

WatchDog

Micro-mobility safety
device

User Manual

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Introduction

Thank you for choosing WatchDog, the ultimate safety device for micro-mobility designed to prevent Lithium-ion battery fires. Whether you own an e-bike, e-scooter, or any other personal electric vehicle, WatchDog provides peace of mind by continuously monitoring the safety and performance of your device's battery.

About WatchDog

WatchDog is engineered with advanced sensors and real-time monitoring technology to detect early signs of potential battery hazards. By providing timely alerts and taking preventive actions, WatchDog significantly reduces the risk of Lithium-ion battery fires, ensuring a safer and more reliable riding experience. Additionally, WatchDog can stop charging the battery at around 85% of full capacity, which can extend battery lifespan, and will alert you if the battery shows signs of being defective.

Key Features

- **Charger Compatibility Check:** Verifies that the charger is compatible with the device to ensure safe and efficient charging.
- **Charging at safe temperature:** The charging process will begin only when the battery temperature is within the required range.
- **Real-Time Monitoring:** Continuously checks battery temperature, voltage, and current for anomalies, whether charging or not.
- **Automatic Charger Disconnect:** Safely disconnects the charger to prevent fire hazards in critical situations. Additionally, when the battery reaches full charge, the charger is completely disconnected to prevent overcharging and enhance safety.
- **Instant Alerts:** Sends immediate notifications to your smartphone in case of potential safety issues.
- **Instant Alarm:** Triggers a loud alarm sound and notifies the user when the battery reaches a dangerous temperature.
- **User-Friendly Bluetooth Interface:** Easy-to-use mobile app for monitoring and managing battery health and charging information.

Intended Use

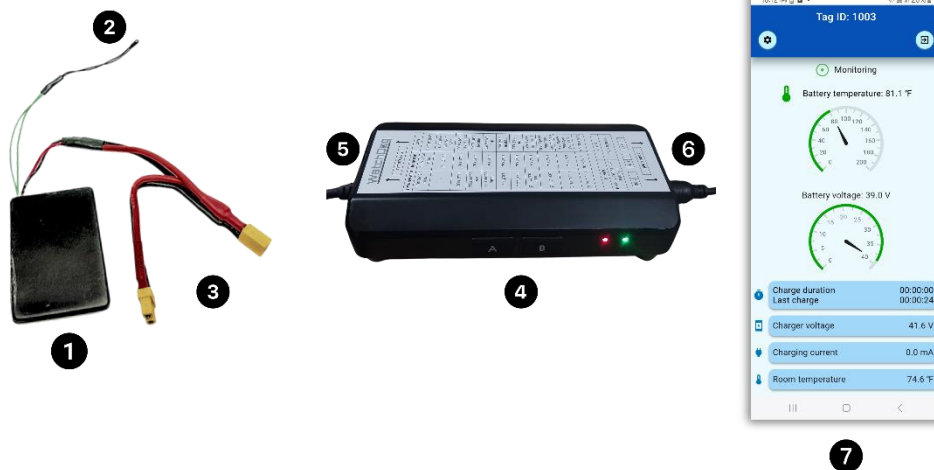
WatchDog is designed for individuals who use micro-mobility devices powered by Lithium-ion batteries. It is suitable for e-bikes, e-scooters, and other personal electric vehicles. This device is intended to enhance safety by providing continuous battery monitoring and early detection of potential fire hazards.

Safety First

Your safety is our top priority. Please read through this user manual carefully to understand how to properly install, use, and maintain your WatchDog device. Following these instructions will ensure optimal performance and safety.

Installation Instructions

Product Description



1. Transmitter (internal unit)
2. Temperature sensor
3. Connectors to battery (the transmitter is equipped with matching connectors for the relevant battery)
4. Main unit (external controller)
5. Charging cable
6. Charger cable
7. Mobile App

Installing and Charging

Note: Installation of WatchDog transmitter should be performed by a qualified technician.

1. **Connect the Main Unit:** Connect the main unit (4) provided to the original charger of your micro-mobility device (6).
2. **Locate the Battery Compartment:** Identify the battery compartment in your micro-mobility device where the transmitter (1) will be installed. Remove the screws and the bottom cover to access the battery.
3. **Connect the Transmitter:** Disconnect the battery connector from its original position, connect the battery connector to the matching connector on the transmitter provided with WatchDog (3). Connect the other transmitter connector to the same connector the battery was previously connected to. Once connected, the transmitter's LED will start blinking and the main unit (4) will emit a short beep.
4. **Attach the Temperature Sensor:** Use adhesive strip to attach the temperature sensor (2) to the surface of the battery, ensure the temperature sensor is securely attached and in direct contact with the battery surface for accurate temperature monitoring.
5. **Fix the Transmitter Body:** Use adhesive strip to fix the small transmitter body (1) securely in any available free space within the battery compartment, ensure the transmitter body

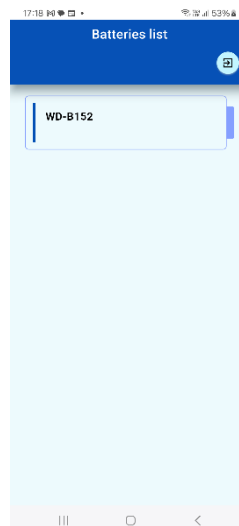
is placed in a position where it does not interfere with other components or moving parts.

