



E-Bike Battery Safety:

A Guide for Riders

For the purposes of this document, an "e-bike battery" is a lithium-ion rechargeable battery that is greater than 300 watt-hours (WH) and an "e-bike system" is the combination of the electrical drivetrain, battery system, charger system, and bicycle.

Consumers should take care when choosing an e-bike system, as not all e-bike systems are created equal. E-bike systems tested to the ANSI/Canada/UL 2849 Standard for Safety Electrical Systems, and/or other applicable international safety standards for electric bicycles, lithium-ion batteries, and power supplies undergo rigorous testing and examination of the electrical drive train system, battery system, and charger system combinations to obtain electrical and fire safety certification.

Charging E-Bike Batteries Safely

Your e-bike battery should be charged following the manufacturer's instructions. In addition to the manufacturer's instructions, the following guidance can help to alleviate risks associated with handling lithium-ion batteries.

- Charge your e-bike battery plugged directly into a wall outlet.** Never use power strips or extension cords to charge your e-bike battery.
- Only use original manufacturers' equipment to charge e-bike batteries.** Never use third-party or aftermarket equipment.
- Do not stack or cluster e-bike batteries together** while charging or storing.
- Do not use your home or any residential dwelling to charge commercial batteries** (e.g bike/scooter share batteries). Charging multiple batteries with inadequate electrical support is a major safety hazard.
- Do not block the exit to your home with a charging e-bike or e-bike battery.** Always make sure that there is a safe way to exit your home in the event that there is an issue with an e-bike battery.



Safely Storing E-Bike Batteries

Your e-bike battery should be stored in accordance with the manufacturer's instructions. In addition to the manufacturer's instructions, the following guidance can help to extend the life span of your e-bike battery and alleviate some risk associated with handling lithium-ion batteries.

- Store your e-bike battery in a well-ventilated area.
- Store your e-bike battery in an area with a fire detection system.
- Store your e-bike battery away from entry and exit doors.
- Avoid storing your e-bike battery in extreme temperatures.
- For long-term storage, where feasible, store your battery at a reduced state of charge.

Modifying your E-Bike Battery & E-Bike System

Your e-bike battery should be stored in accordance with the manufacturer's instructions. In addition to the manufacturer's instructions, the following guidance can help to extend the life span of your e-bike battery and alleviate some risk associated with handling lithium-ion batteries.

- Never try to service or modify your e-bike's battery system.** Batteries are a part of a larger system within the e-bike that includes not just the battery, but also the battery management system (computer), sensors, motor, throttle and other components.
 - The components of the system are designed and tested to work in conjunction with each other.
 - Altering a component of the system can impact the safety of the e-bike.
 - Safety issues from modifications of an e-bike system may not be immediately apparent. Some safety issues from modifications do not present themselves until later when an e-bike battery is being discharged during use.



Safely Handling a Damaged or Recalled Battery

Do not ride with or charge a battery that has been recalled or damaged. Riders can find information about battery recalls from [recalls.gov](https://www.recalls.gov) and [cpsc.gov/Recalls](https://www.cpsc.gov/Recalls). Riders should contact the original equipment manufacturer for instructions if they have a battery that has been recalled for safety reasons. **Recalled batteries may not be recycled as a part of The Battery Network's program.**

Riders should also be familiar with how to identify a battery that has been damaged. Per the May 2022 Safety Advisory Notice from the US DOT, some identifying factors of a damaged battery include:

- Batteries that have leaked or vented.
- Batteries suspected of being damaged but cannot be diagnosed.
- Batteries showing signs of physical or mechanical damage, such as:
 - Swelling, relative to the same battery in its original state.
 - Discoloration of the battery casing.
 - Smell or corrosion.
 - Loose or damaged wires.
 - Known conditions of use or misuse.
- Handling a Damaged or Recalled Battery

Never ride with or charge a battery that has been recalled or damaged. Contact The Battery Network for instructions on how to recycle a battery that has been damaged.

* References:

[ACT Lab](#) | [FDNY2022](#) | [2024 International Fire Code](#) | [Title 49 Code of Federal Regulations](#)

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