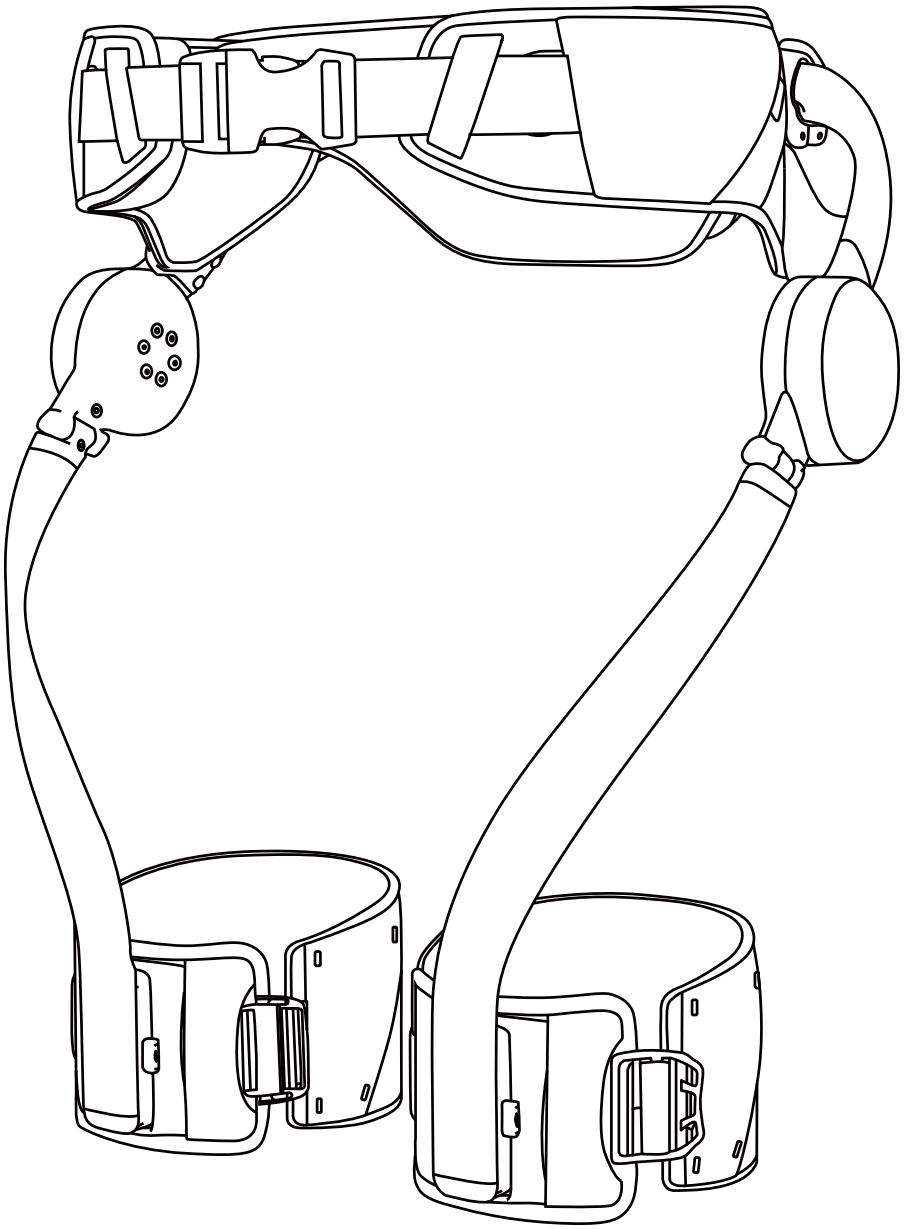
Hypershell X Series

User Manual

[V5.0 Nov. 2025]



HYPERSHELL

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Introduction

Legal Liability and Responsibility

The terms and conditions stated in this section apply to all Hypershell X Series wearable exoskeleton products, including Hypershell X Go, Hypershell X Carbon, Hypershell X Pro and Hypershell X Ultra. Any models or versions not explicitly listed here are not covered by this statement and may be subject to separate documentation.

The Hypershell X Series is a wearable exoskeleton designed exclusively for outdoor recreational use (see the *Safety Guidelines* for specific usage limitations). It is not intended for medical, therapeutic, or rehabilitative purposes, nor is it designed to diagnose, cure, mitigate, treat, or prevent any disease or medical condition. Hypershell is not liable for any injury, damage, or other consequences resulting from use beyond the stated purpose, or improper operation of this product.

By using this product, you acknowledge that you have read, understood, and accepted the terms and conditions set forth in this document, and you agree to operate the product in strict accordance with all usage instructions. Any personal injury or property loss arising directly or indirectly from violation of this disclaimer, this manual, the *Safety Guidelines*, or any other related documentation — including but not limited to misuse, unauthorized modification, or disregard of warnings — shall be borne solely by the user.

To the maximum extent permitted by law, Hypershell's liability is limited to repair or replacement of products confirmed to have material, manufacture, or design defects, as specified in Hypershell's valid Warranty Policy *(on page 56)*. Nothing in this clause is intended to exclude or limit any liability that cannot be excluded or limited by applicable law.

In no event shall Hypershell be liable for indirect, incidental, consequential, or punitive damages, including but not limited to loss of profits, data, business interruption, goodwill, or opportunity, regardless of the cause of such losses (including product defects) or whether Hypershell has been advised of their possibility.

Hypershell shall not be responsible for any consequences arising from the use of unauthorized or unapproved third-party components or unauthorized modifications.

Using This Manual

This manual is intended for personnel who are responsible for operation and maintenance of the product. Read it carefully before use to ensure safe and efficient operation.

⚠ Warning

Indicates a hazardous situation which, if not avoided, could result in serious personal injury.

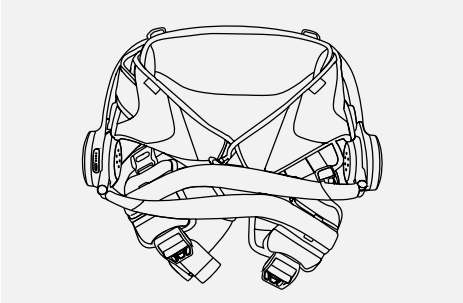
ⓘ Caution

Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or damage to the equipment.

ⓘ Notice

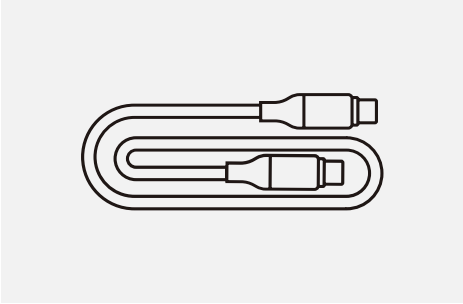
Highlights important information or useful tips that do not involve risk of personal injury or equipment damage.

In The Box



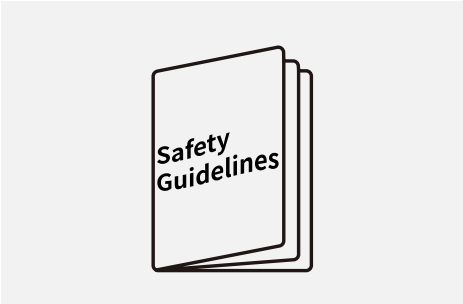
Body Structure × 1

Battery[1]



USB-C Charging Cable × 1

User Manual × 1



Safety Guidelines × 1

Warranty Card × 1

1 Hypershell X Go: Hypershell Intelligent Battery × 1; Hypershell X Carbon / Hypershell X Pro / Hypershell X Ultra: Hypershell Anti-Cold Battery × 2

Download Hypershell+ App

You can download the latest version of Hypershell+ App via one of the three methods below.

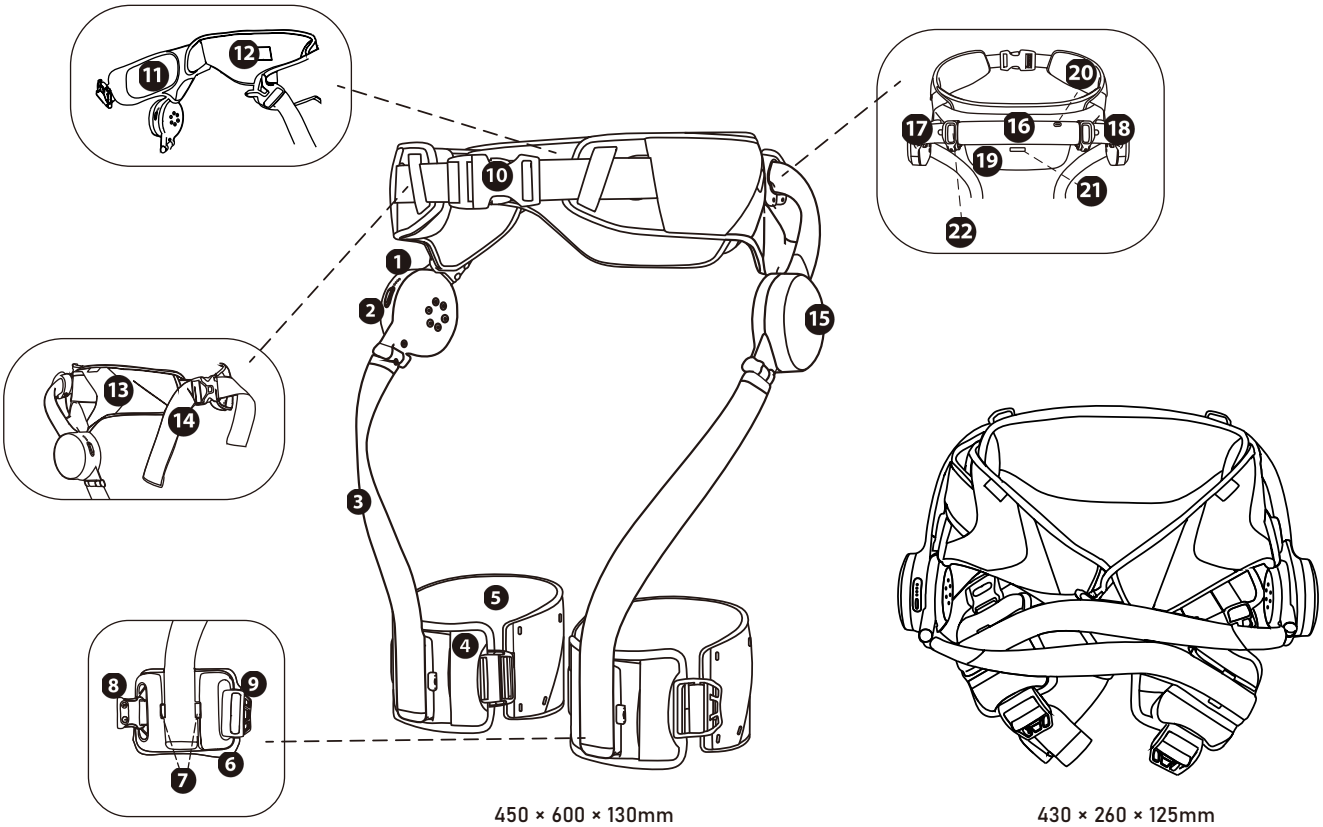
- **Method A:** Scan the QR Code below to download.

Android **iOS**

- **Method B:** Go to https://hypershell.tech/pages/tutorials > **App Download** to download.
- **Method C:** Search for "Hypershell+" on Google Play or App Store to download.

Product Overview

Diagram



1. Status LEDs
2. Control Button
3. Leg Lever
4. Front Leg Strap
5. Rear Leg Strap
6. Lever Adjust Slider
7. Slider Button
8. Inner Leg Buckle
9. External Leg Buckle
10. Hip Belt Buckle
11. Hip Support
12. Hip Rest
13. Hip Position Belt
14. Hip Adjust Belt
15. Motor
16. Hip Lever
17. Left Hip Lever Tube
18. Right Hip Lever Tube
19. Battery
20. Charging Port
21. Battery Release Button
22. Hip Clamp

Images are for illustrative purposes only. Actual product design, features, and specifications are subject to change without notice.

Technical Specifications

Exoskeleton Specifications

Product	Hypershell X Go	Hypershell X Pro	Hypershell X Carbon	Hypershell X Ultra
Model	HGX-400W-NYL	HPX-800W-NYL	HCX-800W-GTX	HXU-900W-TPU
Net Weight	2.0 kg (4.4 lb)		1.8 kg (4.0 lb)	
Peak Output	400 W	800 W		1000 W
Range Per Battery [1]	15 km (9.3 mi)	17.5 km (10.9 mi)		30 km (18.6 mi)
Max. Physical Exertion Reduction [2]	20%	30%		39%
Operation Modes	Transparent Mode Eco Mode	Transparent Mode Eco Mode Hyper Mode Fitness Mode		Transparent Mode Eco Mode Hyper Mode Fitness Mode Boost Mode
Max. Assist Speed	12 km/h (7.5 mph)	20 km/h (12.4 mph)		25 km/h (15.5 mph)
AI Engine	MotionEngine Lite	MotionEngine		MotionEngine Ultra
Smart Control	iOS Android watchOS			

1 Measured during lab-controlled treadmill walking at 4 km/h on a 1° incline, with the exoskeleton set to Eco Mode at 30% power. Data were collected under controlled laboratory conditions. Actual performance may vary depending on environmental conditions, terrain, load, user physiology, and walking style.

2 Measured during lab-controlled indoor cycling with the exoskeleton configured to optimal assistance settings. Compared with cycling without exoskeleton assistance, dynamic oxygen consumption decreased by 39.2%. Actual performance may vary depending on environmental conditions, terrain, load, user physiology, riding style, and bicycle model.

