Ant-H1 Walking Assist Robot

User Manual

Thank you very much for choosing Kenqing Technology Ant-H1 Walking Assist Robot, Ant-H1 Pro will become a small partner in your life, help you share the burden of walking, and bring you a different walking experience.

Please read this manual carefully before using the product, and operate it according to the instructions of the manual to avoid loss or injury caused by improper operation.

⚠️Failure to operate in accordance with the instructions or violation of the prompts and warnings may result in injury or equipment damage; Kenqing Technology will not assume any responsibility for the losses and injuries arising therefrom.

Ant-H1 Pro is very powerful. In order to achieve good use effect, please pay attention to the following points:

1.Please pay special attention to the important safety tips in Chapter 7.

2.Wear: Align the actuator position on both sides with human hip joint and stick close to the human body to prevent shaking after force.

3.Power adjustment: User can keep normal walking posture:

✓ For a 60kg-weight user, the output power level can be set to 8-10 during flat walking. The heavier the user's weight, the greater the required power output, vice versa.

✓ When going upstairs and uphill, increase the power output moderately.

Please keep this manual properly.The images in this manual are for reference only, and subject to actual equipment.

If you have any problems or information not mentioned in the manual during use, please contact Kenqing Technology or local dealer in time.

Contents

1. Overview

1.1 What's Ant-H1 Pro

The Ant-H1 Pro robot is equipped with built-in processors and a variety of sensors, which can detect human motions in real time. The processors analyze movement intention by fusing sensor data, and drive the actuators bilaterally to output power.

The bilateral actuators of Ant-H1 Pro alternately output hip flexion and extension torques to cooperate with human lower limb movements, thereby maintaining the stability of human walking. Hip flexion torque assists the user in swinging the thigh and stepping forward, while hip extension torque helps the user extend the hips and knees to push against the ground, generating forward propulsion. Ant-H1 Pro simulates the natural walking motions of the human body. The flexion and extension torques are analogous to those during human natural walking, enhancing the movement ability of the human lower limbs and reducing physical consumption during walking. It can be used in scenarios such as hiking, mountaineering, walking assistance, and fitness.

1.2 Wearing

1.3 Appearances and Structure

The composition structure of Ant-H1 Pro Walking Assist Robot is shown in the following figure.

Ant-H1 Pro composition structure

2. Wearing

2.1 Preparation Before Wearing

2.1.1 Battery Removal and Installation

Battery removal & installation steps: refer to the diagram below.

① Find Ant-H1 Pro battery compartment on the left waist belt, remove the battery compartment cover.

② Remove the battery.

③ Replace with another battery (please note the direction) and reattach the battery compartment cover.

2.1.2 Leg Strap Earpieces Replacement

The leg strap earpieces can be stick inside or outside to adapt the thickness of users' legs. Refer to the following figures for replacement procedures:
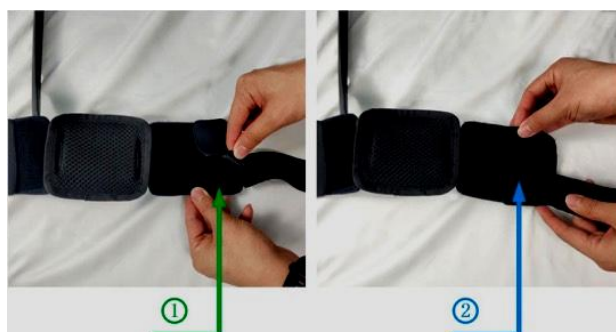
① Tear off the leg strap earpieces from the leg straps.

⚠️Attention：When replacing the battery, be careful to prevent injuries caused by the battery falling.

② Stick the new leg strap earpieces.

⚠ Attention: The leg strap extensions are consumables and should be replaced regularly.

2.1.3 Shoulder Strap Removal and Connection

When installing, find the four fabric points on the device, and then attach the hooks at these four points in sequence to install the shoulder straps. The installation method is as follows:

① Find the three shoulder strap connection points.

② Connect/remove the hooks or buckles of connection points .

⚠ Attention: The shoulder straps are prone to getting dirty and need regular cleaning.

Final Shoulder Strap Wearing Figure

2.1.4 Waist Circumference Adjustment

① Release the adjusting wrench.

② Put Ant-H1 Pro reversely in front of the body.

③ As shown in the figure below, hold the waist bars with both hands and push inward (pull outward) to reduce (increase) the waist width of the device. Adjust the position so that the power modules fit closely against both sides of the wearer's hips.

