



**BICYCLE**  
MOTOR WORKS

# EBIKE BATTERY MANUAL



"POWER  
your e-bike,  
EXPLORE  
the world."



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## General Safety

Kindly read through the entire user manual. This manual contains important information to reduce user risk as well as instructions for this product's proper use. Do not discard the manual but keep it for reference.

Note that the user's personal safety remains the user's responsibility and that the user must contact GutenMarkt, Inc. DBA Bicycle Motor Works or their official product dealer directly for any further guidelines or assistance.

This product is an electrical system that is dangerous for children and must always be handled by an adult. Small components and accessories may also present a choking hazard.

Keep this product and its accessories out of reach from children. Keep all electrical wires secured as exposed wires could lead to serious injury or product damage. Also inspect the condition of the wires regularly for any damage.

Never interfere with the parts or attempt to disassemble the internal parts of the battery when the battery is connected or switched on. This could result in serious injury or damage to the product.

All components and accessories may only be replaced with identical components directly supplied by GutenMarkt, Inc. DBA Bicycle Motor Works or an official product dealer. GutenMarkt, Inc. DBA Bicycle Motor Works cannot be held liable for any damages as a result of using unapproved parts.

## Before the Ride

Ensure that the battery mount is fastened securely to the frame and that the battery is secured to the mount. Incorrect mounting could cause the system to move its position and result in injury while riding. Inspect the mounting position regularly.

Ensure that all wiring is dry before connecting it to the motor system.

When connecting the battery, make sure that it is properly connected. Faulty connection could result in a short circuit and damage the motor system and/ or battery.

Secure all wires properly. Make sure that no loose wires are dangling from the bike that could be jammed into any moving parts.

Inspect electrical wires and plugs regularly for any damage.



## **Installation & Use**

Follow the installation guidelines provided in this manual to fit your battery pack securely to your bicycle frame. This product is manufactured to be used as an electric bicycle battery pack for powering a compatible electric bicycle. Before using our product it is the rider's responsibility to verify the intended battery pack is compatible. Using this battery for anything other than its intended use is not recommended and will not be supported by Bicycle Motor Works. The installation guidelines also provide you with clear instructions on usage and charging. Be mindful when using and charging this product.

The battery unit will be activated and deactivated by switching on your kit's display once all the components are installed and connected accordingly. Do not attempt to alter this method. Do not install anything other than the parts and accessories that came with the battery unit. Doing so could damage the product. Be sure to familiarize yourself with the product warnings provided in this user manual.

## **Disclaimer**

If you require any more information or have any questions about the user manual disclaimer or the content provided, please feel free to contact us via email at [info@bicyclemotorworks.com](mailto:info@bicyclemotorworks.com) or call 484-793-2541.

All the information contained in this user manual is published in good faith and for general informational purposes only. GutenMarkt, Inc. DBA Bicycle Motor Works does not make any warranties about the completeness of this information and encourages further inquiries as stated above if needed. GutenMarkt, Inc. DBA Bicycle Motor Works will not be held liable for any losses and/or damages in connection with the use of this product. The use of this product is at the user's own risk and discretion.

Keep this manual, along with other documents that were included with your battery, for future reference. All content in this manual is subject to change without notice. Please be sure to visit [www.bicyclemotorworks.com](http://www.bicyclemotorworks.com) to view and download the latest version.

Note that this manual is not intended as a detailed user, service, repair or maintenance manual. Your insurance policies may not provide coverage for accidents involving the use of this product.

Notice: Please contact Bicycle Motor Works if you are unsure about the assembly instructions or for any further assistance as GutenMarkt, Inc. DBA Bicycle Motor Works will not be held liable for any losses and/ or damages caused by the assembly. **PLEASE USE RESPONSIBLY.**



# SPECIFICATIONS

This product is a lithium-ion electric bike battery, made in the USA.....