Product	Hypershell X Go	Hypershell X Pro	Hypershell X Carbon	Hypershell X Ultra
Adaptive Motion Recognition	Up Stairs Down Stairs Uphill Downhill Race Walk Walk (6 Modes)	Up Stairs Down Stairs Uphill Downhill Race Walk Walk Cycling Running Mountain Gravel (10 Modes)		Up Stairs Down Stairs Uphill Downhill Race Walk Walk Cycling+ Running+ Mountain Gravel Dune Snow (12 Modes)
Hardware Material	Aluminum Alloy Stainless Steel	Carbon Fiber Reinforced Polymer Aluminum Alloy Stainless Steel	Carbon Fiber 3D-Printed Titanium Alloy Aluminum Alloy	SpiralTwill 3000 Carbon Fiber SinterShell Titanium Alloy
AeroFlex Material	Ultra-Light Diamond Weave Nylon	Ultra-Light Diamond Weave Nylon	AquaTex	Ultra-Light Diamond Weave Nylon
Protection Level	IP54			
Nominal Voltage	14.4 V			
Max. Charging Voltage	20 V			
Charging Port	USB-C Port; PD Protocol			
Dimensions	Folded: 430 × 260 × 125 mm (16.9 × 10.2 × 4.9 in) Unfolded: 450 × 600 × 130 mm (17.7 × 23.6 × 5.1 in)			

Battery Specifications

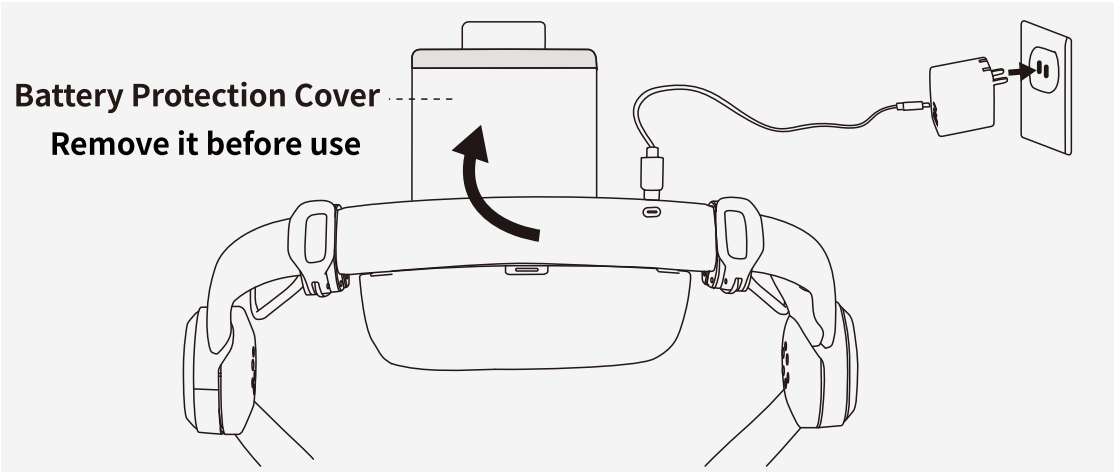
Battery	Hypershell Intelligent Battery	Hypershell Anti-Cold Battery
Operating Temperature	-10 to 60 °C (14 to 140 °F)	-20 to 60 °C (-4 to 140 °F)
Provided With	Hypershell X Go	Hypershell X Pro Hypershell X Carbon Hypershell X Ultra
Compatible With	Hypershell X Go Hypershell X Pro Hypershell X Carbon Hypershell X Ultra	
Nominal Capacity	5000 mAh / 72 Wh	
Rated Capacity	4800 mAh / 69.12 Wh	
Charging Temperature	0 to 40 °C (32 to 104 °F)	
Charging Time	Approx. 88 mins (0 - 100% with a 65W charger)	
Net Weight	Approx. 400 g (14.1 oz)	

First Use

First-Time Charging

All batteries are shipped in hibernation mode for safety. Before first use, it is recommended to fully charge the battery to ensure optimal performance. See Charging the Battery *(on page 33)* for detailed instructions.

1. Take out the exoskeleton from the box, one battery is already installed on the device. Remove the battery protection cover[1].
2. Connect the device to a power supply using the provided USB-C charging cable via the USB-C charging port on the hip lever.



Warning

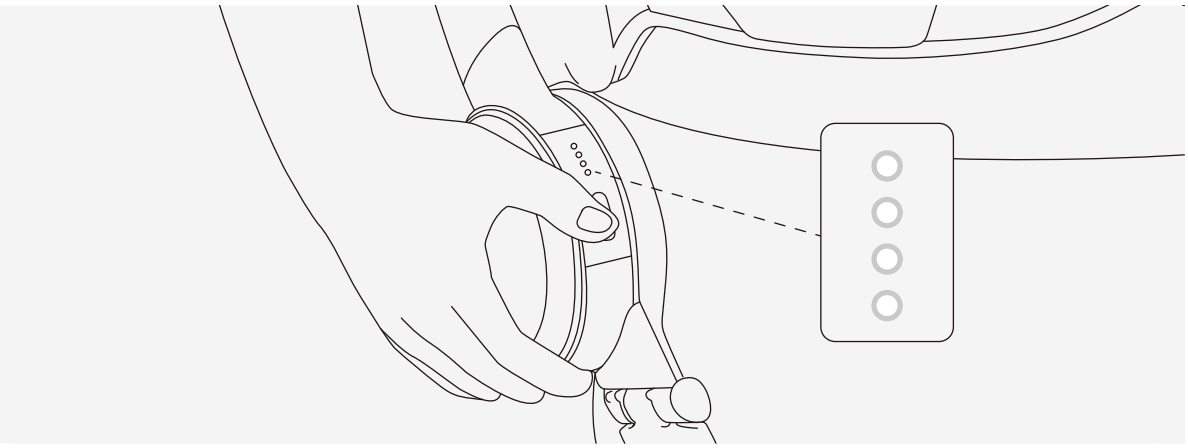
- Do not use the exoskeleton while it is charging. Otherwise, it may cause overheat or other performance issues, and may interrupt the charging process.
- Ensure that the battery interface and USB-C charging port are dry before plugging in the charging cable.

1 A battery protection cover is not provided for all batteries (as shown in illustration). If your battery is located in a separate slot (e.g., Hypershell X Go), no cover removal is required before use. Please refer to the actual packaging of your product.

Power On / Off the Device

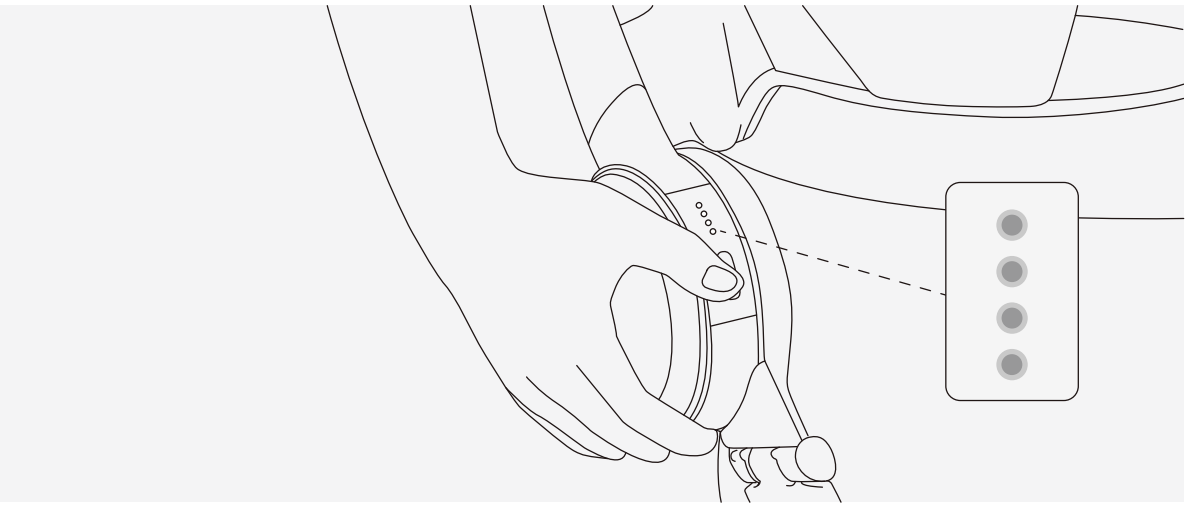
Power On the Device

Press the control button once and wait for the status LEDs to illuminate in solid white, then quickly press and hold the button for 2 seconds to power on the device.



Power Off the Device

Stop moving, press the control button once, then quickly press and hold the button for 2 seconds to power off the device.



Notice

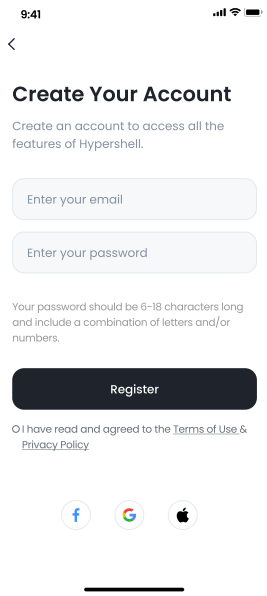
Be sure to wear the device properly before powering it on. See Wearing the Device *(on page 17)* for detailed instructions.

Binding the Device

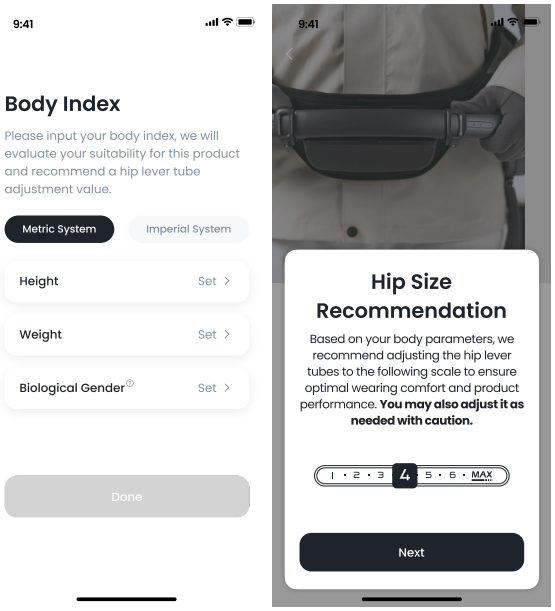
Bind the exoskeleton to your mobile devices to enable personalized settings and full functionality.

Binding To Mobile Phone

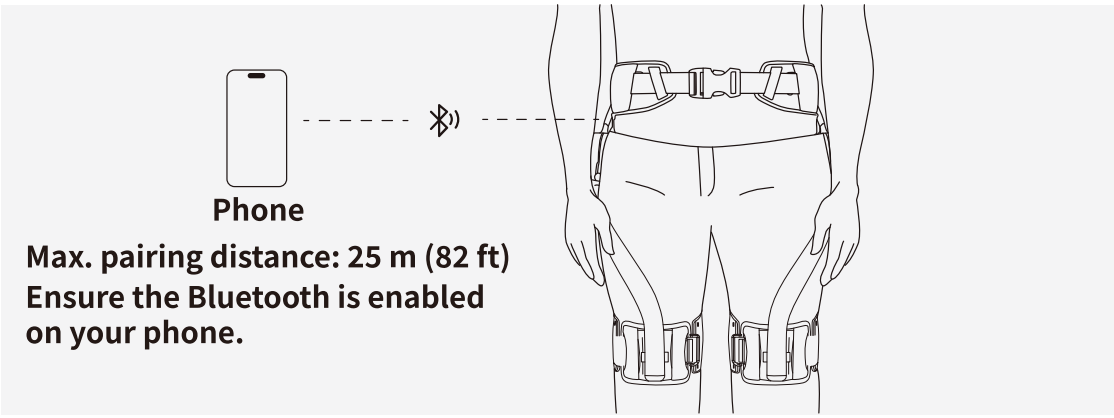
1. Ensure that Bluetooth is enabled on your mobile phone. Launch the Hypershell+ app, and tap **Register** to create an account.



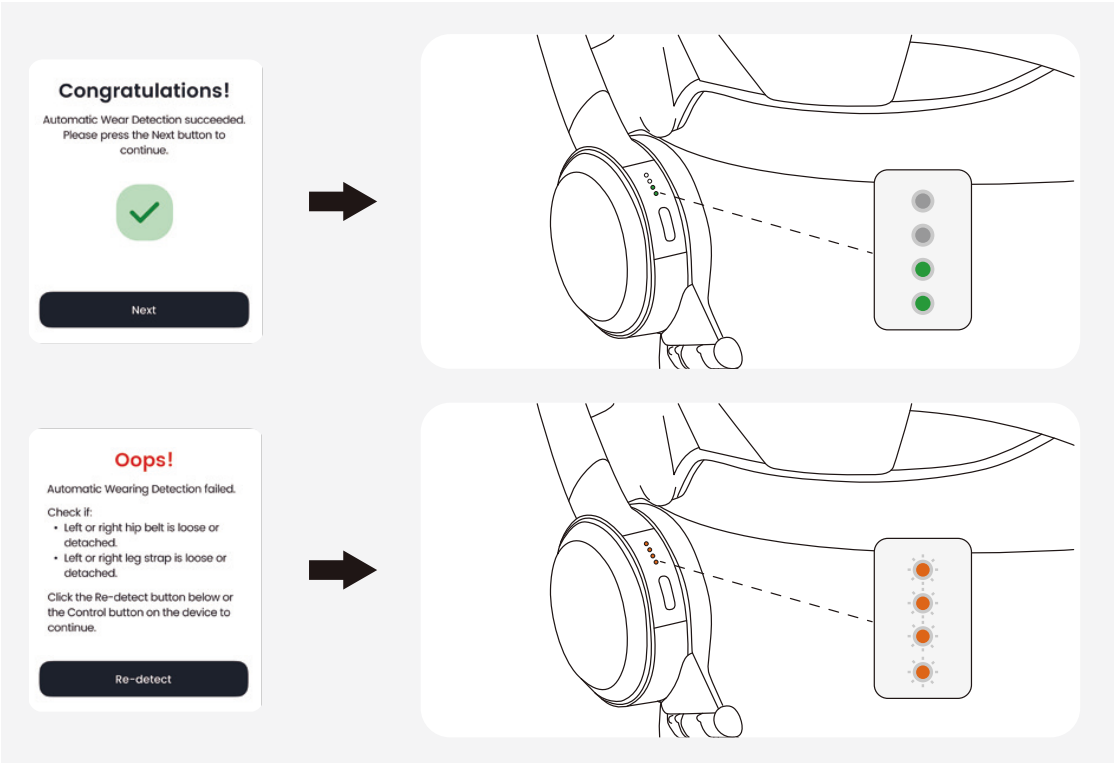
2. Follow the on-screen instructions to input your body index and the app will calculate a recommendation value of the hip lever tubes based on your hip size.



3. Continue following the on-screen instructions to wear the hip belts and leg straps. Press once, then press and hold the control button for 2 seconds to power on the device. Place your phone next to it, and tap **Search My Device** to start binding.



4. Once the device is successfully bound to your account, the Automatic Wear Detection will begin. A pop-up window will display the detection results. If the detection fails, follow the on-screen guidance to adjust the device and tap **Re-detect** to try again. After passing the detection, you can continue to complete the **Wearing Guide**.



⚠ Warning

Wearing the exoskeleton incorrectly may lead to device malfunction or loss of balance, increasing the risk of falls and personal injury, especially during strenuous outdoor activities.

ⓘ Notice

- Automatic Wear Detection will take place each time you power on the device.
- Automatic Wear Detection functions only when you are standing. If you are sitting, detection will fail. Please stand up and tap **Re-detect** to try again.

- After binding, the exoskeleton will be added to your device list. You can go to **Profile** > **My Device** to view it.
- One device can only be connected with one phone at a time. If you need to connect it with another phone, please disable the Bluetooth on the original phone to disconnect it first.