> ⚠️Attention：Please keep the scales on both sides consistent.

④Firmly press down the adjusting wrench（⚠️Be sure to press firmly).
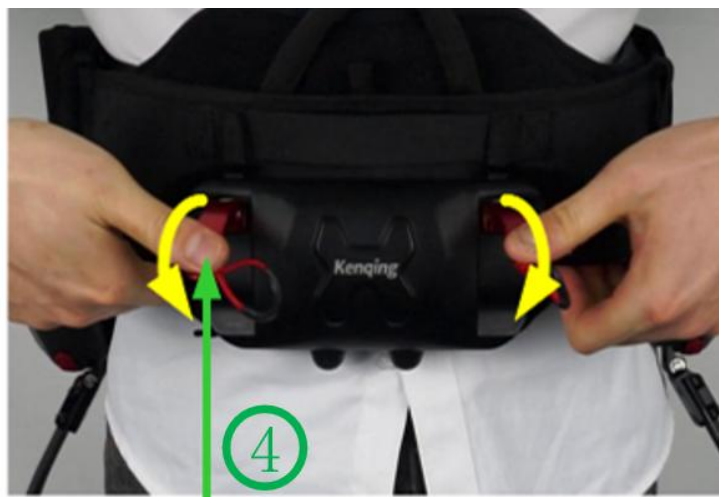
2.2 Wearing

2.2.1 Put on the Device

① Place the Ant-H1 Pro on the back and wrap it around the waist.

② Lift the device up and down by hand to ensure it is at a proper height.

③Ant-H1 Pro actuators appropriate position standard: Actuators rotation center is aligned with the wearer's hip.

⚠️Attention：It is recommended to add shoulder straps when wearing the device.

2.2.2 Buckle the Waist Belt

① As shown in the figure below, buckle the waist belt.

② Tighten the waist belt buckle until it is snug but not restrictive.
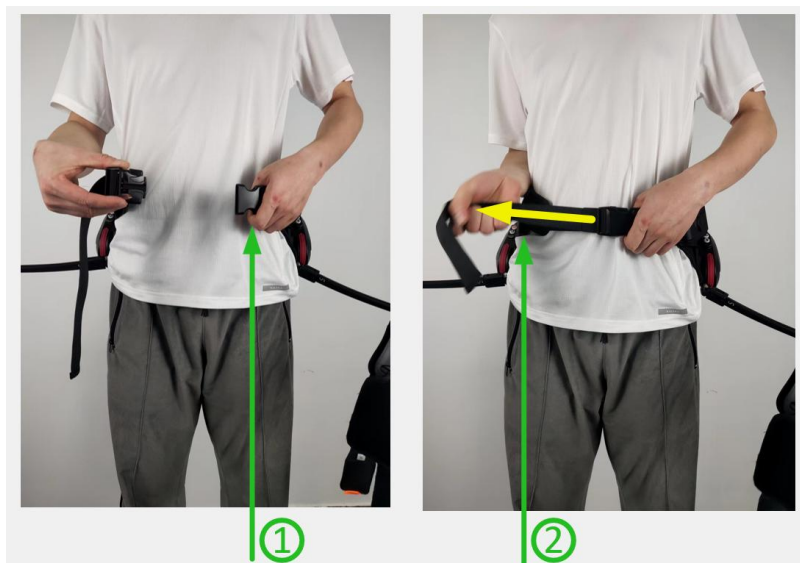
2.2.3 Cross Stick Leg Straps

① As shown in the figure below, place the leg shell on the front of the thigh and hold the earpieces on both sides of the leg strap.

② Cross the earpieces behind the thigh, wrap them around, and fasten them tightly. Then adjust the leg shell to the proper angle.
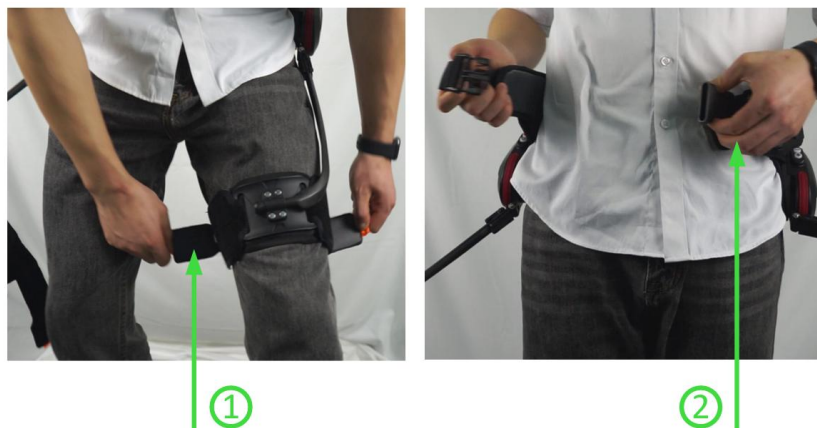
⚠ Please note that the leg straps must be fastened firmly.