6. **Download and Run the App:** When you launch the app, you will see real-time data and updates on charging status and battery temperature and health (7).
7. **Start Charging:** Connect the external controller (4) to the charging port of your micro-mobility device (5).

Steps to Install and Set Up the Mobile App



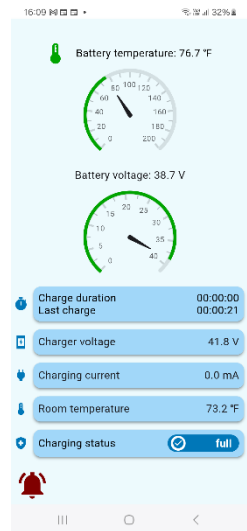
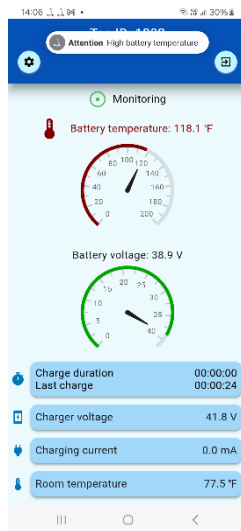
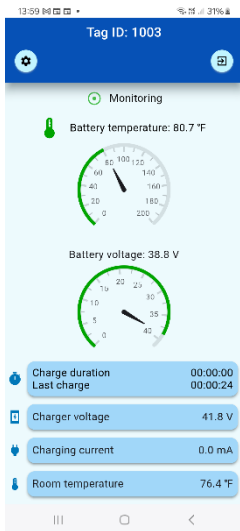
1. Open the **Google Play Store** and search for '**IMS Watchdog**'.
2. Install the app and ensure you grant **location** and **notification** permissions when prompted.
3. Launch the app, and a screen displaying nearby available devices will appear.
4. Select your device to connect, and you will then view **real-time data** from your device.



Home Screen

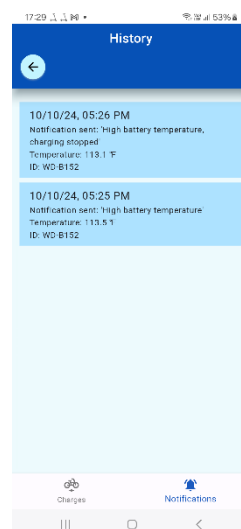
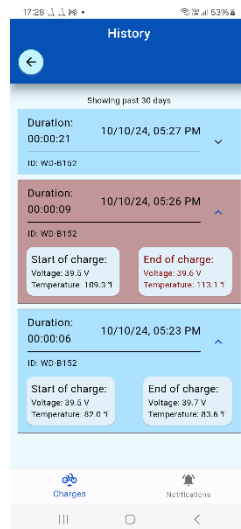
On this screen, you can monitor real-time data, including battery temperature, voltage, charge duration, previous charge duration, charger voltage, charging current and room temperature. You can also set the charging mode:

- **Full Mode:** Charges the battery to 100% capacity.
- **Healthy Mode:** Automatically stops charging at approximately 85%, which significantly extends the battery lifespan.



History Screen

This screen displays both the charging and notifications history. The charging history includes the battery's voltage and temperature at the start and end of each charge. If a charging session was interrupted due to high temperature, the event will be highlighted in red.



Note: Charging sessions will be automatically removed from the history after 30 days.

Troubleshooting

#	Issue	Solution
1	Main unit does not turn on when connected to the charger.	Ensure that the charger is securely connected to both the outlet and the main unit. If it is properly connected and still not functioning, the charger may be defective.
2	Main unit turns on but fails to connect to the transmitter.	When the battery voltage is low, the built-in controller* disconnects it to prevent complete discharge. As a result, the battery does not supply power to the internal unit, causing the main unit to fail to recognize it and prevent charging. To enable direct charging, press button A. Once the battery restores voltage, the main unit will reconnect to the transmitter.**

* Built-in controller refers to the BMS (Battery Management System) and is not part of the WatchDog controllers.

** If the main unit fails to connect to the transmitter within 10 minutes, charging will stop completely, indicating that the battery is fully discharged and unable to charge.

Notice

- LED indicators descriptions are also provided on the main unit.
- The main unit will connect only to the provided internal unit and is not compatible with other internal units.
- During direct charge (see Troubleshooting – 2), battery data – including temperature, voltage, current, charge duration, and battery status – will not be monitored, as there is no connection between the main unit and the transmitter.

Warning

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For any questions or assistance during the installation process, please refer to the user manual or contact our customer support team.

By integrating WatchDog with your micro-mobility device, you are taking a proactive step towards safer and more secure rides. We appreciate your trust in our product and are committed to delivering the highest standards of safety and reliability.

We hope you enjoy using WatchDog and experience the enhanced safety it brings to your micro-mobility adventures.

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