Binding To Apple Watch

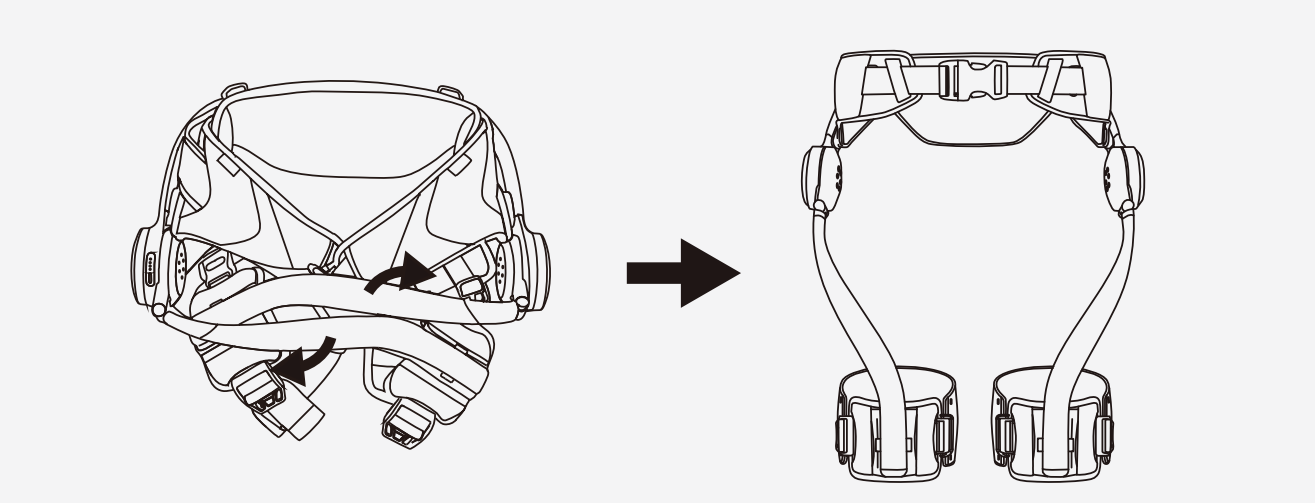
1. Ensure that the exoskeleton has already been connected to an iPhone via Bluetooth before. See Binding To Mobile Phone *(on page 14)* for detailed instructions.
2. Download the Hypershell+ app on your Apple Watch. See Download Hypershell+ App *(on page 7)* for detailed instructions.
3. Power on the exoskeleton, and launch the app on your Apple Watch, then the device will automatically detect and connect to the watch.

Donning and Doffing

Wearing the Device

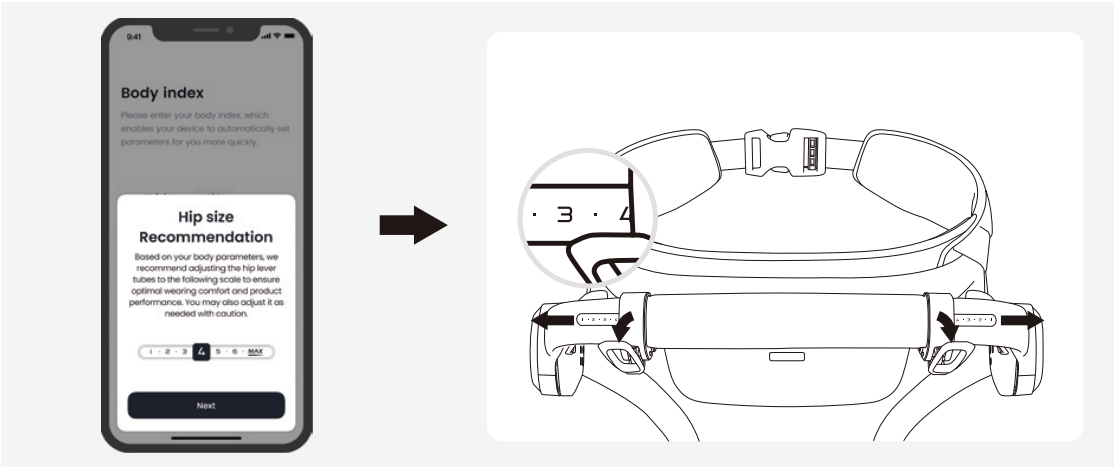
Properly wearing the exoskeleton from hip area to legs ensures optimal performance without restricting your mobility.

First, rotate two leg levers in opposite direction to unfold the exoskeleton.

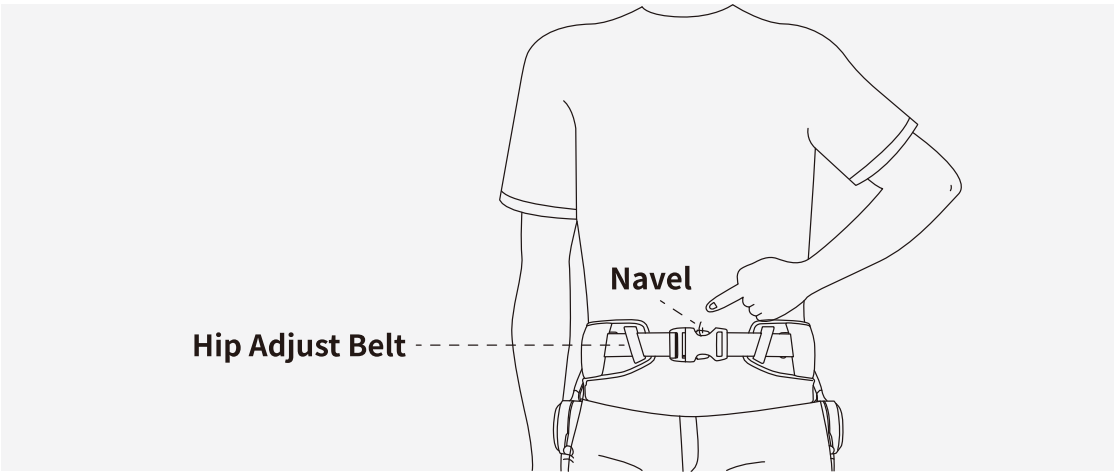


Wearing Hip Belts

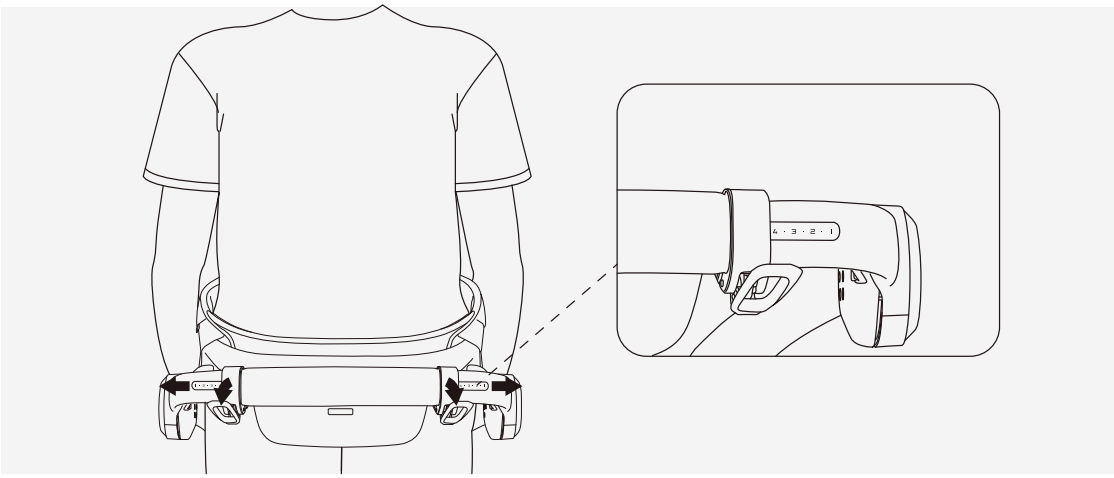
1. Pull down both hip clamps on the hip lever to unlock left and right hip lever tubes.
2. Extend or retract both hip lever tubes until the value beneath each hip clamp matches the recommendation shown in the Hypershell+ app.



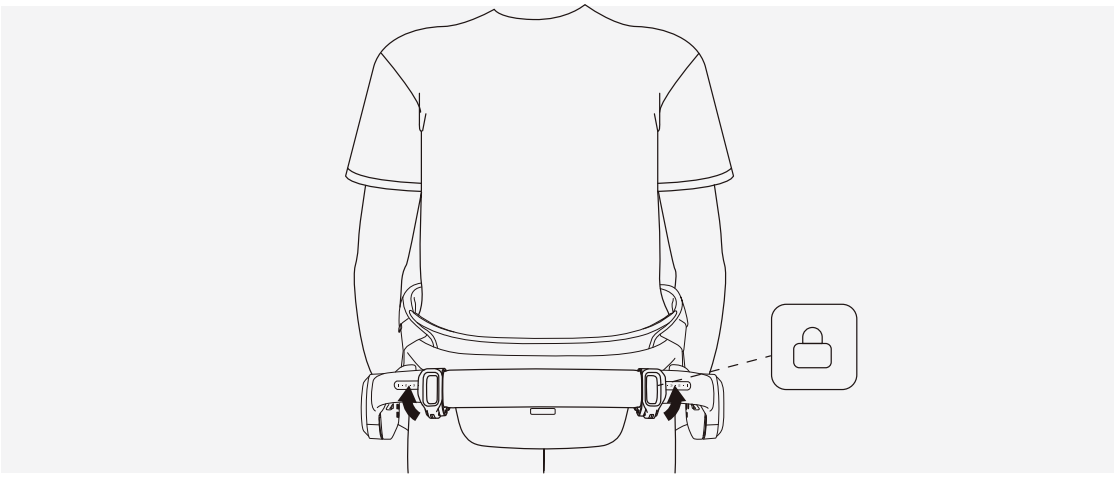
3. Put on the hip position belts, ensuring that it sits at the top edge of your hip bone and the motors align with your hip joints. In other words, the hip belt buckle should be aligned with your navel.



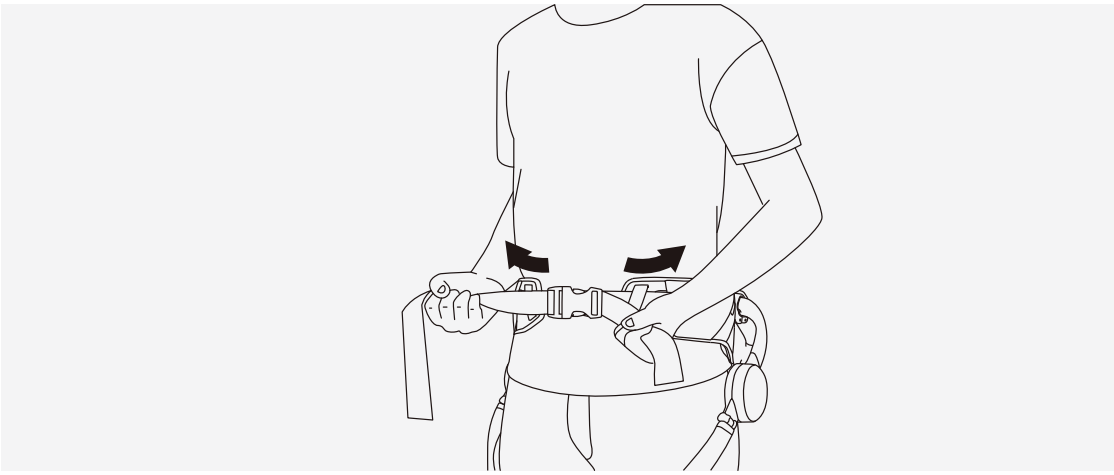
4. If the motors are too close or far from your hip bones, re-adjust the hip lever tubes until they align and the gap is about 1 cm. It is suggested to set the same or approximately the same value on both tubes.



5. Push both hip clamps upward to lock the hip lever tubes in place.



6. Fasten the hip belt buckle to secure the hip belt in place. Then tighten the nylon strap of hip adjust belt to prevent it from swaying when you move.

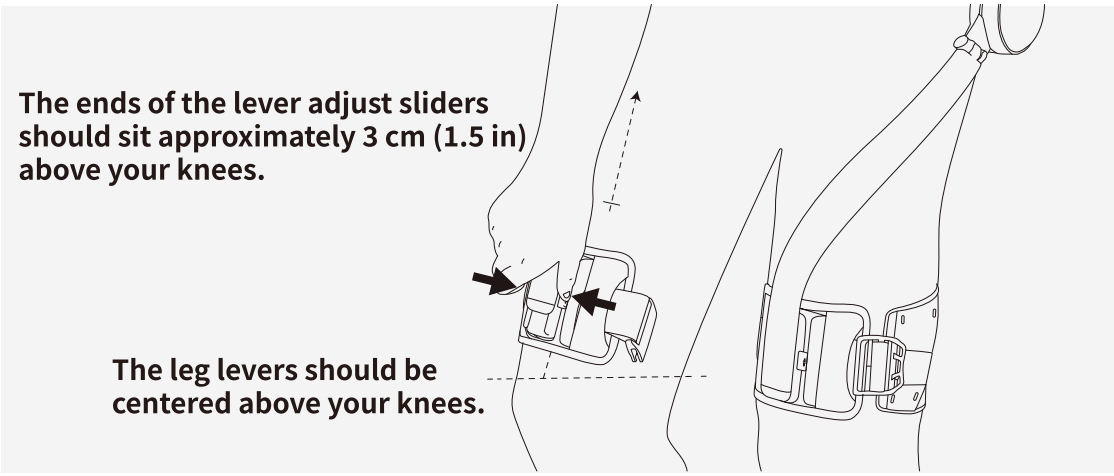


Notice

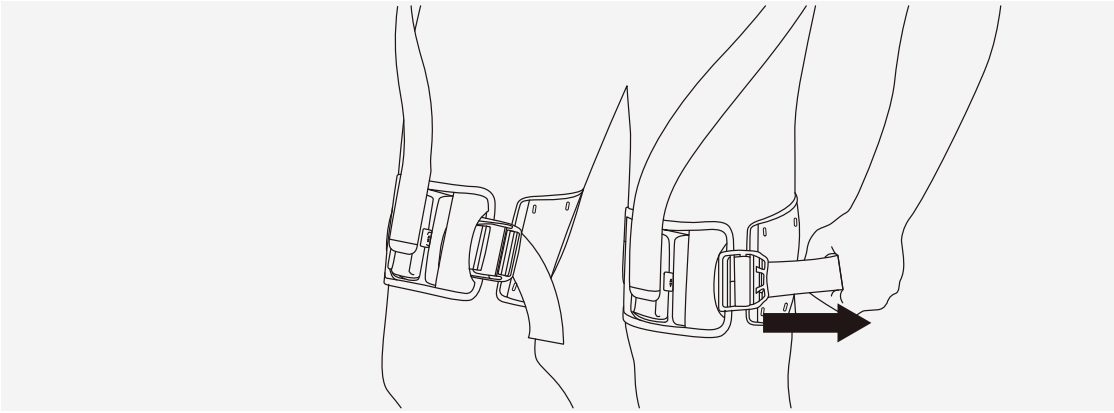
It is easier to tighten the nylon strap by using the left hand to pull the right strap backward and vice versa.

Wearing Leg Straps

1. Align the leg levers with the center of your knees to ensure balanced performance.
2. Press the slider buttons simultaneously, then move slider approximately 3 cm (1.5 in) above your knees. Meanwhile, ensure that the rear leg strap does not settle into the back of your knee or interfere with knee flexion movements.



