



Exoskeleton User Manual

Applicable Models: Gearflow C2



Manufacturer: Gearflow Robotics Co., Ltd.

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Preface

Thank you for choosing the lower limb exoskeleton developed by Gearflow Robotics Co., Ltd. This product is designed to assist walking.

Scan the QR code below to get the APP



iOS

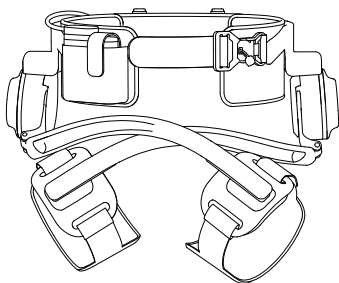


Android

Caution

Please read this manual and the separate safety information carefully before use. Improper use may cause personal injury or equipment damage.

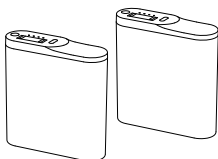
In the box



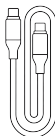
Exoskeleton x1
(Binding System x1)



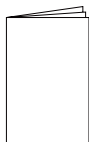
Voice HMI Module x1
(optional)



Cold-resistant
High-endurance Battery x2
(the 2nd. one is optional)



USB-C Cable x1

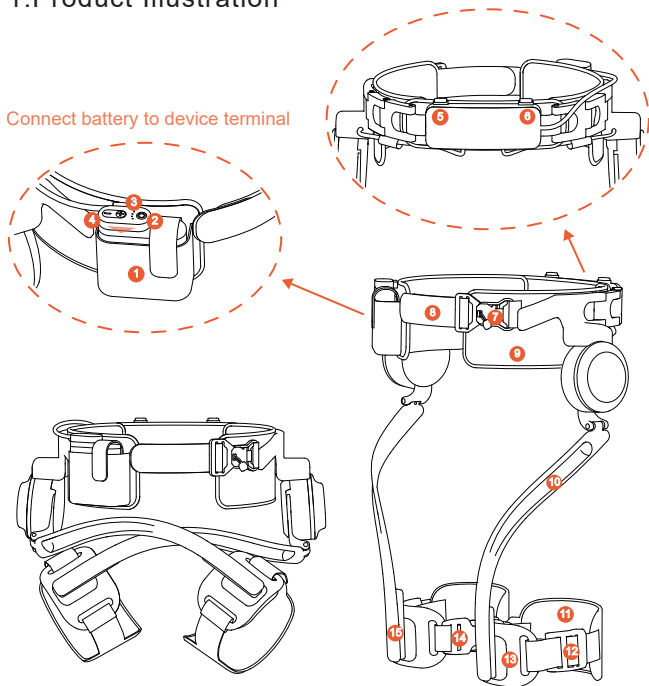


Exoskeleton User Manual x1
(Includes Warranty Card)
Voice HMI Module User Manual x1
Safety Information x1

01 Product Overview

1.Product Illustration

Connect battery to device terminal



- | | |
|----------------------------------|-------------------------|
| ① Battery | ⑨ Waist Binding System |
| ② Power/Mode Button | ⑩ Leg Rod |
| ③ Status LED Indicator | ⑪ Leg Binding System |
| ④ Power Adjustment Buttons | ⑫ Adjustable Leg Buckle |
| ⑤ Left Waist Rod Adjustment Key | ⑬ Front Leg Cover Plate |
| ⑥ Right Waist Rod Adjustment Key | ⑭ Plug-in Leg Buckle |
| ⑦ Magnetic Waist Buckle | ⑮ Leg Rod Slider |
| ⑧ Waist Adjustment | |