	<b>Pocket Rocket II 52v 8ah Samsung 40T Lithium-ion</b>	<b>52v 12ah Samsung 40T High Current Lithium-ion</b>	<b>52v 16ah Samsung 40T High Current Lithium- ion</b>	<b>72v 8ah Samsung 40T 21700 Lithium-ion</b>	<b>72v 12ah Samsung 40T Lithium-ion</b>
SKU Number	195893114038	19589314599999	195893145997	195893442881	195893114034
Cells	Samsung 40T 21700	Samsung 40T 21700	Samsung 40T 21700	Samsung 40T 21700	Samsung 40T 21700
Rated Battery Voltage	52V	52V	52V	72V	72V
Battery Capacity	8Ah	12Ah	16Ah	8Ah	12Ah
Max. Continuous Discharge Current	50Amp	60Amp	60Amp	60Amp	80Amp
Max. Charge Current	4Amp	4Amp	4Amp	4Amp	4Amp
Battery Pack Weight (approx.)	4 lb.	7 lb.	8 lb.	7 lb.	12 lb.
Pack Dimensions (approx.)	6X4X3 Inches	12.25X3.25X3 Inches	12.25X4X3 Inches	9X4X3 Inches	14X3.5X3 Inches

# SPECIFICATIONS

This product is a lithium-ion electric bike battery, made in the USA.....

	<b>Pocket Rocket S 52v 10ah Samsung 50S Lithium-ion</b>	<b>52v 15ah Samsung 50S High Current Lithium-ion</b>	<b>52v 20ah Samsung 50S High Current Lithium- ion</b>	<b>72v 15ah Samsung 50S HIGH Current Lithium- ion eBike Battery</b>	<b>52v 15ah LG M50LT 21700 Lithium-ion eBike Battery</b>
SKU Number	196852460663	196852462308	196852358809	196852767175	196852412501
Cells	Samsung 50S	Samsung 50S	Samsung 50S	Samsung 50S	LG M50LT
Rated Battery Voltage	52V	52V	52V	72V	52V
Battery Capacity	10Ah	15Ah	20Ah	15Ah	15Ah
Max. Continuous Discharge Current	50Amp	50Amp	80Amp	80Amp	45Amp
Max. Charge Current	6Amp	6Amp	6Amp	6Amp	6Amp
Battery Pack Weight (approx.)	5 lb.	8 lb.	11 lb.	12 lb.	8 lb.
Pack Dimensions (approx.)	6.5X4X3 Inches	12.5X3.25X3 Inches	12.5X4X3 Inches	14X3.5X3 Inches	12.25X3.25X3 Inches

# SPECIFICATIONS

This product is a lithium-ion electric bike battery, made in the USA.....

	<b>Moli Rocket 52v 8.4ah MoliceL P42A Lithium-ion</b>	<b>52v 12.6ah MoliceL P42A High Current Lithium-ion</b>	<b>52v 16.8ah MoliceL P42A High Current Lithium-ion</b>	<b>72v 12.6ah MoliceL P42A High Current Lithium-ion</b>
SKU Number	196852416363	196852717101	196852921942	196852099030
Cells	MoliceL P42A	MoliceL P42A	MoliceL P42A	MoliceL P42A
Rated Battery Voltage	52V	52V	52V	72V
Battery Capacity	8.4AH	12.6Ah	16.8Ah	12.6Ah
Max. Continuous Discharge Current	60Amp	60Amp	60Amp	80Amp
Max. Charge Current	6Amp	6Amp	6Amp	6Amp
Battery Pack Weight (approx.)	5 lb.	8 lb.	11 lb.	12 lb.
Pack Dimensions (approx.)	6.5X4X3 Inches	12.25X3.25X3 Inches	12.25X4X3 Inches	14X3.5X3 Inches



# SPECIFICATIONS

This product is a lithium-ion electric bike battery, made in the USA.....

	<b>Pocket Rocket X 52v 9ah MoliceL P45B Lithium-ion</b>	<b>52v 13.5ah MoliceL P45B High Current Lithium-ion</b>	<b>52v 18ah MoliceL P45B High Current Lithium- ion</b>	<b>72v 9ah MoliceL P45B High Current Lithium-ion</b>	<b>72v 13.5ah MoliceL P45B High Current Lithium-ion</b>
SKU Number	196852037728	196852717200	196852921742	195893442808	196852099100
Cells	MoliceL P45B	MoliceL P45B	MoliceL P45B	MoliceL P45B	MoliceL P45B
Rated Battery Voltage	52V	52V	52V	72V	72V
Battery Capacity	9AH	13.5Ah	18Ah	9Ah	13.5Ah
Max. Continuous Discharge Current	60Amp	60Amp	60Amp	80Amp	80Amp
Max. Charge Current	6Amp	6Amp	6Amp	6Amp	6Amp
Battery Pack Weight (approx.)	5 lb.	8 lb.	11 lb.	7 lb.	12 lb.
Pack Dimensions (approx.)	6.5X4X3 Inches	6.5X4X3.5 Inches	12.25X4X3 Inches	9.5X4X3 Inches	14X3.5X3 Inches