3. Wrap the front and rear leg straps around your thighs. Adjust the nylon straps as needed and fasten the inner leg buckles to secure the leg straps.



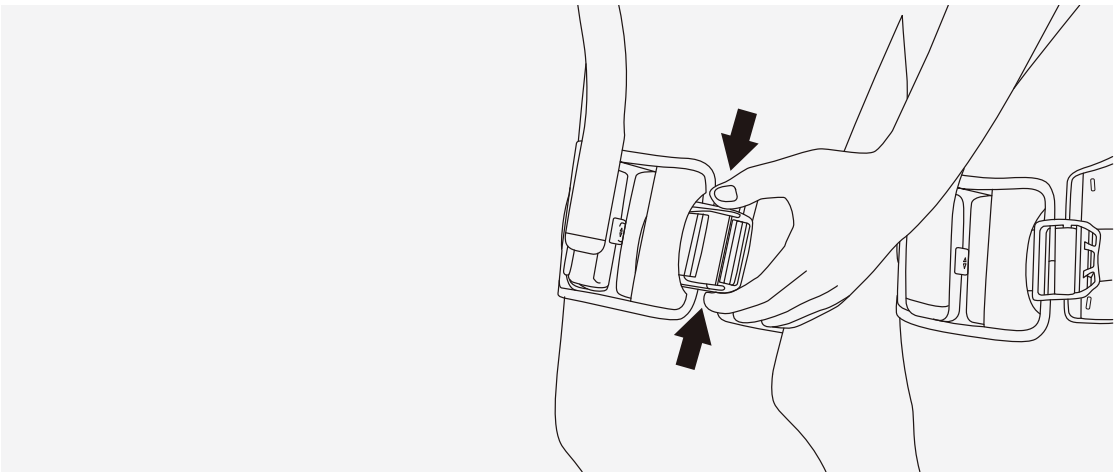
4. After completing all adjustments, try squatting or walking to confirm all straps are positioned correctly.

ⓘ Caution

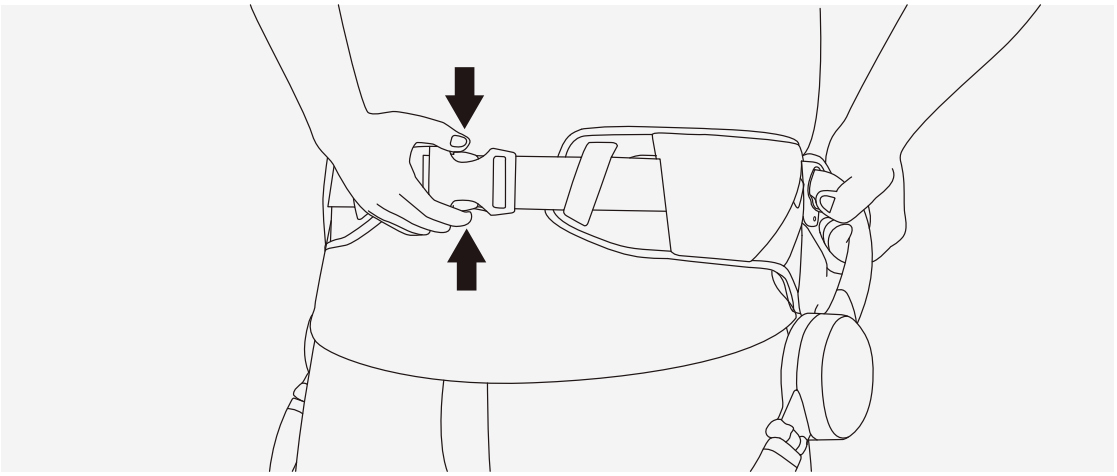
- This product is designed to fit a limited range of adult body sizes. Before first use, please refer to the Body Size Table *(on page 54)* to confirm that your body measurements fall within the supported range.
- When adjusting the hip adjust belt and leg straps, tighten them firmly but comfortably. Over-tightening may restrict blood circulation and cause discomfort.
- Always wear the hip belts and leg straps over clothing to help prevent injury during physical activity. Avoid direct contact between the device and bare skin, as it may cause irritation, allergic reactions, or other discomfort. Loose or restrictive clothing, such as dresses, is not recommended, as it may interfere with proper fit and function.

Taking Off the Device

1. Press the control button once, then quickly press and hold it for 2 seconds to power off the device.
2. Press and hold the inner leg buckles to release the leg straps.



3. Press and hold the hip belt buckle to release the hip adjust belt.

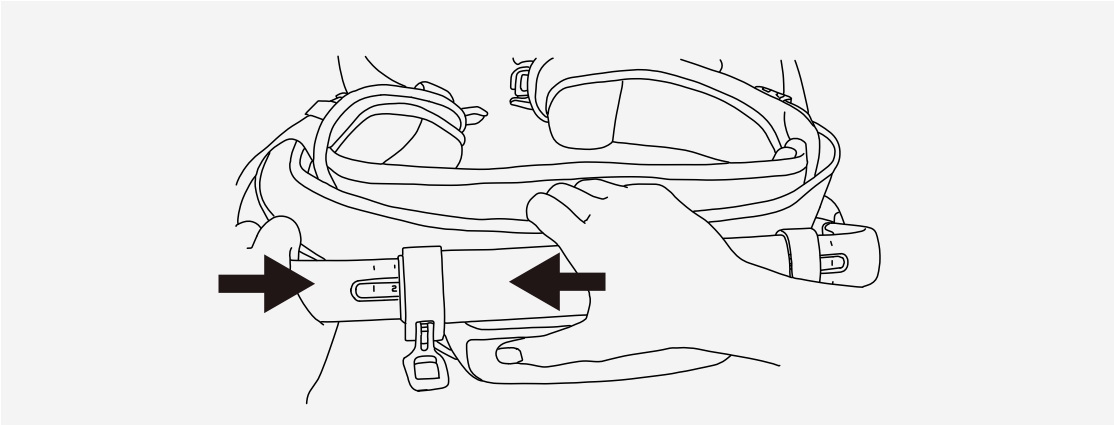


Notice

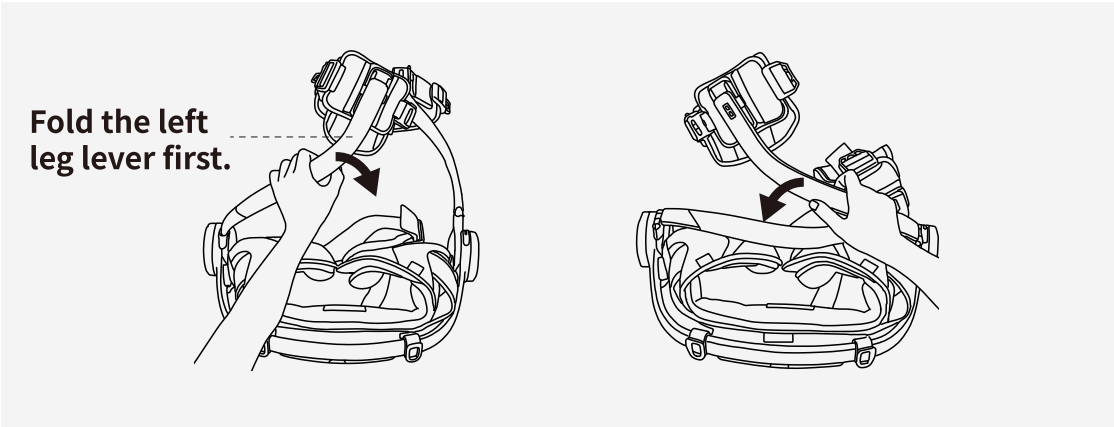
To prevent the exoskeleton from falling unexpectedly during removal, it is recommended to use one hand to hold the hip lever while you unlock the hip belt buckle.

Stowing the Device

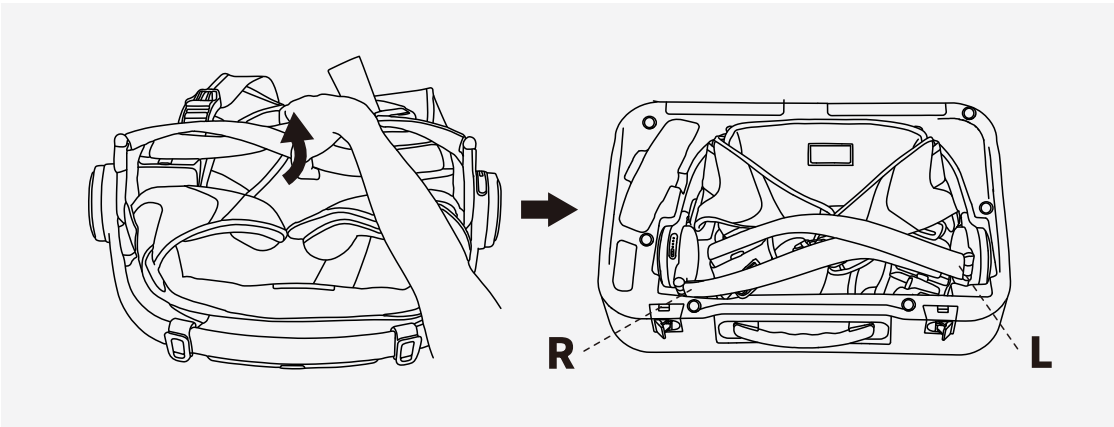
1. Pull down both hip clamps on the hip lever to unlock left and right hip lever tubes. Retract both tubes to their original positions.



2. Lift the left leg lever and fold it first. Then lift and fold the right leg lever.



3. Hold both leg levers together and rotate them outward. Then you can stow the device inside the EPP box.



Notice

Be sure to fold the left leg lever first; otherwise, the folded device will not fit properly into the designated slot in the EPP box.

Operation Modes

Transparent Mode

In this mode, the exoskeleton does not provide any power assistance.

Supported Model

Hypershell X Go, Hypershell X Pro, Hypershell X Carbon, Hypershell X Ultra

How To Enter

Method A: In the Hypershell+ app, go to **Device** and tap **Transparent** to enter Transparent mode.

Method B: When the device is in any other mode, press the control button once to switch to Transparent mode.

LED Status

LED 1-4 Solid Blue

Eco Mode

In this mode, the exoskeleton provides adaptive power assistance for moderate activities.

Supported Model

Hypershell X Go, Hypershell X Pro, Hypershell X Carbon, Hypershell X Ultra

How To Enter

Method A: The device will enter Eco mode by default after it is powered on.

Method B: In the Hypershell+ app, go to **Device** and tap **Eco** to enter Eco mode.

Method C: If the device is in any other mode, press and hold the control button for 2 seconds to switch to Eco mode.

Method D: If the device is first switched to Eco mode, then consecutively to Transparent mode, press the control button once and it will revert to Eco mode.

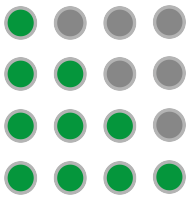
LED Status

Power Level 1 : LED 1 Solid Green

Power Level 2 : LED 1-2 Solid Green

Power Level 3 : LED 1-3 Solid Green

Power Level 4 : LED 1-4 Solid Green



Hyper Mode

In this mode, the exoskeleton provides dynamic power assistance for intense activities.

Supported Model

Hypershell X Pro, Hypershell X Carbon, Hypershell X Ultra

How To Enter

Method A: In the Hypershell+ app, go to **Device** and tap **Hyper** to enter Hyper mode.

Method B: If the device is in Eco mode, press and hold the control button for 2 seconds to switch to Hyper mode.

Method C: If the device is in Transparent or Fitness mode, press and hold the control button for 2 seconds to switch to Eco mode first, then repeat this step to switch to Hyper mode.

Method D: If the device is first switched to Hyper mode, then consecutively to Transparent mode, press the control button once and it will revert to Hyper mode.

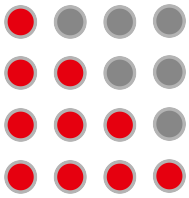
LED Status

Power Level 1: LED 1 Solid Red

Power Level 2: LED 1-2 Solid Red

Power Level 3: LED 1-3 Solid Red

Power Level 4: LED 1-4 Solid Red



Boost Mode

In this mode, the exoskeleton provides stronger assistance than Hyper Mode, equipping you for strenuous cycling, running and similar activities.

Supported Model

Hypershell X Ultra

How To Enter

Method A: In the Hypershell+ app, go to **Device**, switch to either **Eco** mode or **Hyper** mode, and you will see the **Boost** option. Tap the **Rocket Icon** to activate Boost mode.

Method B: If the device is in Eco mode or Hyper mode, quickly press the control button four times to enter Boost mode.

Method C: During cycling and running, if the device detects your acceleration reaches a certain threshold, it will automatically enter Boost mode.

Duration

Boost mode lasts for 30 seconds each time.

LED Status

LED 1-4 Chasing Red

Fitness Mode

In this mode, the exoskeleton provides dynamic or static resistance for workout needs.

Supported Model

Hypershell X Pro, Hypershell X Carbon, Hypershell X Ultra

How To Enter

Method A: In the Hypershell+ app, go to **Device** and tap **Fitness** to enter Fitness mode.

Method B: If the device is first switched to Fitness mode, then consecutively to Transparent mode, press the control button once and it will revert to Fitness mode.

Isotonic Mode[1]

By enabling this option under the Fitness Mode, the device will provide adaptive resistance for single-leg hip exercise. Please stand still, lean your weight to one leg, and move the other to activate your iliopsoas and gluteus maximus.

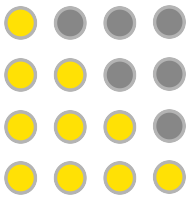
LED Status

Power level 1: LED 1 Solid Yellow

Power level 2: LED 1-2 Solid Yellow

Power level 3: LED 1-3 Solid Yellow

Power level 4: LED 1-4 Solid Yellow



1 Only supported by Hypershell X Ultra.

Using the Device

Control Button

Power On / Off the Device

Power On

Press the control button once, then press and hold it for 2 seconds to power on the device, and it will enter Eco mode by default.

Power Off

Press the control button once, then quickly press and hold it for 2 seconds to power off the device.

Switch Operation Modes

Press Once

Press the control button once to switch between Transparent mode and the previous mode.

Long Press 2s

Press and hold the control button for 2 seconds to switch between Eco mode and Hyper mode.

Press 4 Times

In Eco mode or Hyper mode, quickly press the control button four times to enter Boost mode.

See Operation Modes *(on page 24)* for more information about different modes.

Adjust Power Level

Press Twice

Quickly press the control button twice to increase the power level by 25%.

Press 3 Times

Quickly press the control button three times to decrease the power level by 25%.