2.Specifications

Product Model	Gearflow C2
Dimensions	415mm*206mm*116mm (Folded State) 430mm*300mm*510mm (Unfolded State)
Weight (Size: M)	≈2.0kg+0.36kg+0.38kg (Device + Battery + Binding System)
Material	Carbon Fiber / Magnesium Alloy / Aluminum Alloy
Waterproof	IP54
Maximum Power	Output Torque 21N·m x2
Mode	Transparency / Adaptive(Standard) / Ultra / Fitness
Motion Posture Recognition	Multimodal Sensor Fusion Recognition
AI Engine	Gearflow Multimodal AI Engine 3.0
OTA Supported	More functions to be launched subsequently, OTA online upgrade
Power Supply	External Lithium-ion Battery Pack
Rated Battery Capacity	4800mAh
Nominal Voltage	14.8V
Maximum Charging Voltage	16.8V
Battery Runtime	20km / 4h Endurance (2nd level, 5 km/h, 3°–8°slope, 28°C, 175 cm, 75 kg user)
Charging Port	USB Type-C(Supports PD fast charging, max 65W)
Charging	88 min. fully charged
Operating Temperature	-20°C ~ 60°C

02 User Guide

Thank you for choosing the lower limb exoskeleton developed by Gearflow Robotics Co., Ltd. This product is designed to assist walking.

1.APP Download

(1) Download by scanning the QR code below or searching for "Powermate+" on the App Store or Google Play.

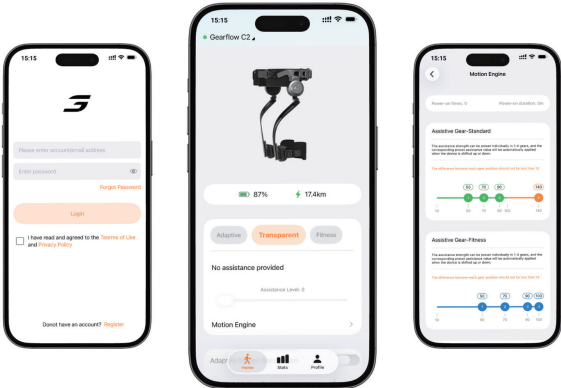


iOS



Android

(2) Please download the Powermate+ App, create an account, and activate your exoskeleton device.



***Ensure Bluetooth is turned on when operating the device through the app.**



2.Device Donning & Doffing

Donning Procedure

- (1) Unfold the waist and leg binding systems.
- (2) Adjust the rear waist rod to equal length on both sides; ensure motors are parallel to the waist and the device fits snugly.
- (3) Secure the waist binding system, fasten the magnetic buckle, and adjust for a comfortable fit.
- (4) Position leg plates above the knee, fasten leg buckles, and adjust leg straps.
- (5) Self-check: Perform squat and walking tests. Readjust if loose or uncomfortable.
- (6) Connect the battery to the device terminal.

Doffing Procedure

CAUTION

- Power off before doffing.
- Hold the back frame to prevent dropping.

- (1) Press the thigh release buckle to detach leg straps.
- (2) Hold the left side with your left hand, pull the waist buckle tab leftward with your right hand to release.



Scan to watch
donning & doffing videos

3.Button Controls

(1) **Power On / Off:** Hold the “⦿” button on the front battery for 3 seconds. Wait for the white LED to fade in (on) or out (off).

(2) **Device Activation:** Activate via the Powermate+ App.

LED 1-4 Blinking Yellow: ●●●● **Pending activation**

(3) **Mode Switching:** Short press “⦿” to cycle modes. In Adaptive (Standard) mode, short press “⊕” 3 times to enter Ultra Mode; short press “⊖” to return to Adaptive mode.

(4) **Assist / Resistance Level:** Short press “⊕” Increase by 1 level; Short press “⊖” Decrease by 1 level.

(5) **Battery Check:** When powered off, short press “⦿” to check battery level.

LED 1 Steady Light Blue: ●●●● **Battery 1%-25%**

LED 1-2 Steady Light Blue: ●●●● **Battery 25%-50%**

LED 1-3 Steady Light Blue: ●●●● **Battery 50%-75%**

LED 1-4 Steady Light Blue: ●●●● **Battery 75%-100%**



Scan for operation video

4.Mode Reference

*Settings adjustable via **Powermate+** App.

(1) Transparency Mode

LED 1-4 Steady White: 

Definition: Zero power output. Natural, unassisted feel.

Best for: Rest, posture adjustment, or free movement.