# Product Features

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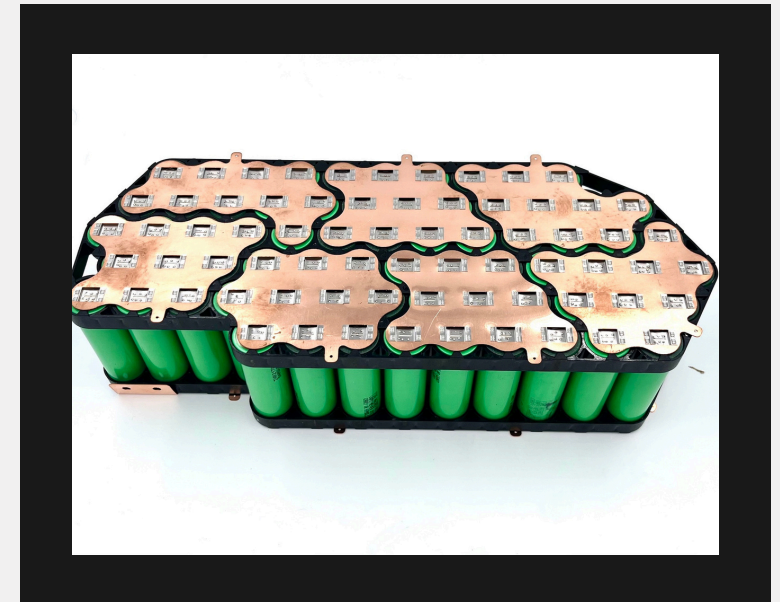
*Bicycle Motor Works exclusively designs, develop and produce all of their eBike Battery packs in the U.S.*

## Quality Materials

- Genuine premium cells: Samsung, Molicel or LG
- Custom Copper Busbars, each series spot welded
- Battery Management System (BMS), with balance function, short circuit and over heat protection
- Heavy Duty XT90S Discharge and XT60 Charge connection, 10 Gauge Silicone Wires
- Triple layered weather and impact resistance reinforcements

## Safety Standards

- Bicycle Motor Works is IATA certified in accordance with requirements of 49 CFR, Part 172, Subpart H; ICAO TI Part 1, Chapter 4 (IATA Section 1.5); and IMDG Code Chapter 1.3.
- Our genuine cells have been tested under IEC 62133, UN 38.3 standards. Molicel P45B and P42A is also UL 1642 certified.
- Yearly audits, studies and evaluations performed through the Penn State University Engineering Department, PennTap, and Penn State Intellectual Properties.
- Continued safety measures are top priority, the processes of UL 2271 certification has begun.



## Package Inclusions

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- Heavy-duty encased eBike Battery pack (with Samsung, Molicel or LG cells, appropriately rated BMS)
- Spark proof XT90S Discharge Connection and XT60 Charge Connection
- 10/12 Gauge Silicone Wires
- Manual and access to our Customer Support Portal

# Standards, Priorities and Practices



## Product Quality

Bicycle Motor Works has always taken pride in producing quality products. All eBike batteries are produced with materials that have been tested and proven to be physically sound. Our eBike batteries are built with Samsung, Molicel and LG cells in our shop located in Bethlehem, PA.



★★★★★  
TRUSTED

Bicycle Motor Works is one of the **most trust** eBike Battery producers in the US.



## Transparency

Customers know where and what cells are being used in every eBike Battery Pack. We build our packs in Bethlehem, PA using Samsung, LG or Molicel cells. There is never a question on what powers your eBike.

## Customer Relations

Being a family owned and operated business, customer satisfaction is extremely important to us. We make ourselves reachable through phone, email, website support tickets and social media. We continuously evaluate feedback and will send surveys several times a year.





# Installation Instructions

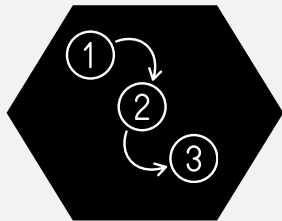


## Select your eBike Battery Mounting System

One of the benefits of owning our traditional pack is that it is versatile and can be mounted using a eBike Battery Bag, Battery Cage, 3D printed or custom built. Regardless of your preference, make sure your battery is securely enclosed.

