



Safety Guidelines for Battery Management and Handling

Lithium-ion and lithium-polymer rechargeable batteries require routine maintenance and management in their use and handling. The following battery safety and handling guidelines are meant to help you create a safe work operating environment and maximize the lifespan of your Bluebird batteries.

DEFINITION

1. "Battery" is a lithium-ion or lithium-polymer battery.
2. "Device" is a product using battery power.
3. "Cradle" is a piece of equipment capable of charging "battery" and "device."
4. "Charger" is a piece or pieces of equipment capable of charging a "device." But it cannot charge the "battery" directly.

I. STORAGE

1. Do not store batteries inside of devices or connected to the charger/cradle during long term storage. Batteries should be stored separately and disconnected from any device, charger or cradle.
2. Do not store batteries that are fully charged or completely depleted. Ideally, store batteries between a 30% and 50% state of charge for the duration of storage.
 - The battery's state of charge can be viewed after it is installed in a device.
3. If a battery needs to be stored for a longer period of time (up to a year), it is recommended to charge the battery at least once every 6 to 8 months to prevent it from leaking or degrading.
4. Batteries should be stored in a cool, dry place with less than 70% relative, non-condensing humidity and at room temperature (between 5°C and 30°C, 41°F and 86°F).
5. Do not store batteries at temperatures above 60°C (140°F).
6. Do not store batteries in direct sunlight or next to a heat source.



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II. USING BATTERIES

1. Batteries are designed to be charged and discharged optimally at room temperature.
2. Batteries have a limited lifetime which is impacted by several factors including:
 - The number of charge/discharge cycles.
 - The environment in which batteries are used, charged, and stored.
 - The charge level during storage.
 - If a battery is constantly used while charging, without a discharge.
3. Prolonged battery usage will lead to impaired device performance.
4. Batteries can discharge even when they are not used in a device. Do not discharge batteries below 5% in order to prevent permanent damage to the battery's capacity.

III. CHARGING BATTERIES

1. Always use a genuine Bluebird charger/cradle when charging Bluebird batteries. Do not try to charge other types of batteries (non-Bluebird batteries) in a Bluebird charger/cradle.
2. Charge batteries in a well ventilated room with a temperature below 30°C (86°F).
3. If charging batteries on shelf racks, whether inside of devices or in cradle spare battery wells, a fan should be used to help keep the temperature below 30°C (86°F).
4. Do not charge batteries in an enclosed space such as a cabinet or a drawer without ventilation.
5. Do not charge batteries in an area with conductive substances or combustible materials.
6. Do not charge batteries in direct sunlight or next to a heat source.



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IV. HANDLING BATTERIES

1. Mishandling of a battery, including dropping, crushing or damaging a battery, increases the risk of fire and chemical burn hazards.
 - Place a padded mat on the floor under the battery changing station to reduce the impact if the battery falls to the ground.
 - Put batteries in a safe spot when replacing them. Never replace batteries on the go or from a high location since it increases the risk of dropping.
 - Damaged, swollen, or leaking batteries should be handled with extreme care. Stop using the battery immediately, if you notice any type of external damage such as swelling, dents, leaks or if the battery has been exposed to water or high humidity. Incorrect handling of the battery may result in injury.
2. Do not attempt to disassemble or pierce the battery with a sharp object.
3. Do not attempt to remove the battery from the device with a sharp object.
4. Do not stack objects or other batteries on top of a battery.
5. Keep the batteries away from conductive or combustible materials.
6. Do not put batteries in the microwave.
7. Care should be taken to avoid “shorting” a battery across the device or through the contact with other batteries. Do not carry batteries in a pocket with loose change, paper clips, other batteries or conductive (metal) materials.
8. Do not expose batteries to water or other liquids.
9. Do not incinerate or expose batteries to temperatures over 60°C (140°F).
10. Keep batteries away from children.



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V. REPLACING BATTERIES

1. Batteries are consumables that should be replaced on a regular basis. Establish a replacement schedule to ensure safe use.
 - **IMPORTANT** : Immediately contact Bluebird if you notice any type of problems in Bluebird battery.
2. Replace the damaged batteries immediately.
 - Swelling, dents and leaks are signs of battery damage and can cause a serious safety risk. Exposure to water or too much humidity are other risk factors.
3. Due to the stress of daily charging and discharging, degradation of the battery's performance may increase with its service life. Batteries typically need to be replaced after 300 to 500 charging cycles (full charge-discharge cycles) or when the battery capacity has been reduced to 70% to 80% of its original capacity. The actual number of charging cycles varies based on usage pattern, temperature, age, and other variables.
4. Replace the battery if there is a significant reduction in the device's operating time.

VI. DISPOSAL

1. Properly dispose of used batteries according to local regulations for the disposal of batteries.
2. Insulate the battery terminals with tape before disposal.

If a battery becomes too hot or any unusual odor is coming from the battery, leave the area immediately and alert safety personnel to handle the situation.