(2) Adaptive Mode (Standard Mode)

LED 1 Steady Green:  **Level 1 Assist**

LED 1-2 Steady Green:  **Level 2 Assist**

LED 1-3 Steady Green:  **Level 3 Assist**

Definition: Sensor-driven, auto all-terrain assist.

Best for: Walking, jogging, stairs, cycling, hiking.

(3) Ultra Mode

LED 1-4 Steady Orange:  **100%-140% Assist**

Definition: Full power output. Customizable via **Powermate+**.

Best for: High-intensity assistance needs.

(4) Fitness Mode

LED 1 Steady Dark Blue:  **Level 1 Resistance**

LED 1-2 Steady Dark Blue:  **Level 2 Resistance**

LED 1-3 Steady Dark Blue:  **Level 3 Resistance**

LED 1-4 Steady Dark Blue:  **Level 4 Resistance**

Definition: Algorithm-based adjustable resistance, simulating gym equipment.

Best for: Leg strength training, resistance workouts.

5.Device Status LED

Status	LED Indicator	Action
Pending Activation	 Blinking Yellow	Activate via Powermate+ App
Transparency Mode	 Steady White	Default mode after activation. Short press “  ” to cycle modes.
Adaptive Mode (Standard Mode)	 Steady Green	Short press “  ” Increase assist Short press “  ” Decrease assist Adaptive Mode: Levels 1-3 Level 4 switches to Ultra Mode
Ultra Mode	 Steady Orange	Customized assist (100%–140%) via Powermate+ App
Fitness Mode	 Steady Dark Blue	Short press “  ” Increase resistance Short press “  ” Decrease resistance Levels 1–4
Battery Level	 Steady Light Blue	When powered off, short press “  ” to check (25%-50%-75%-100%)
System Error	 Steady Red	Short press “  ” to power off. See P12 [04 Troubleshooting]

6.Battery Management

- (1) Charging Time: 88 min. fully charged (65W)
- (2) Battery Runtime: 20km/4h Endurance (2nd Level, 5 km/h, 3°–8° slope, 28°C, 175 cm, 75 kg user)
- (3) Charging Steps: Power off device, remove control module, connect charger to USB Type-C (PD fast charge supported, max 65W)
- (4) Battery Maintenance: If unused for extended periods, charge every 3 months to maintain battery health.

Battery LED Indicator	Charge Level
 LED 1 : Blinking Green	0%-25%
 LED 1 : Steady Green LED 2 : Blinking Green	25%-50%
 LED 1-2 : Steady Green LED 3 : Blinking Green	50%-75%
 LED 1-3 : Steady Green LED 4 : Blinking Green	75%-100%
 LED1-4 : Steady Green	100% (Fully Charged)

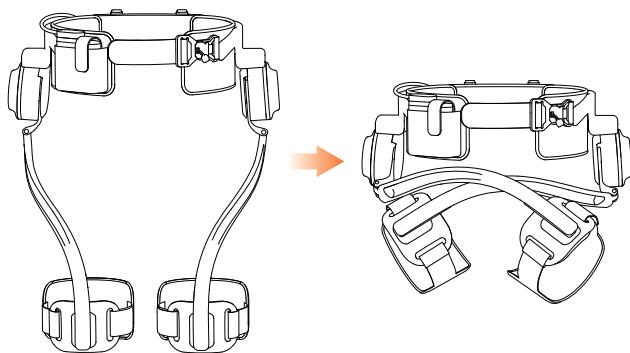


03 Maintenance

1.Daily Cleaning: Wipe the device shell with a soft dry cloth or a damp cloth dipped in neutral detergent. Do not use corrosive solvents such as alcohol or gasoline.

2.Cleaning and Replacement of Binding System: The waist and leg binding system is detachable. Hand washing is recommended, followed by natural air drying. The soft fabric binding system is a consumable part and shall be replaced regularly.

3.Storage Requirements: Fold and store the device in a dry and cool place, and avoid direct sunlight.