2.3 Taking Off

⚠ Ant-H1 Pro must be turned off before removal.

① As shown in the figure below, grasp the orange parts of the tabs on both sides of the leg strap and pull them outward firmly at the same time to release the leg strap.

② Unfasten the waist belt buckle, then remove the device.

⚠ After the device is removed, please keep it carefully to prevent accidental falling and injury to human body.

3. Start Using

3.1 Keys Introduction

keys	Location and Function
Emergency Switch	It is located on the lower right side of the Ant-H1 Pro back host and is used for power on/off, as shown in Figure ① below.
Power Key ⏻ 、 Function Key ↻	It is located in the right power module and can be used for power assist start/stop, power level announcement, etc., as shown in Figure ② below.
Plus Key ➕ 、 Minus Key ➖	It is located in the left power module and can be used for increasing or decreasing power assist, switching modes, etc., as shown in Figure ② below.

3.2 Power ON / OFF

3.2.1 Turn On

Press the emergency switch of the back main unit to put the switch in ▬ state.

The device will perform a self-check. Wait for 2 seconds. The indicator of the function key🔆 starts to flash, and the device voice prompts "please press the function key to start", then press the function key 🔆 to start power output according to the prompt.

3.2.2 Shut Down

Directly switching off the emergency switch on the back main unit puts the switch in ▬ state, accompanied by a voice prompt that the device has been shut down.

⚠ Please note that do not walk when operating Ant-H1 Pro.

⚠ Please shut down Ant-H1 Pro before taking it off, otherwise the leg bars may bounce up and may cause damage.

3.3 Battery Level Indicate

① As shown in the right figure, the green color of the power key 🔆 indicates that the battery power is full, and the red color indicates that the battery power is empty.

② Long press the function key🔆to broadcast the remaining power.

3.4 Power Level Adjustment

3.4.1 Power Level Adjustment

① As shown in the right figure, press the minus key ➖ to reduce the power output.

② Press the plus key ➕ to increase the power output.

⚠ The key will be locked after 5 seconds. Press it to unlock it for the first time, and then it can be used normally.

⚠ Do not walk when the power output is adjusted.

3.4.2 Power Output Start / Pause

① Power Output Pause

Method 1: Press the power key ⏻ twice in quick succession.

Method 2: Press and hold the power key ⏻ .

② Power Output Start

Press the function key ↻ to start the power output, and the function key ↻ indicator starts to be normally on.

3.4.3 Switching Modes

Mode	Applications and Suitable Users
Standard	Provides assistance to enhance motor ability, suitable for general users.
Fitness	Provides extra damping to improve workout effectiveness, suitable for fitness enthusiasts.
Assistance	It covers various scenarios, adapts to different walking speeds, and is suitable for people with slow mobility.
Training	It includes left and right leg assistance scenarios and is suitable for people who need to exert force with one leg.

Note: By adjusting the advanced parameters, the different assistance parameters of the two legs can be adjusted individually to meet more personalized needs. For specific details on adjusting the advanced parameters, please refer to the app instructions.

More modes are under development, and the actual product shall prevail.

The steps to switch modes using the keys are as follows:

① Press and hold the power key to pause the power output.

② Press and hold the plus and minus keys simultaneously.

⚠ Note: If you need to switch scenarios, please press the function key twice in quick succession while the power output is active.

3.5 Normal Use

You can now start using the Ant-H1 Pro. Use the plus and minus keys to select the appropriate assistance level, which should allow for natural walking. For more scenario options and parameter configurations, please use the App.

⚠️Attention：

1. During normal use of the Ant-H1 Pro, the power modules on both sides will generate slight heat, which is a normal phenomenon, so there is no need to worry.

2. When adjusting the power level, parameters, or modes after the device is turned on, do not walk to prevent imbalance and falls caused by changes in power output.