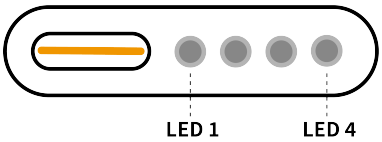
Re-run Automatic Wear Detection

Press Once

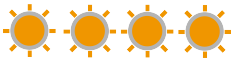
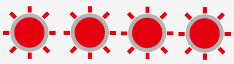
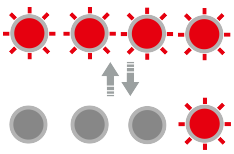
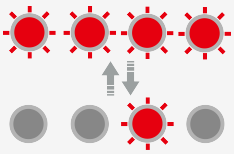
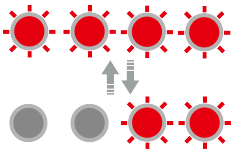
When all four status LEDs are blinking in orange, check and wear the device properly, then press the control button once to re-run Automatic Wear Detection.

Status LEDs

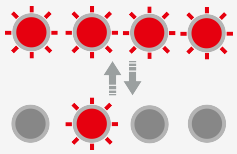
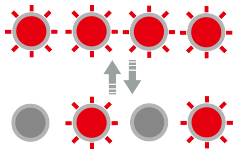
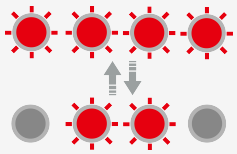
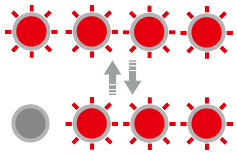
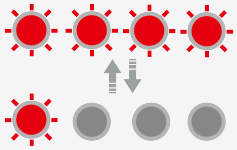
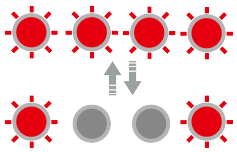
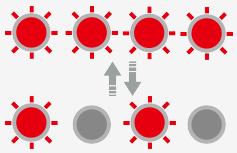
The status LEDs are located on the right motor. The LED closest to the control button is referred to as LED 1, then from left to right are LED 2, LED 3 and LED 4.



During Use

LED Status	Description	Indication
	LED 1 - 4 Solid Blue	Transparent Mode.
	LED 1 - 4 Chasing Blue	The device automatically enters Bluetooth Pairing Mode when no bound phone is detected.
	LED 1 - 4 Blinking Orange	Automatic Wear Detection fails. Check and adjust the hip belts and leg straps properly, then press the control button once to re-run detection.
	LED 1 - 4 Blinking Red	Device error. Please connect the device to the Hypershell+ app to check the specific error code, and contact Hypershell Technical Support for assistance.
	Blinking Loop[1]: LED 1 - 4 Blinking Red LED 4 Blinking Red	Air pressure sensor error. Please contact Hypershell Technical Support for assistance.
	Blinking Loop: LED 1 - 4 Blinking Red LED 3 Blinking Red	CAN communication error. Please contact Hypershell Technical Support for assistance.
	Blinking Loop: LED 1 - 4 Blinking Red LED 3 - 4 Blinking Red	Battery temperature is too high. Power off the device to let it cool down. If the error persists, please contact Hypershell Technical Support for assistance.

1 The alternate blinking loop of two LED patterns is applied in firmware version v1.7.1 or later.

LED Status	Description	Indication
	Blinking Loop: LED 1 - 4 Blinking Red LED 2 Blinking Red	Battery communication error. Please contact Hypershell Technical Support for assistance.
	Blinking Loop: LED 1 - 4 Blinking Red LED 2 & 4 Blinking Red	Absolute position sensor error. Please contact Hypershell Technical Support for assistance.
	Blinking Loop: LED 1 - 4 Blinking Red LED 2 & 3 Blinking Red	Relative position sensor error. Please contact Hypershell Technical Support for assistance.
	Blinking Loop: LED 1 - 4 Blinking Red LED 2 - 4 Blinking Red	Motor drive error. Please contact Hypershell Technical Support for assistance.
	Blinking Loop: LED 1 - 4 Blinking Red LED 1 Blinking Red	Battery temperature is too low. Place the device in a normal environment and let it return to room temperature. If the error persists, please contact Hypershell Technical Support for assistance.
	Blinking Loop: LED 1 - 4 Blinking Red LED 1 & 4 Blinking Red	Motor overheat. Power off the device to let it cool down. If the error persists, please contact Hypershell Technical Support for assistance.
	Blinking Loop: LED 1 - 4 Blinking Red LED 1 & 3 Blinking Red	Geomagnetic sensor error. Please contact Hypershell Technical Support for assistance.
	LED 1 Solid Green	Eco Mode Power Level 1.
	LED 1 - 2 Solid Green	Eco Mode Power Level 2.
	LED 1 - 3 Solid Green	Eco Mode Power Level 3.
	LED 1 - 4 Solid Green	Eco Mode Power Level 4.
	LED 1 Solid Red	Hyper Mode Power Level 1.
	LED 1 - 2 Solid Red	Hyper Mode Power Level 2.

LED Status	Description	Indication
	LED 1 - 3 Solid Red	Hyper Mode Power Level 3.
	LED 1 - 4 Solid Red	Hyper Mode Power Level 4.
	LED 1 - 4 Chasing Red	Boost Mode.
	LED 1 Solid Yellow	Fitness Mode Power Level 1.
	LED 1 - 2 Solid Yellow	Fitness Mode Power Level 2.
	LED 1 - 3 Solid Yellow	Fitness Mode Power Level 3.
	LED 1 - 4 Solid Yellow	Fitness Mode Power Level 4.
	LED 1 Blinking Red	Low Battery Level: 1-9%.
	LED 1 Solid White	Battery Level: 10-25%.
	LED 1 - 2 Solid White	Battery Level: 26-50%.
	LED 1 - 3 Solid White	Battery Level: 51-75%.
	LED 1 - 4 Solid White	Battery Level: 76-100%.

During Charging

LED Status	Description	Indication
	LED 1 Blinking White	Charging Level: 0-25%.
	LED 1 Solid White LED 2 Blinking White	Charging Level: 26-50%.
	LED 1 - 2 Solid White LED 3 Blinking White	Charging Level: 51-75%.
	LED 1 - 3 Solid White LED 4 Blinking White	Charging Level: 76-99%.
	LED 1 - 4 Solid White	Battery Fully Charged: 100%.

Notice

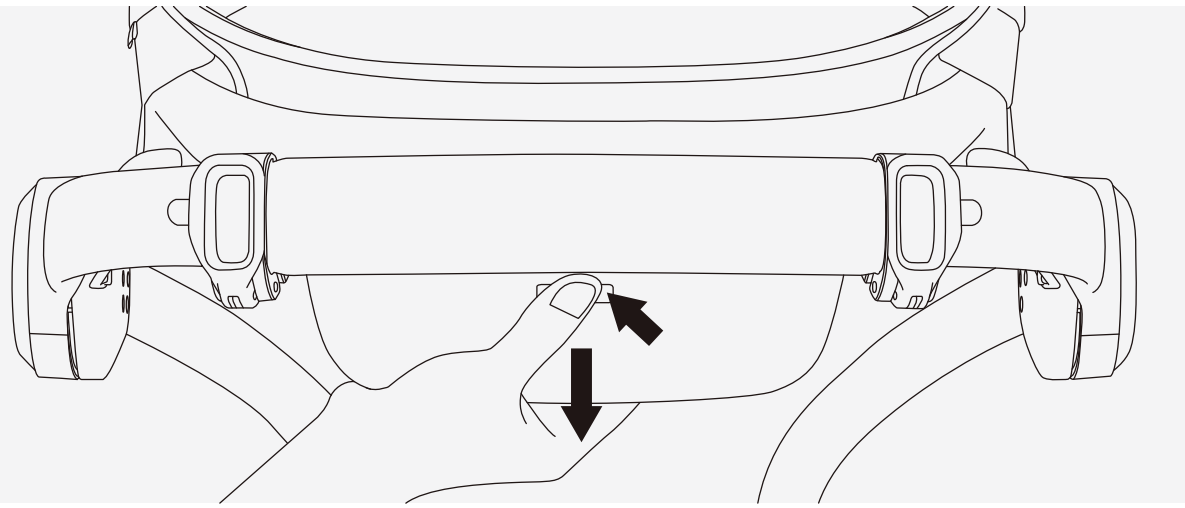
- The brightness of status LEDs can be adjusted in the Hypershell+ app, see Status LEDs Brightness Adjustment *(on page 37)* for detailed instructions.
- During use, when the control button remains idle for 10 seconds, the status LEDs will automatically switch to displaying the remaining battery level. Press the control button once or move your legs and they will display current operation mode.

Battery

Removing and Installing the Battery

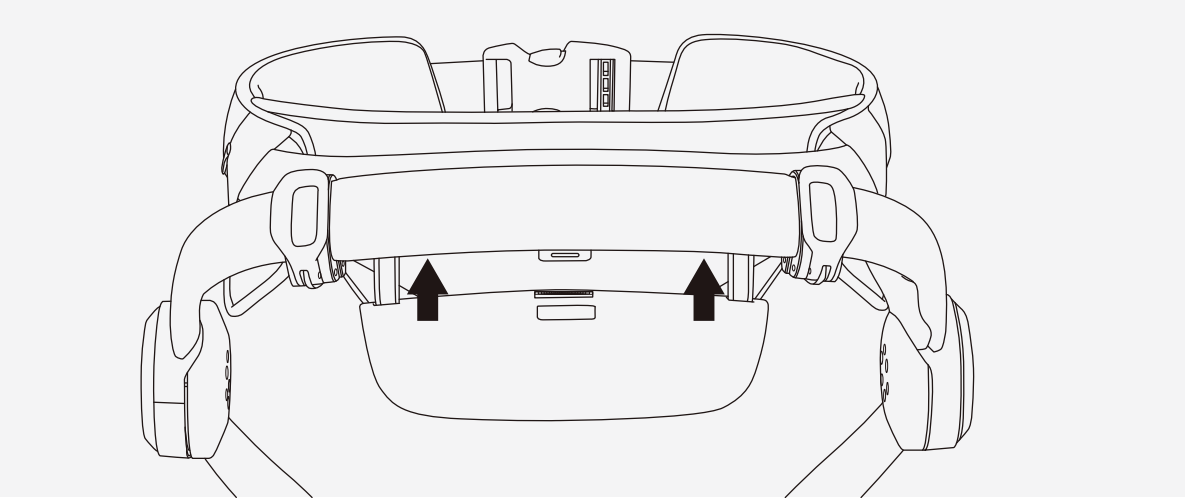
Remove the Battery

Press and hold the battery release button, then gently pull the battery out from the hip lever.



Install the battery

Align the battery locking post on the hip lever with the battery recess. Push the battery onto the post until you hear a click, indicating that it is securely locked in place.



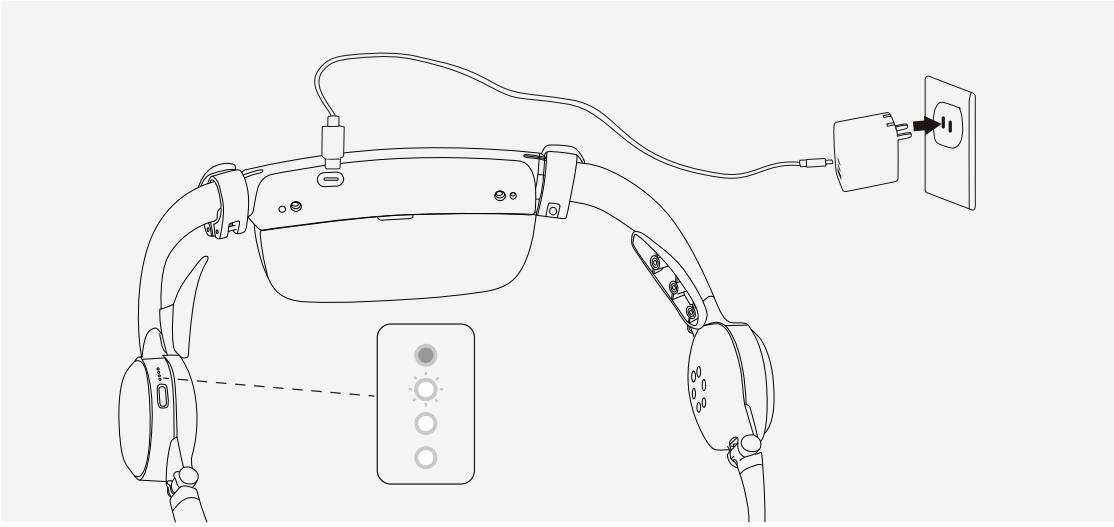
⚠ Warning

Make sure the battery is securely locked in place; otherwise it may fall off during use.

Charging the Battery

The exoskeleton does not come with a power charger, please prepare a USB-C PD charger to charge it.

1. Insert the battery onto the hip lever.
2. Use the provided USB-C charging cable to connect the device to an AC power supply via the USB-C charging port. The status LEDs will display the corresponding battery level.



   See Status LEDs *(on page 28)* to learn about the LED patterns during charging.

3. After the battery is fully charged, disconnect the charger and charging cable from the device.

⚠ Warning

- Do not use the exoskeleton while it is charging. Otherwise, it may cause overheat or other performance issues, and may interrupt the charging process.
- Ensure that the battery interface and USB-C charging port are dry before plugging in the charging cable.

ⓘ Notice

- The charging time depends on the power rating of the charger being used. For optimal charging efficiency, it is recommended to use a USB-C 65W charger. Lower-power USB-C chargers, such as 9V / 2A chargers, are also compatible; however, their charging time will be considerably longer.
- The battery itself does not have a charging port, so it can only be charged when installed on the exoskeleton. Alternatively, you can use the Hypershell 4-Port Charging Hub to charge it independently. Go to https://hypershell.tech/products/4-port-charging-hub to learn more about this accessory.
- When a battery has been depleted for an extended period, it cannot be charged with the Hypershell 4-Port Charging Hub. Please install the battery onto the exoskeleton to charge it.

Low Battery Level Safety System

The exoskeleton incorporates a Low Battery Level Safety System designed to protect your safety.

When the battery level drops below 10%, the status LEDs will blink in red, prompting the user to charge or replace the battery.

As the remaining battery level continues to decrease, the device will gradually reduce power assistance and eventually switch to Transparent mode. During this time, it cannot enter Hyper mode or Boost mode.

When the battery is fully depleted, the device will automatically power off.

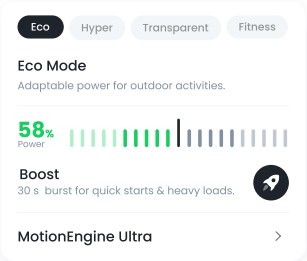
See Battery Maintenance *(on page 50)* for more information about battery care.

Hypershell+ App

Operation Modes and Power Levels

The **Device** page displays the current operation mode and power level of the connected exoskeleton.

1. Tap the mode name to directly switch to that mode.
2. Slide the power level bar to adjust the intensity of the current mode based on your activity.
3. In Eco mode and Hyper mode, you can tap the **rocket icon** to enter Boost mode[1].

