it is illegal to discard such batteries in the trash. UPC codes and serial numbers can trace ownership.

Traveling w/Batteries // NOTE: *Scooter damage by airlines is extremely common. Photograph your scooter when handing it off to baggage handlers or carrier staff. Include them in the picture and tell them to say “Cheese!”*

- **AGM Batteries by MK are sealed and safe for air travel.**
- **EV Rider will provide a Manufacturer’s Safety Certification Letter to document battery safety for travel.**

Traveling w/EV Rider Scooters:

- **Checked Baggage** ☐ SNR1 & SNR2 & RiderXpress & MiniRider (*Some airlines are flexible*)
- **Cargo Freight** ☐ Royale & Vita & SportRider