3. The rotating parts of the power modules have small gaps. When using the device, be careful not to put your fingers into these gaps to avoid pinching injuries.

3.6 Restore Factory Settings

In the power on state, press and hold the ⊖ key and ⟳ key (see the figure below) for more than 5 seconds, until you hear the device broadcast "The default configuration has been restored" and then release the keys. The factory settings have been restored.

After the factory settings are restored, the connected phone pairing will be cleared. Please pair the phone again.

4. Using App

Ant-H1 Pro parameters can be adjusted rapidly and more precisely by using app .

4.1 Downloading App

For the Android platform, use a browser to scan the QR code below and download the app.

⚠ Do not use WeChat to download.

For the iOS platform, search for "KenqingAssist" in the App Store or scan the QR code below to download the app.

⚠ As the manual update may be delayed, the app interface in the figures below shall be subject to the actual app.

4.2 App Connect to Ant-H1 Pro

① As shown in the following figure, opening the app, click connect device.

②Select the device using its serial number (found on the device label; the last 8 digits of the SN) .
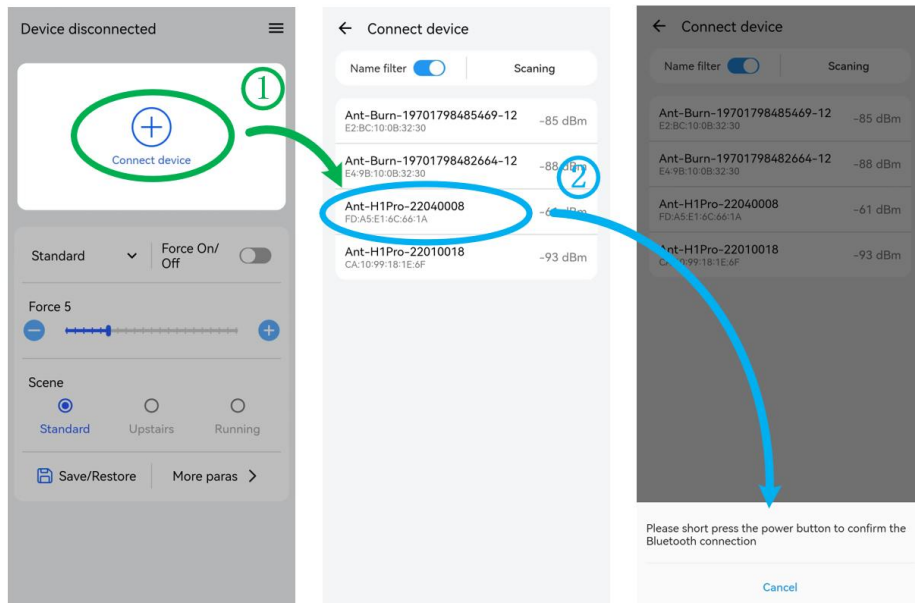
③To confirm the initial pairing with Ant-H1 Pro, press the power key ♀ . After pressing, the app will automatically return to the home screen.
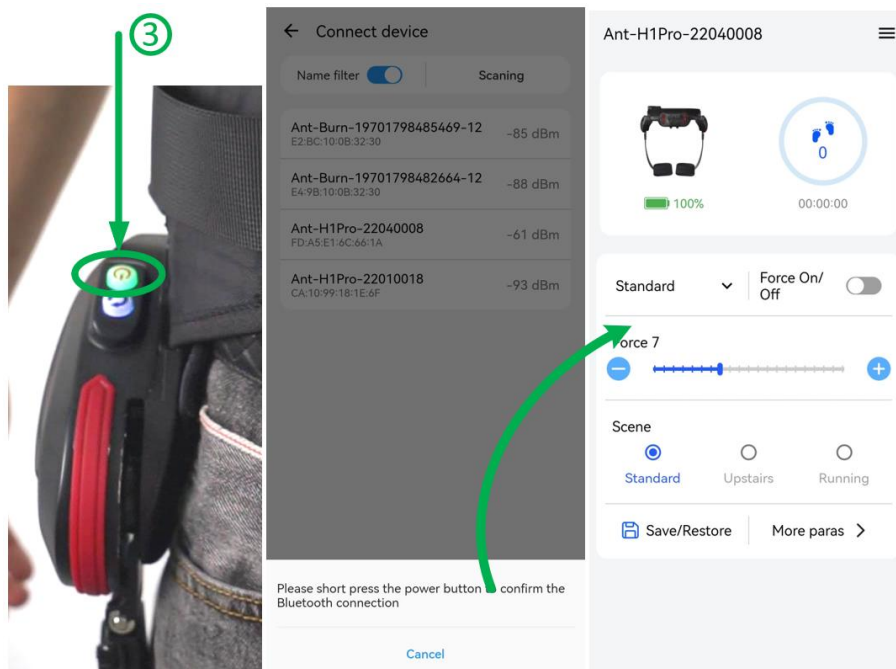
4.3 Modes Switching