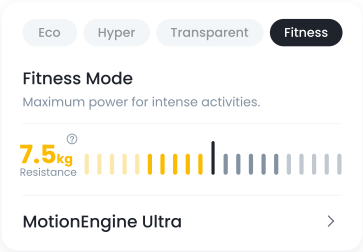


See Operation Modes *(on page 24)* for more information about each mode.

MotionEngine

MotionEngine is the control system and software core of the exoskeleton. Embedded with advanced algorithm, it empowers the device to continuously learn and adapt to user motion as operation time increases. Currently, there are 3 types: MotionEngine, MotionEngine Lite and MotionEngine Ultra.

On the **Device** page, tap **MotionEngine** to customize your exoskeleton functionality.

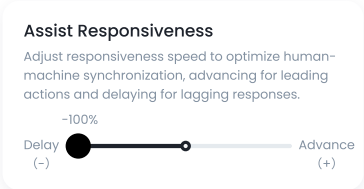


Assist Responsiveness

This parameter controls how quickly the exoskeleton synchronizes with your movement.

Set it to **Advance** for quicker, more immediate responses, or to **Delay** for more lagging responses and smoother movement. You may also slide the bar to a specific value as you prefer.

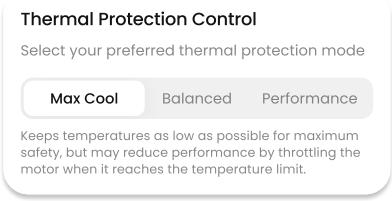
1 Only supported by Hypershell X Ultra.



Thermal Protection Control

This function allows you to select your preferred strategy balancing cooling effect and power output during different activities. When the device temperature approaches the threshold of the mode you selected, the system will automatically reduce power output to cool itself down.

Switch to **Max Cool** for maximum thermal protection, to **Balanced** for a moderate thermal control, or to **Performance** for maximum power output with minimal cooling intervention.



Notice

- Selecting **Max Cool** mode may limit certain system performance as the device will prioritize cooling to the greatest extent.
- Selecting **Performance** mode may cause the temperature to increase quickly, after which the device will adjust power output for stable operation.

Hill Descent Control

Enable this function to increase stability and reduce joint pressure when descending steep slopes.

Set the HDC Gain to **Strong** for more aggressive braking, or to **Weak** for gentler braking. You may also slide the bar to a specific value as you prefer.

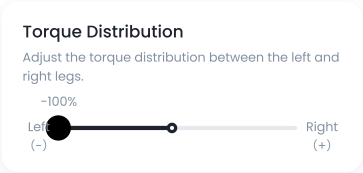
Low-Speed Steady Control

Enable this function to have the exoskeleton provide smooth and measured assistance during slow-paced activities, such as walking in confined or crowded areas, or heavy-loaded hiking. This reduces your fatigue and effort required for low-speed movement.

Set the LSSC Gain to **Strong** for more noticeable control, or to **Weak** for more subtle control. You may also slide the bar to a specific value as you prefer.

Torque Distribution

This parameter allows you to adjust the assistance torque distribution between your left and right legs based on your own conditions.

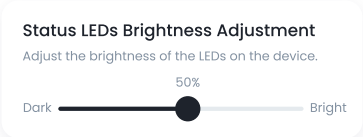


Notice

- It is recommended to adjust the torque while wearing the exoskeleton for instant feedback.
- Fine-tune the torque with small increments each time.

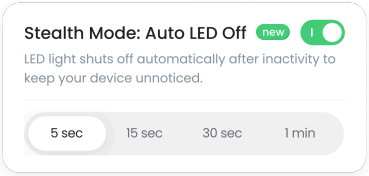
Status LEDs Brightness Adjustment

This parameter allows you to adjust the brightness of the Status LEDs as you prefer.



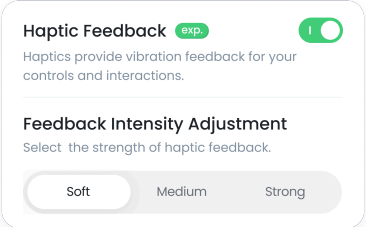
Stealth Mode

Enable this function to have the device automatically turn off all status LEDs after they remained idle for a specified period of time to keep itself unnoticed. You can set the time length as your prefer.



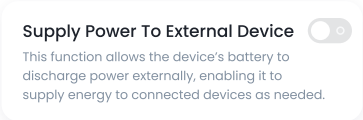
Haptic Feedback

Enable this function to receive real-time vibration feedback when you make mode or power changes on the device, making the interaction more intuitive and responsive.



Supply Power To External Device

Enable this function, use a USB-C charging cable to connect an external device to the exoskeleton via the USB-C charging port, and the exoskeleton's battery will begin to supply power to the connected device.



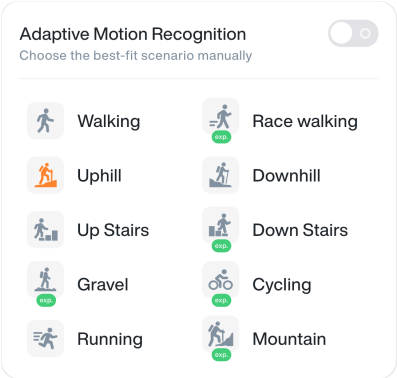
Notice

- Ensure the charging cable is compatible with the external device.
- Ensure the external device's required voltage and power are within the exoskeleton's maximum power output, i.e., 5W (5V/1A).
- The exoskeleton will not provide power assistance when it is supplying power to an external device. Additionally, its mode and power level cannot be changed during this time.
- The exoskeleton will automatically power off when the charging cable is disconnected. Reboot it to resume operation.
- This function consumes battery capacity and will reduce exoskeleton's range. Therefore, it is recommended to regularly monitor the battery level to ensure it can still cover your planned distance.

Adaptive Motion Recognition

Enable this function to have the exoskeleton detect different motions and terrains. It will dynamically adapt its assistance with optimal parameters based on your real-time movement.

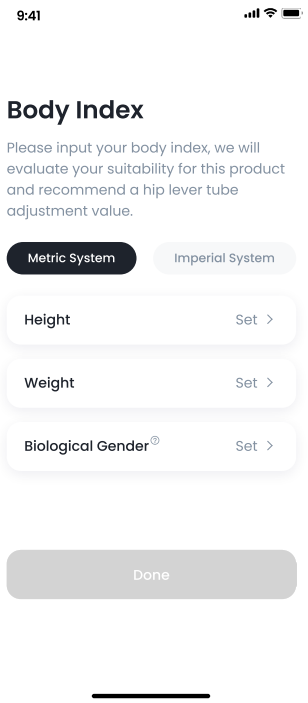
Alternatively, you may disable this function and manually select the motion type you are engaged in.



Body Index

Input your physical data in this page to obtain recommendation of hip lever tube adjustment.

1. On the **Device** page, scroll down and navigate to **Wearing Guide** > **Adjust Hip Levers** > **Body Index**.
2. Enter your **Height**, **Weight**, and **Biological Gender**, then the app will assess your suitability for the product and recommend a hip lever tube scale based on your hip size.

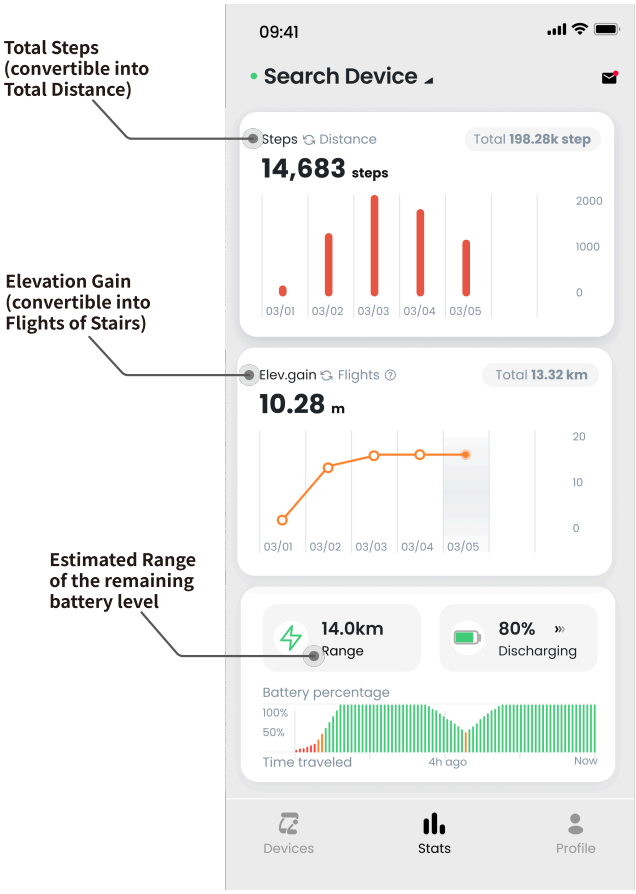


Caution

This product is designed to fit a limited range of adult body sizes. Before first use, please refer to the Body Size Table *(on page 54)* to confirm that your body measurements fall within the supported range.

Stats

This page provides statistics of various aspects of your journey with Hypershell exoskeletons under your account. The data will be automatically synchronized to your account when the device is connected to the Hypershell+ app.



Notice

When the exoskeleton is used without the Hypershell+ app, journey data such as steps and elevation will still be recorded. The next time it connects to the same account, the data will be automatically synchronized to the account and you can view updated data in the **Stats** page. If it is connected to a different account, the data will not be synchronized.

Restore To Factory Settings

This feature resets the exoskeleton to its out-of-factory state, erasing all customized settings and user data.

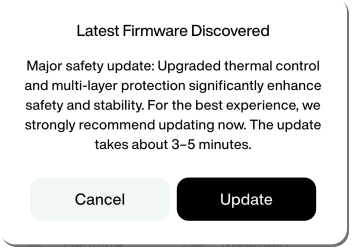
1. Ensure the exoskeleton is connected to your mobile device via Bluetooth.
2. On the **Device** page, tap **Device Name** in the top left corner, tap the **Device Icon** > **Factory Reset** and tap **Reset** to initiate the process.

> ⚠ **Warning**
>
> Factory Reset cannot be undone. It will restore the device to default settings, erasing all user preferences, bound devices, and application data.

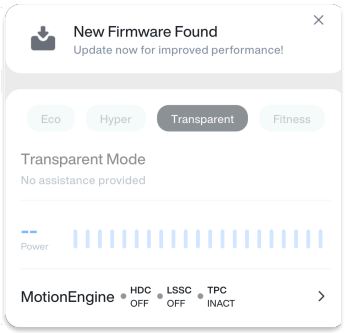
Firmware Update

Update the exoskeleton's firmware to access the latest features.

1. Ensure your mobile device is connected to network and to the exoskeleton via Bluetooth.
2. Perform firmware update via one of the three methods below:
   - **Method A:** When a new firmware is detected upon connection, a "Latest Firmware Discovered" pop-up will appear. Tap **Update** to enter the update page and initiate the process.

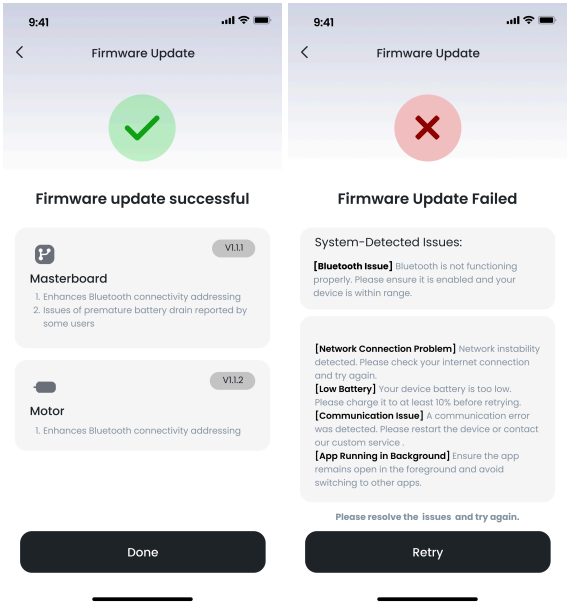


   - **Method B:** When a new firmware is available, a "New Firmware Found" notice will display on the **Device** page. Tap the notice to enter the update page, then tap **Update** to initiate the process.



   - **Method C:** On the **Device** page, tap **Device Name** in the top left corner, tap the **Device Icon** and navigate to **Firmware Update**. If a new firmware is available, tap **Update** to initiate the process.

3. If the update succeeds, please reboot the device. If the update fails, please follow the on-screen instructions and try the update again.



Notice

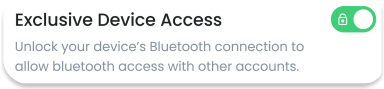
- Ensure that your mobile device is connected to a stable network during the update process.
- Do not exit or minimize the Hypershell+ app to background during the update process.
- Ensure the battery level is above 10% during the update. It is recommended to charge it while updating.
- The device may reboot several times during the update. Keep the device face upward and monitor potential leg lever movement for safety.

Exclusive Device Access

Enable this function to prevent this exoskeleton being connected to any account other than the one currently connected, making the exoskeleton accessible exclusively to the current account. When the toggle is off, it indicates that any account can connect to this exoskeleton via Bluetooth.

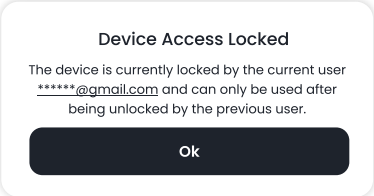
1. Ensure the exoskeleton is connected to your mobile device via Bluetooth.

2. On the **Device** page, tap **Device Name** in the top left corner, tap the **Device Icon** and navigate to **Exclusive Device Access**, then turn on the toggle to enable device lock.



3. When the toggle is on, if your family or friend need to connect your exoskeleton to their accounts, a "Device Access Locked" pop-up will appear in the **Search Device** page. They can tap **Continue**

to send an unlock request to you. On your side, in the **Device** page, tap **Message** in the top right corner to approve this request.



Notice

Only the account bound with this exoskeleton has access to this function.

Maintenance and Storage

Regular Cleaning

Cleaning Body Structure

Strictly follow the instructions below to clean the exterior of your exoskeleton.

- Gently wipe the body structure with a soft, damp cloth.
- Allow the exoskeleton to air dry completely before storing or using it again.

Caution

- DO NOT use corrosive or volatile chemical solvents-such as alcohol, gasoline, diesel, acetone-or and abrasive materials, as these substances may damage the device's surface and internal components.
- DO NOT clean the body structure with a power washer or high-pressure hose, or expose it to pressurized or high-velocity water.
- DO NOT submerge the device in water or allow water to enter any electronic components. Prevent moisture from entering the charging port or the metal interface of the battery port during cleaning.

Notice

Since the hip lever tubes and the hip clamps are designed to fit tightly in order to secure the exoskeleton in place during long-term use, there will be glossy marks on their surface due to friction over time. You may clean these marks by wiping the area with a soft cloth dampened with 75% alcohol, then allow it to air dry.

Cleaning Soft Fabrics

Strictly follow the instructions below to clean the soft fabrics of your exoskeleton.