## Wiring and Connection

- Battery Connector: XT90S female
- Controller Connector: XT90 male
- Wire: 10/12 AWG (red wire to positive pole and black wire to negative pole)



## Connection Steps

1. Locate the XT90 connectors (male and female)
2. Plug in only 1/8 - 1/4 inch deep for 3 seconds
3. After 3 seconds, plugin all the way in.



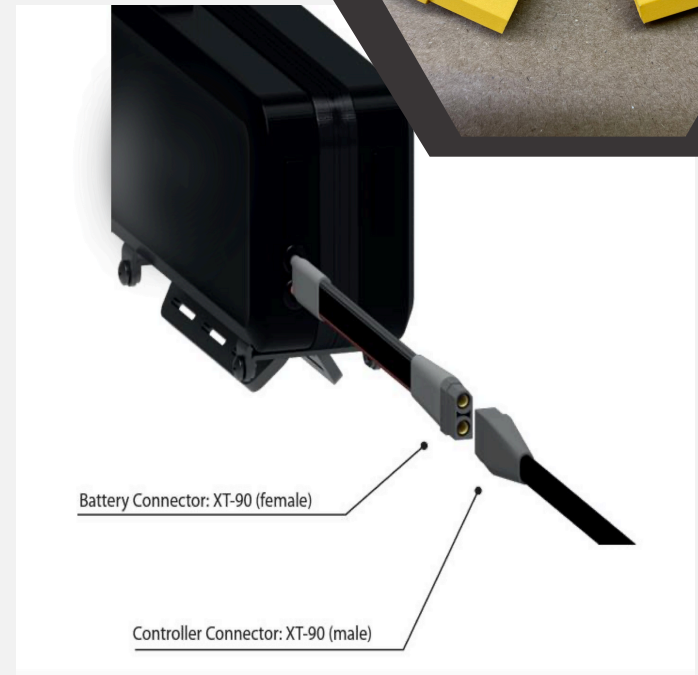
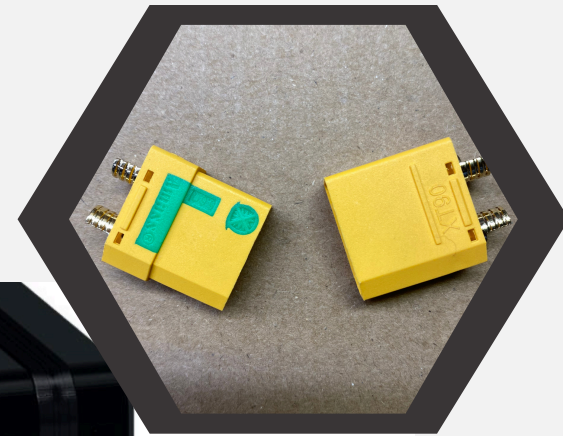
## Read Battery 101 - the Basics

Before charging your ebike battery you must read and understand the basics. Charging, discharging, storing and maintaining your ebike battery incorrectly can cause damages and harm. Not following our instructions will void your warranty.



## Protection From Liquids

Although our batteries are water resistant, they are not 100% waterproof. If you plan to ride in rainy environments - or you foresee getting a lot of water/mud/slush thrown up onto your battery, then please take care to protect the battery from water ingress. We cannot cover water damage on a warranty claim.



## Charging Instructions

1. Read Battery 101 - the Basics
2. Locate the XT60 on the battery pack
3. Plug in the XT60 to the XT60 Charger port
4. Care for your battery as instructed in Battery 101

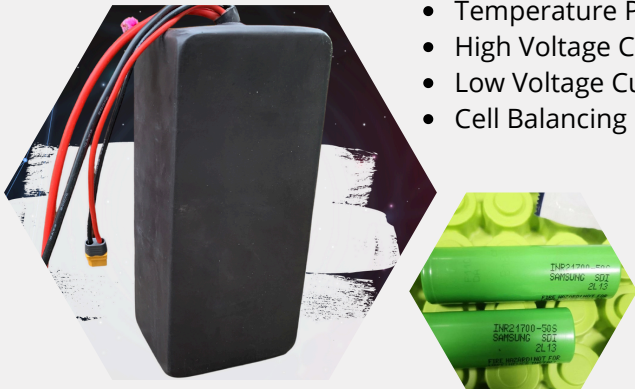


Learn the basics of Lithium-ion batteries, understand how to properly maintain and prolong the life of your ebike battery. It is important to follow our instructions, as batteries can be temperamental and dangerous if used in correctly. Not following our Battery 101 - the Basics will void the warranty obtained during your grace period.