04 Troubleshooting

Symptom	Possible Cause	Solution
Unable to power on	Battery depleted	Charge the device, then try turning it on again.
Abnormal motor noise	Joint angle obstructed or foreign object jammed	Check if clothing is caught in leg joints; restart device
Unsmooth walking	Binding straps too loose	Re-wear the device
Four red LEDs flashing	Wear anomaly alert	Power off, re-wear the device properly, then restart. Do not move your body during startup
Three red LEDs flashing	High temperature alert	Power off and wait for motor to cool down, then restart
Two red LEDs flashing	Right motor anomaly	Power off and restart; if alert persists, contact support service
One red LED flashing	Left motor anomaly	Power off and restart; if alert persists, contact support service
One white LED flashing	Battery read error	Battery may not be inserted tightly; reseal the battery. If alert persists, contact support service
Two white LEDs flashing	Sensor read error	Power off and restart; if alert persists, contact support service
Three white LEDs flashing	Mainboard fault alert	Power off and restart; if alert persists, contact support service
Four red LEDs solid	Device not registered	Register the device using the mobile APP

05 Warranty Service

Warranty Terms & Conditions

1. Warranty Period: Commences on the date of physical delivery.

- **EU, Switzerland, Norway, UK: 2 Years**
- **All Others: 1 Year**

Extended to comply with mandatory local consumer legislation where applicable.

2. Coverage: Defects in materials and workmanship under normal and intended use. Excludes consumables (e.g., binding systems) and normal wear & tear.

3. Eligibility: Valid only for original purchasers of authentic Gearflow products purchased from the official website or authorized distributors. Non-transferable. Valid proof of purchase required.

4. Service: Gearflow will repair or replace defective components at no additional charge during the warranty period.

Exclusions

Not Covered:

- Damage not caused by product design, engineering, or manufacturing defects; inability to provide valid proof of purchase; products beyond warranty period
- Misuse, abuse, improper storage, or unlawful use
- Unauthorized modifications, tampering, disassembly, or repair
- Damage from negligence, fire, liquid ingress, flooding, extreme temperatures, or corrosion
- Use of non-Gearflow certified parts or accessories; battery damage from insufficient maintenance (charge at least once every 3 months during non-use)
- Lost, stolen, or misplaced products

Voiding Acts:

- Unauthorized modification to hardware, firmware, or schematics
- Intentional alteration, defacement, or removal of serial numbers, barcodes, or tracking tags
- Servicing by non-Gearflow or non-certified technicians
- Use of non-Gearflow certified accessories

Note: Accidental damage to warranty seals or serial numbers during normal use does not invalidate warranty.

For full terms:

<https://gearflow-robotics.com/warrantypolicy.html>

Customer Support:

support@gearflow-robotics.com

This warranty supplements your statutory rights under applicable local consumer protection laws. In case of conflict, local law shall prevail.

Thank you for purchasing Gearflow products. Please complete this card and retain your proof of purchase. This warranty is valid only with a completed warranty card and original receipt.

Field	Information
Product Model	
Serial Number (S / N)	
Date of Purchase (MM / DD / YYYY)	____ / ____ / ____
Place of Purchase	
Order Number	
Invoice Number	
Contact Address	
Email	
Phone	
Warranty Period	☐ 1 Year / ☐ 2 Years / ☐ Other: _____
Coverage	Defects in materials and workmanship under normal use
Exclusions	Misuse, unauthorized repair, normal wear and tear, non-manufacturing defects
Customer Signature	
Date (MM / DD / YYYY)	____ / ____ / ____

For inquiries, please contact Customer Service:
support@gearflow-robotics.com

FCC Caution.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF warning for Portable device:

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

Contact Information

Manufacturer: Gearflow Robotics Co., Ltd.

Address: Room 601, Building 7, No.178 Dingxing Road, Tangjiawan Town, High-tech Zone, Zhuhai City, Guangdong Province, China

Support Email: support@gearflow-robotics.com

Official Website: <https://gearflow-robotics.com>



Scan QR code for website

The actual product may vary slightly from the images shown in this user manual. Product specifications and features are subject to change without prior notice.