- Wipe the fabrics with a soft, damp cloth and mild detergent.
- For AquaTex material, apply specialized protective spray regularly to help restore its waterproof properties.
- Allow the fabrics to air dry completely before storing or using the device again

Caution

- DO NOT use cleaners that contain bleach or strong alkaline agents, as these substances can damage the fabrics.
- DO NOT machine wash the fabrics, as aggressive agitation can compromise the their integrity.
- DO NOT tumble dry, or expose the fabrics to direct sunlight or high-temperature environments, as these conditions may cause fading and deformation..

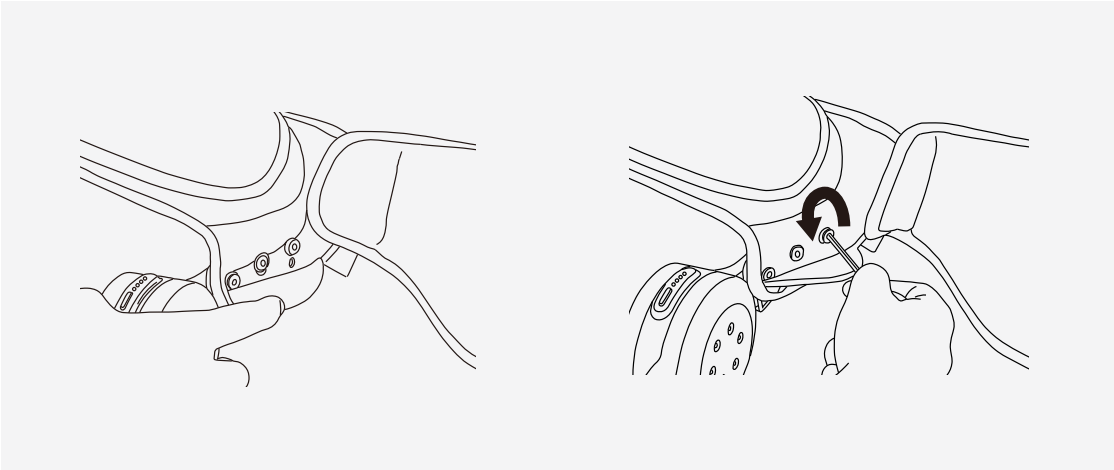
Notice

Soft fabrics are consumable components which naturally wear out and deteriorate during normal use. If you observe any wear, tearing, breakage, deformation, or other damage, please replace them in time. See Replacing Soft Fabrics *(on page 46)* for detailed instructions.

Replacing Soft Fabrics

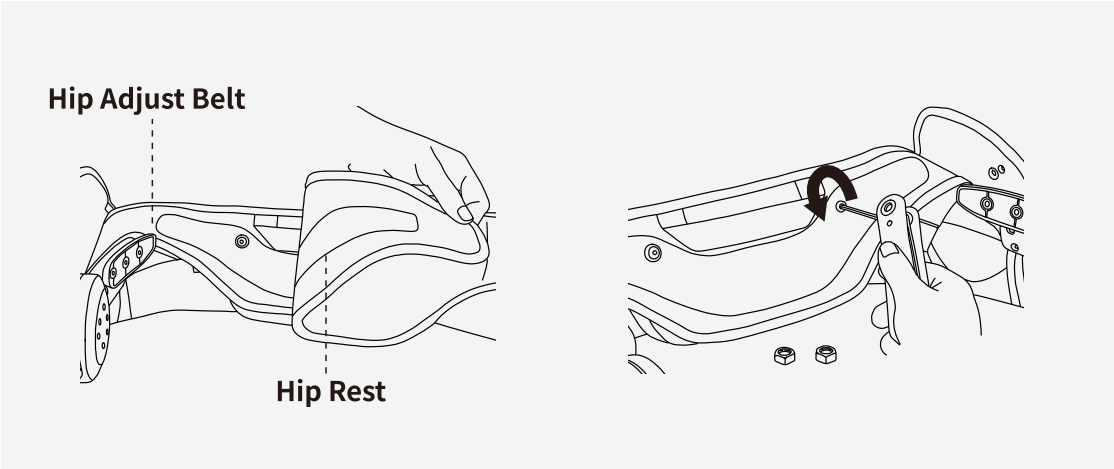
Replacing Hip Belts

1. Pull down the flap on the hip position belt to reveal three M4 screws on each side. Use a hex wrench[1] to loosen them counterclockwise. Repeat this step on the other side and keep the screws and washers carefully to avoid losing them.

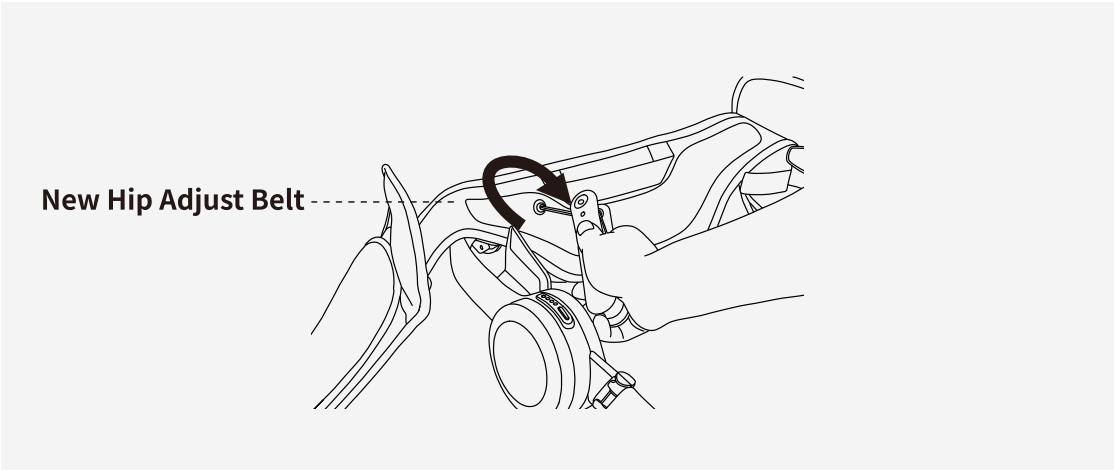


2. Peel off the hip rest to reveal the two M4 screws on the back. Use the hex wrench to loosen them counterclockwise. Keep the screws and washers safely. After removal, the hip adjust belt and hip position belts can be detached from the hip lever as a whole.

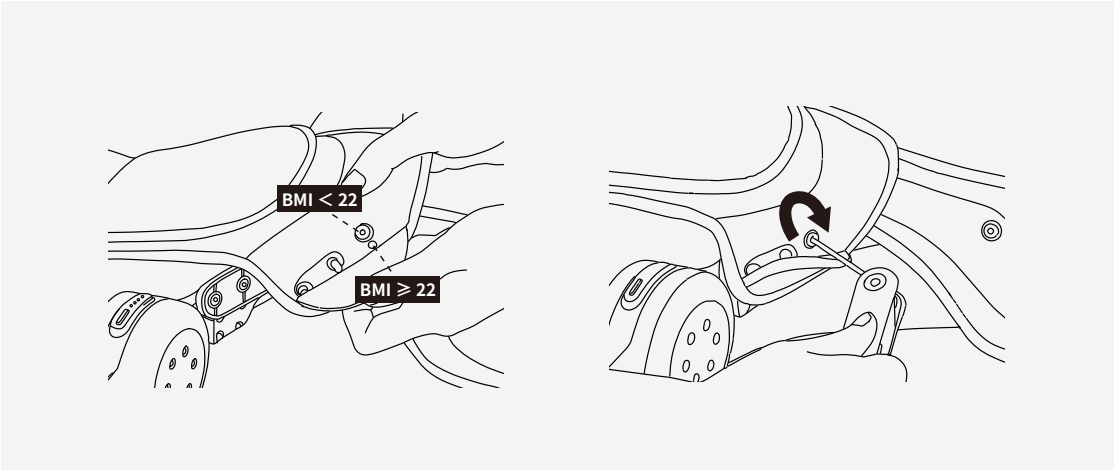
1 The Hypershell AeroFlex Kit comes with a hex wrench.



3. Prepare a new kit of hip belts, align the two screw holes on the new hip adjust belt with the holes on the hip lever, insert the screws and fasten them clockwise with the hex wrench.



4. Select the appropriate BMI hole on the new hip position belt, and align it with the hole on the hip lever tube. Insert a screw into the selected hole and fasten it clockwise with the hex wrench. Then fasten remaining two screws into the corresponding holes. Repeat this step on the other hip position belt to fasten all screws.

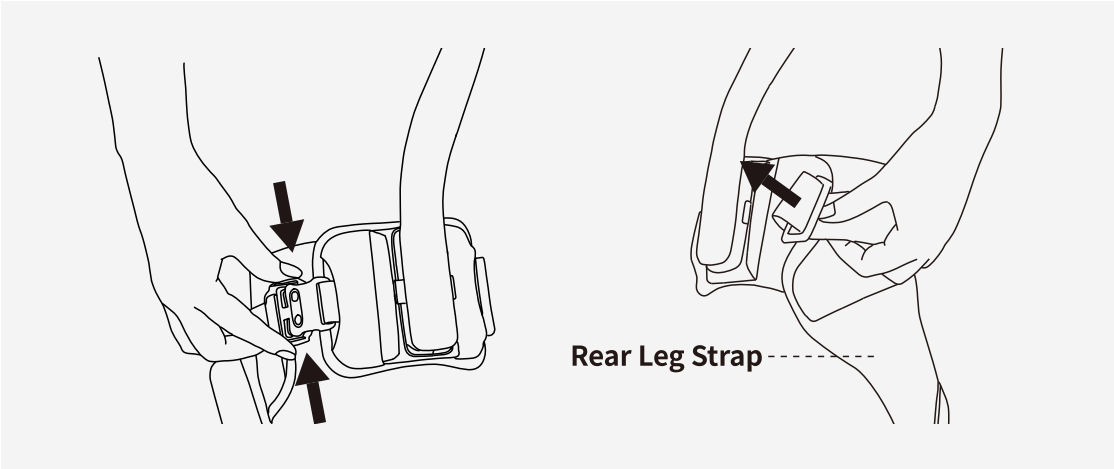


5. Attach the new hip rest onto the new hip adjust belt to complete the replacement.

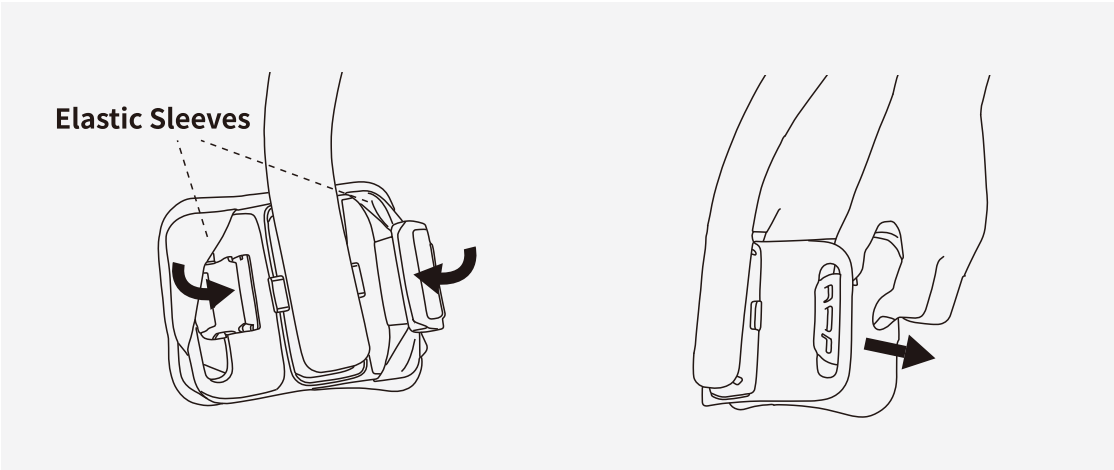
Replacing Leg Straps

It is recommended to lay the exoskeleton on a flat surface to replace its leg straps. The following instructions use the right leg as an example. Repeat the same steps on the left leg to replace the left leg straps.

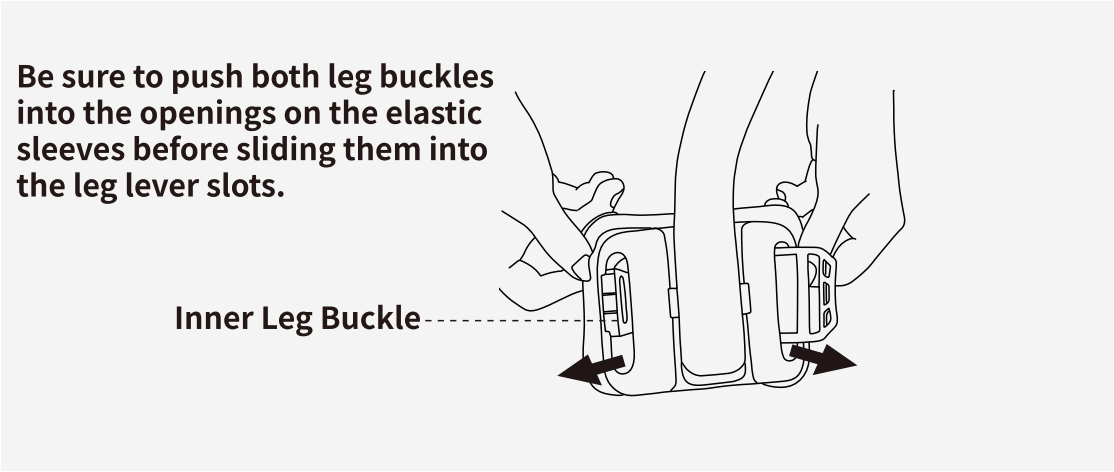
1. Unbuckle the leg straps.
2. Pull the nylon strap out of the external leg buckle to remove the rear leg strap.



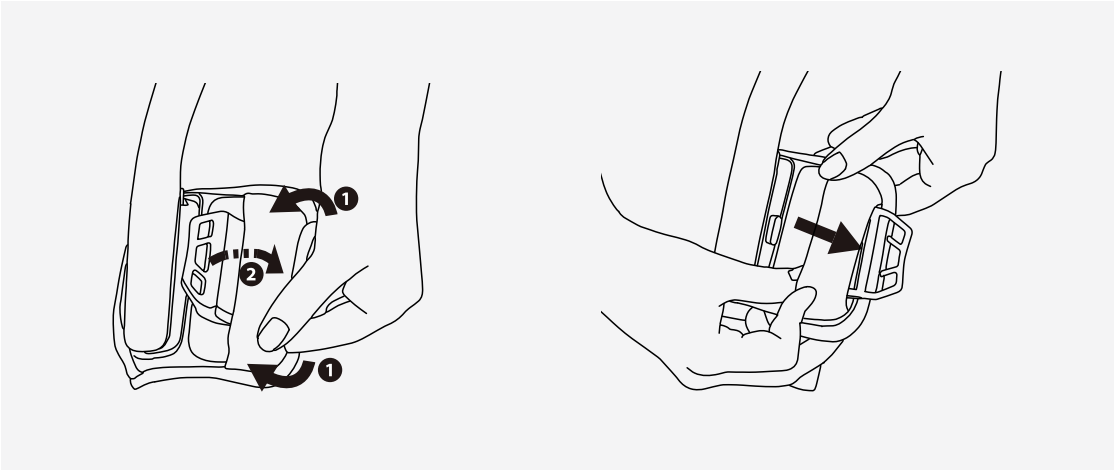
3. Push the inner (with orange sticker) and external leg buckles inward through the openings on the two elastic sleeves, then slide the buckles out of the leg lever slots to remove the front leg strap.