## How it Functions

- Lithium-ion battery packs are built using many cylindrical cells that are configured in parallel sets of rows called series. All the series work together as one unit in order to provide the voltage and current that your e-bike needs to run properly.
- The BMS (battery management system) is a device in each pack that acts as the “brain.” The BMS is wired into each series of cells, and is directly wired inline with the negative charge and discharge leads. Everything that comes in and out of your battery pack will run through the BMS, that serves to protect and control your battery. These features include:

- Current Output
- Temperature Protection
- High Voltage Cutoff
- Low Voltage Cutoff
- Cell Balancing



## Cycling and Lifespan

- Every battery on this planet has a limited life span. Battery cells will lose capacity after every FULL charge and discharge, which is called a “Cycle”. In other words, the more cycles a battery completes, the less capacity your battery will hold. Over time, your battery will slowly degenerate and your range will decrease. If you avoid full cycles by properly charging and discharging, you shouldn't see a decrease in performance for years.

## Proper Charging and Discharging

- You must ONLY use a compatible voltage Lithium-ion battery charger for your lithium-ion battery pack. Using any other types of chargers can damage your pack and/or cause a fire/explosion!
- Unlike other battery chemistries, Lithium-ion cells have no memory. This means that you can charge a li-ion pack while it's at any voltage level without damaging it or reducing capacity. For example, if you have a pack that's at 60% capacity and want to go for a long ride, you can plug it into the charger to top it off. However, if you are at 50% capacity and want to go for a short ride, you will be good to go and use it as-is.

## Important Tips

*When it's time to charge your pack here are a few tips to keep your battery pack in the best possible shape for a long, healthy life.*

- Allow your pack to cool down for at least an hour after a ride before charging.
- Charge your pack to 80%, 90% or somewhere below full charge level majority of the times. Why? Remember what happens when you put your battery through a full cycle?
- BUT, make sure to charge your pack at 100% every 5-10 charges. This is important to do, because charging your battery at 100% will allow your BMS to balance all of the cells in your pack. To ensure your battery is balanced, allow your pack to stay connected to the charger for 1/2 to 1 hour after the charge is complete. Then, unplug after fully charged for safety precautions.

# Battery 101 - the Basics

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## *Important Tips Continued...*

- Never charge your ebike battery when it is not attended. Always charge your ebike battery when you are awake and nearby, as there is always a chance your ebike battery could start a fire.
- Never charge your ebike battery outdoors or in extreme heat or cold conditions.
- Never leave your ebike battery on the charger, as this very dangerous and could cause a fire.
- Never interfere with the wires or connectors while charging.
- When charging your ebike battery, always be cautious of a potential fire or explosion.
- Do not store a fully charged pack any longer than a week. Although this is not dangerous, it will degrade the cell life.
- Do not store a fully discharged pack any length of time either. The cells will degrade at a much faster rate in this state as well.
- When storing your pack for anything longer than 2 weeks, your pack's ideal voltage level should be a couple of volts within nominal voltage. Nominal voltage is what your pack is listed at (52v, 72v, etc.) Therefore, if you are going to store your 52v 8ah pack for the winter, charge it up (or drain it down) to about 52v.

## **Summary for Charging eBike Battery:**

- **WARNING:** Be attentive when charging your ebike battery at all times. eBike Batteries can be dangerous and may cause a fire or explosion. Bicycle Motor Works will not be held responsible for damages, injury or loss caused by use of our products, as stated in our Terms and Conditions, Store Policies.
- Every 5 cycles, charge your ebike battery 100%. After reaching 100% leave your ebike battery charging for additional 30 minutes in order to balance. Then, unplug your ebike battery from the charging station.
- Only charge your ebike battery 90% for all other cycles, unplug your ebike battery from the charging station when reached 90%.
- **NEVER** leave your ebike battery on the charger, as it could cause a fire or explosion. **ALWAYS** be cautious.

## **Temperature Control is Important**

- Lithium-ion batteries will over heat by being exposed to the sun or high temperatures over extended periods of time. When a battery over heats, the cells' chemical composition begin to change thereby decreasing the capacity of any number of cells in the pack. This can greatly reduce the pack's cycle life, and worse, it can cause some cells to become weaker. If some cells become too weak, or die, then the BMS may not be able to balance the pack properly. At this point the BMS may shut down any input or output from the pack to protect it from an overcharging situation that could result in fire or explosion.
- The BMS is an important factor in an e-bike battery, because it ultimately creates a safe environment for the battery to function. Naturally your battery cells will slowly degrade, but overheating the cells will speed up this process. A functional BMS will shut down your battery completely when the cells are too badly damaged and are unable to balance. Similarly, extreme cold weather is also not an ideal environment for your lithium-ion battery. When your battery becomes frozen, the pack's performance and capacity will decrease. Your battery may still operate, but it could lose the capacity to hold a full charge or it will begin to lag in performance. Unlike heat damage, this loss of performance is temporary when dealing with the cold.
- Over time your pack will slowly start to lost capacity. This means that the same pack that used to take you on a 30 mile trip may only get you the 25 mile point. This is normal, and it will happen with all types of batteries, regardless of its chemical composition. Using the tips that Bicycle Motor Works provided can help you get the longest life out of your pack.

## **Overall Battery Care**

With good practices and routine maintenance your battery could power your E-Bike for years. Like any other battery, it should be kept away from extreme hot or cold temperatures, water exposure, excess humidity, over charging, physical damage or anything that would cause your battery's cells to degrade or overheat. While not in use, your pack should be stored in a cool, dry place.



## General Warning

- Refrain from charging the battery outdoors.
- Unplug the battery pack after it is fully charged; do not leave it connected to the charger for a long period of time or unattended.
- Do not interfere with the wires or connectors while charging.
- Place the battery in a cool and dry environment if you do not use it for a long time.
- Use the designated lithium battery charger when charging.
- Keep away from children.
- Do not reverse or short the positive and negative terminals of the battery pack.
- Do not place the battery pack in high temperatures, such as near fire.
- Do not place the battery pack in water, acid, alkaline or salty liquids, avoid submersion.
- Do not open the battery pack.
- Do not invert the battery module inside the pack.



## Customer Support

For technical support, customer inquiries, quotes, sales, recommendations, troubleshooting or general questions please contact us by email, phone or submit a support ticket through our online portal: <https://bicyclemotorworks.com/support/>

Last updated: 1/9/2024

## Use of Product Warning

- The user must have appropriate understanding of lithium ion batteries before purchase. Use caution when working with and using lithium ion batteries as they are very sensitive to charging characteristics and may explode, burn, or cause a fire if misused or mishandled. Always charge in or on a fire-proof surface. Never leave batteries charging unattended. Buyer is responsible for any damage or injury caused by misuse or mishandling lithium ion batteries and chargers. No express or implied guarantee of compatibility with any device can be made. Charge only with a smart charger designed for this specific type of lithium ion battery. Do not mix and match old and new, used and unused batteries.
- DO NOT USE WITH E-CIGARETTE, VAPORIZER, OR SIMILAR DEVICE
- MISUSING OR MISHANDLING LITHIUM ION BATTERIES CAN POSE A SERIOUS RISK OF PERSONAL INJURY, PROPERTY DAMAGE, OR DEATH
- BATTERIES MAY EXPLODE, BURN, OR CAUSE A FIRE IF MISUSED OR MISHANDLED
- ONLY USE WITH PROPER CIRCUITRY IN A PROTECTED BATTERY PACK
- ONLY USE WITHIN MANUFACTURER LISTED SPECIFICATIONS
- DO NOT STORE LOOSE BATTERY IN A POCKET, PURSE ETC. - ALWAYS USE A PROTECTIVE CASE OR BOX
- KEEP AWAY from metal objects to prevent short circuiting
- DO NOT short circuit
- DO NOT use if wrapper or insulator is damaged or torn
- DO NOT use if damaged in any way
- DO NOT overcharge or over-discharge
- DO NOT modify, disassemble, puncture, cut, crush, or incinerate
- DO NOT expose to liquids or high temperatures
- DO NOT solder, spot weld only
- User must be familiar with handling lithium ion batteries before purchase
- Usage of batteries is AT YOUR OWN RISK
- ALWAYS charge in or on a fire-proof surface and never leave charging batteries unattended
- RESELLERS MUST FORWARD ALL WARNINGS TO ALL CUSTOMERS FOR THEIR REFERENCE AND SAFETY

## Warranty

Bicycle Motor Works offers a warranty during the 30 day grace period from the time the battery pack was delivered, as per our Store Policy. Any attempt to modify this product or the instructions to care for this product will void the warranty.

Our full Terms and Conditions is: <https://bicyclemotorworks.com/>

- Terms of Use
- Store Policy
- Privacy Policy



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