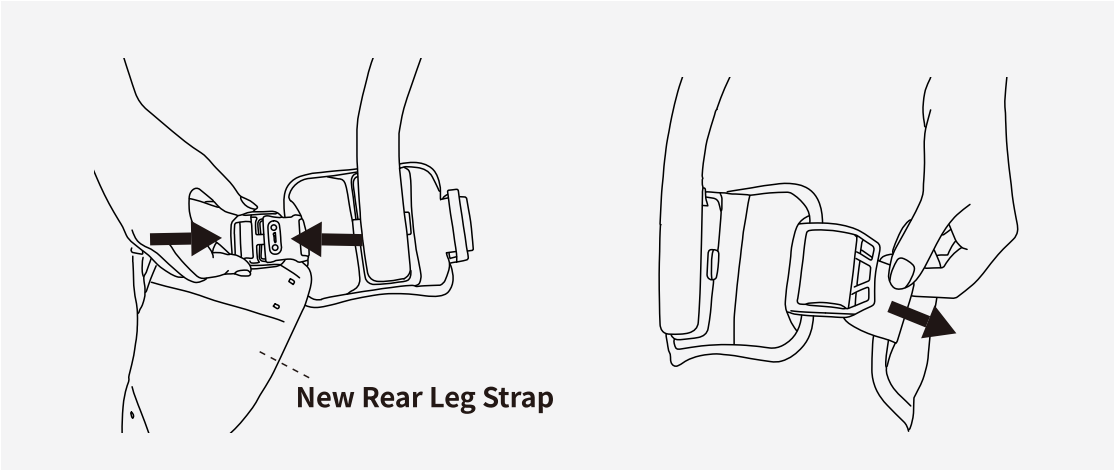
4. Prepare a new front leg strap, push both buckles inward through the smaller openings on the sleeves, then through the larger openings. Slide both buckles into the corresponding leg lever slots.



5. Slide the elastic sleeves onto the leg lever through their larger openings. Flip over the inner leg buckle so that the orange sticker faces outward, and push it through the larger opening on the sleeve, then through the smaller one. Repeat this step for the external leg buckle (as shown below).



6. Prepare a new rear leg strap. Fasten it to the new front leg strap using the inner leg buckle, then thread its nylon strap through the external leg buckle to secure it in place.



Battery Maintenance

- Inspect the battery for damage, swelling, or leakage before each use.
- Charge when the battery level drops to 20–30%, and avoid overcharging.
- The recommended charging temperature range is 0°C to 40°C (32°F to 104°F). Charging will stop automatically outside this range.
- DO NOT charge immediately after use; allow the battery to cool down first.
- If the battery is not used for over 10 days, regularly charge it to maintain a battery level of 40 - 60%.

Storage and Transportation

Storage

- Store the device in a clean, dry and well-ventilated indoor environment.
- DO NOT store the device outdoors, in direct sunlight, or in areas exposed to rain, dust, or moisture.
- Keep the device away from extreme temperatures, open flames, and heat sources to prevent material degradation.
- Avoid placing heavy objects on top of the device to prevent deformation or mechanical damage.
- If storing for an extended period, keep the device covered to protect it from dust and accidental impact.

Transportation

- Ensure the device is properly stowed and placed securely inside the EPP box for transportation. See Stowing the Device *(on page 22)* for detailed instructions.
- The Hypershell Intelligent Battery and Hypershell Anti-Cold Battery are permitted for air travel and may be carried on board. It is recommended to consult with your airline in advance for specific regulations.
- Keep the device and all accessories protected from impact, vibration, and excessive pressure during transport.
- DO NOT expose the device or batteries to extreme temperatures while in transit.
- When transporting over long distances, ensure the device is fully powered off.
- If the packaging shows signs of damage, inspect the device and batteries before use to ensure safety.

Troubleshooting

1. **My exoskeleton cannot be powered on. How can I fix it?**

   Please ensure that the battery is fully charged, and the status LEDs illuminate to indicate the remaining battery level when you press the control button once. Then press the button once, and quickly press and hold it for 2 seconds to power on the device. If the issue persists, please send a video showing this problem to Hypershell Technical Support for further assistance.

2. **What does it mean when all four status LEDs blink orange?**

   It indicates Automatic Wear Detection failure. If it occurs right after you power on the device, please refer to Wearing the Device *(on page 17)* and ensure you completed the steps correctly. If it happened during operation when all straps and buckles are confirmed to be fastened, please send a video showing this problem to Hypershell Technical Support for further assistance.

3. **What does it mean when all four status LEDs blink red?**

   It indicates a device error. Please connect the device to Hypershell+ app and tap **Message** in the top-right corner to view the specific error code. If two LED patterns are blinking in a loop, please refer to Status LEDs *(on page 28)* to check their meanings and send the error message to Hypershell Technical Support for further assistance.

4. **Why did the status LEDs turn white during operation?**

   This is normal behavior. To help you monitor the remaining battery level, the status LEDs automatically switch to battery-level display when the control button remains idle for 10 seconds. Press the control button once or move your legs and they will display current operation mode.

5. **My exoskeleton's battery drains too fast. How can I fix it?**

   Please connect the device to Hypershell+ app. On the **Device** page, go to **MotionEngine**, turn off **Hill Descent Control** and **Low-Speed Steady Control** as they may have a slight impact on battery consumption. Then switch to Eco mode and walk for 20 minutes at approximately 4 km/h. If the battery level decreases by around 7%, then the consumption rate is normal, please rest assured. Additionally, you can refer to Battery Maintenance *(on page 50)* for more instructions on keeping battery health.

   Please also note that the battery performance varies with usage scenarios and intensity. Activities such as continuous uphill walking in Hyper mode or using the device in high temperatures may cause faster battery drain. If your test result is abnormal, please contact Hypershell Technical Support for further assistance.

6. **My exoskeleton's battery does not charge at all. How can I fix it?**

   Please follow the steps below to troubleshoot the issue:

   a. If a battery is stored for an extended period, it cannot be charged with the Hypershell 4-Port Charging Hub, please install it onto the device to charge it.
   b. Ensure that the charging port is clean and free of dust or debris, and the battery pins are intact. If you are using the Hypershell 4-Port Charging Hub, also ensure the metal connectors are clean and intact.
   c. Ensure you are using the provided USB-C charging cable, and it is in good condition. If the cable is damaged, bent or has exposed wires, please replace it with another compatible cable.
   d. Ensure that charging cable is fully inserted into the charging port.
   e. Try connecting the charger to a different wall outlet or USB power source for a cross-test.
   f. If the status LEDs still do not illuminate after connecting the charger, disconnect and reconnect the cable and try again.

   If the issue persists, please send a video showing this problem to Hypershell Technical Support for further assistance.

7. **My exoskeleton's battery cannot be fully charged. How can I fix it?**

   Please connect the device to the Hypershell+ app and ensure it is updated to the latest firmware. For firmware update instructions, please refer to Firmware Update *(on page 42)*. After that, use a 65W PD charger to charge the device for 1.5 hours or longer and check if it can be fully charged. If the issue persists, please contact Hypershell Technical Support for further assistance.

8. **My exoskeleton cannot connect to my mobile device. How can I fix it?**

   Please follow the steps below to troubleshoot the issue:

   a. Ensure that the Bluetooth on your mobile device is turned on, and the status LEDs are showing the chasing-blue pattern, indicating that the exoskeleton is searching for a Bluetooth.
   b. If your mobile device has previously connected to a Hypershell exoskeleton, go to the **Settings** on your mobile device and delete all the pairing records of Hypershell products.
   c. Reboot your mobile device, uninstall and reinstall the Hypershell+ app. Ensure that you have allowed GPS and Bluetooth permission for the app.
   d. Ensure that you connect to the exoskeleton through the Hypershell+ app, rather than from the mobile device's Bluetooth settings page.
   e. Try using another mobile device for a cross-test.

   If the issue persists, please send a video showing this problem to Hypershell Technical Support for further assistance.

9. **My exoskeleton suddenly stopped providing power assistance during operation. How can I fix it?**

Please connect the device to the Hypershell+ app and ensure it is updated to the latest firmware. For firmware update instructions, please refer to Firmware Update *(on page 42)*. After that, wear the device properly and try again. If the issue persists, please send a video showing this problem to Hypershell Technical Support for further assistance.

10. **The motors are too hot. How can I fix it?**

    It is normal for the motors to heat up during operation, as they work at a high frequency. Extreme circumstances-such as temperatures above 30°C, dry desert conditions, or direct exposure to sunlight—may further increase the heat.

    If the heat causes discomfort, please connect your device to the Hypershell+ app, go to **Motion-Engine** and switch the **Thermal Protection Control** to **Max Cool**.

    You can also adjust the hip lever tube so that there is at least 1 cm of space between the motor and your hip bones to avoid direct contact and improve heat dissipation.

Appendix

Body Size Table

The data below are based on a limited range of samples. If your body measurements fall outside these ranges, please contact Hypershell Technical Support for further advice or visit one of our offline stores to try on the device and check its fit and comfort.

Height and Weight Range

Female				Male			
cm	kg	ft / in	lb	cm	kg	ft / in	lb
155	45-70	5'1"	99.2-154.3	165	46-85	5'5"	101.4-187.3
157.5	45-73	5'2"	99.2-160.9	167.5	48-88	5'6"	105.8-194
160	48-75	5'3"	105.8-165.3	170	50-92	5'7"	110.2-202.8
162.5	48-78	5'4"	105.8-171.9	172.5	52-94	5'8"	114.6-207.2
165	48-81	5'5"	105.8-178.5	175	53-97	5'9"	116.8-213.8
167.5	49-82	5'6"	108-180.7	177.5	54-99	5'10"	119-218.2
170	50-85	5'7"	110.2-187.3	180	55-100	5'11"	121.2-220.4
172.5	52-88	5'8"	114.6-194	182.5	57-103	6'0"	125.6-227
175	53-90	5'9"	116.8-198.4	185	59-106	6'1"	130-233.6
177.5	53-92	5'10"	116.8-202.8	187.5	60-109	6'2"	132.2-240
180	54-94	5'11"	119-207.2	190	60-112	6'3"	132.2-246.9
182.5	57-95	6'0"	125.6-209.4	192.5	62-116	6'4"	136.6-255.7
185	59-96	6'1"	130-211.6	195	62-118	6'5"	136.6-260.1

Body Size Range

Body Measurements	
Waist (cm)	72 - 122
Waist (in)	28.3 - 48
Hip Width (cm)	31 - 42
Hip Width (in)	12.2 - 16.5
Thigh Length (cm)	36 - 50
Thigh Length (in)	14.1 - 19.6

Warranty Policy

This Warranty Policy (hereinafter “this warranty”) only applies to Hypershell products purchased from Hypershell official website or from Hypershell authorized distributors.

What Is Covered

- Hypershell provides a limited warranty covering defects in materials and workmanship under normal use for a period starting from the original date of reception.
- This warranty covers product defects arising during normal usage, excluding normal wear and tear. During the warranty period, Hypershell will repair or replace defective parts free of charge.
- Consumables are components that naturally wear out or deteriorate during normal use and are not covered by this warranty. Examples include, but are not limited to, leg straps and hip belts.

Warranty Period

The warranty period starts from the day you receive the product. Therefore, a valid proof of purchase is required to claim warranty service.

Warranty period may vary according to local laws and regulations:

- Customers in the European Union, Switzerland, Norway and the United Kingdom are entitled to a 2-year warranty.
- Customers in the countries and regions not mentioned above are entitled to a 1-year warranty.

What Is Not Covered

This warranty does not cover the following situations:

- Failure or damage not caused by product design or manufacture defect.
- Damage caused by modification, improper installation, or poor workmanship not performed by Hypershell or an authorized distributor.
- Damage due to exposure to high temperature, negligence, fire, liquid intrusion, or corrosion.
- Products that are lost or stolen.
- Products whose serial numbers or labels are altered or removed.
- Products without a valid proof of purchase, or whose warranty period has expired.
- Damage caused by unauthorized disassembly, modification, or repair by individuals or unapproved service providers.
- Damage due to usage of a low-battery-level battery, a defective battery, or under adverse environmental conditions.
- Damage caused by reliability or compatibility issues when using with unapproved third-party accessories.
- Damage caused by human factors during use beyond normal operating conditions, including but not limited to violent handling, dropping, crushing and other external impacts, or exposure to harmful environments, e.g., extreme temperatures or humidity, excessive dust, or corrosive gases

- Damage caused by improper operation not in accordance with the official instructions or manuals.

What Will Void This Warranty

This warranty will become void under the following circumstances:

- The product is subject to any modification to its hardware or firmware.
- The product or any of its components have been repaired or altered without official authorization.
- The product has been misused, stored improperly, or used for illegal purposes.
- The product has been repaired, disassembled or modified by anyone other than Hypershell or an authorized service center.
- The warranty label, serial number, or anti-counterfeit mark have been altered, removed, or defaced.
- The product has been used with non-Hypershell parts or accessories.

How To Obtain Warranty Service

Send an email to support@hypershell.tech to submit a claim and a valid proof of purchase. Our customer care team will process the request will in 1-2 business days.

Hypershell authorized distributors may provide their own warranties to customers. If you purchased a Hypershell product from them, please contact them for further information.

Additional Legal Rights

The benefits conferred by this warranty are in addition to, and do not affect, your rights under applicable consumer protection laws. Where local law provides mandatory consumer rights that cannot be excluded or limited by agreement, those rights shall apply. In the event of any inconsistency between this warranty and such laws, the latter shall prevail to the extent required.

Updates to This Warranty Policy

Hypershell reserves the right to update this warranty policy at any time. Any updated policy will take effect immediately upon being published on the Hypershell official website. Please visit https://hypershell.tech/pages/warranty-policy regularly to stay informed about the latest warranty information.

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In compliance with applicable laws and regulations, Hypershell reserves the right to the final interpretation of this document and all documents related to this product. This document is subject to changes (e.g. updates, revisions or termination) without prior notice. Please visit https://www.hypershell.tech/support/ to obtain the latest product information.

Battery specifications:
Type: Portable lithium-ion (Li-Ion) batteries
Net weight: 0.4 kg
Capacity: 5000 mAh
Exceeds the permissible content of cadmium (0.002%) or lead (0.004%): no
Battery serial number: ABA-5000-50S

This document is subject to change without notice.
For any questions regarding this document, please contact Hypershell by sending an E-mail to *feedback@hypershell.tech*

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