The mode switching procedures are as follows:

① As shown in the figure below, Click the mode switch button on the main interface.

② Select the desired mode from the pop-up drop-down menu.

⚠The power output will be changed when mode switching. Do not switch modes during walking.
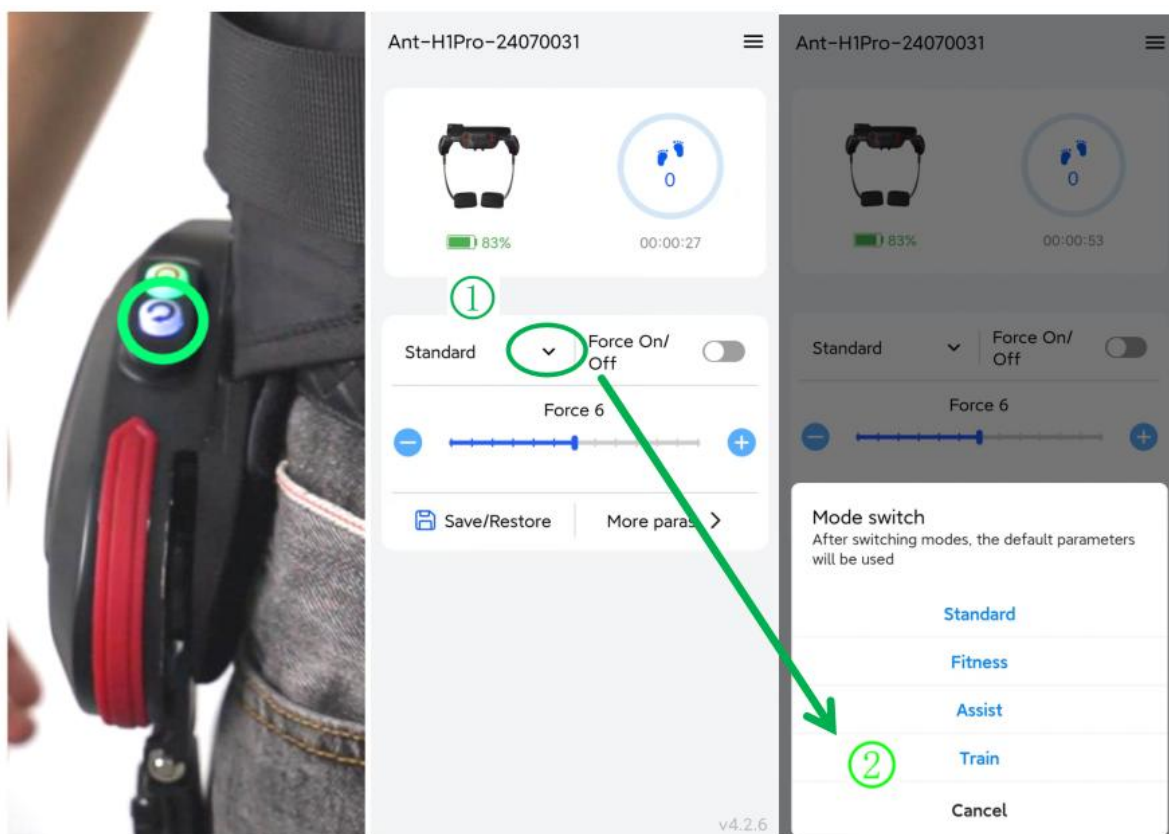
4.4 Parameters Storage

You can use the app to set more detailed parameters to meet personalized needs. (Click ⑦ to view advanced parameter explanations and recommendations.)

① Click Save / Restore in the main page or advanced parameter page.

② Select the suitable instructions in the pop-up box.

⚠ After advanced parameter adjustment, be sure to perform the save operation to ensure the next boot Ant-H1 Pro uses correct parameters.
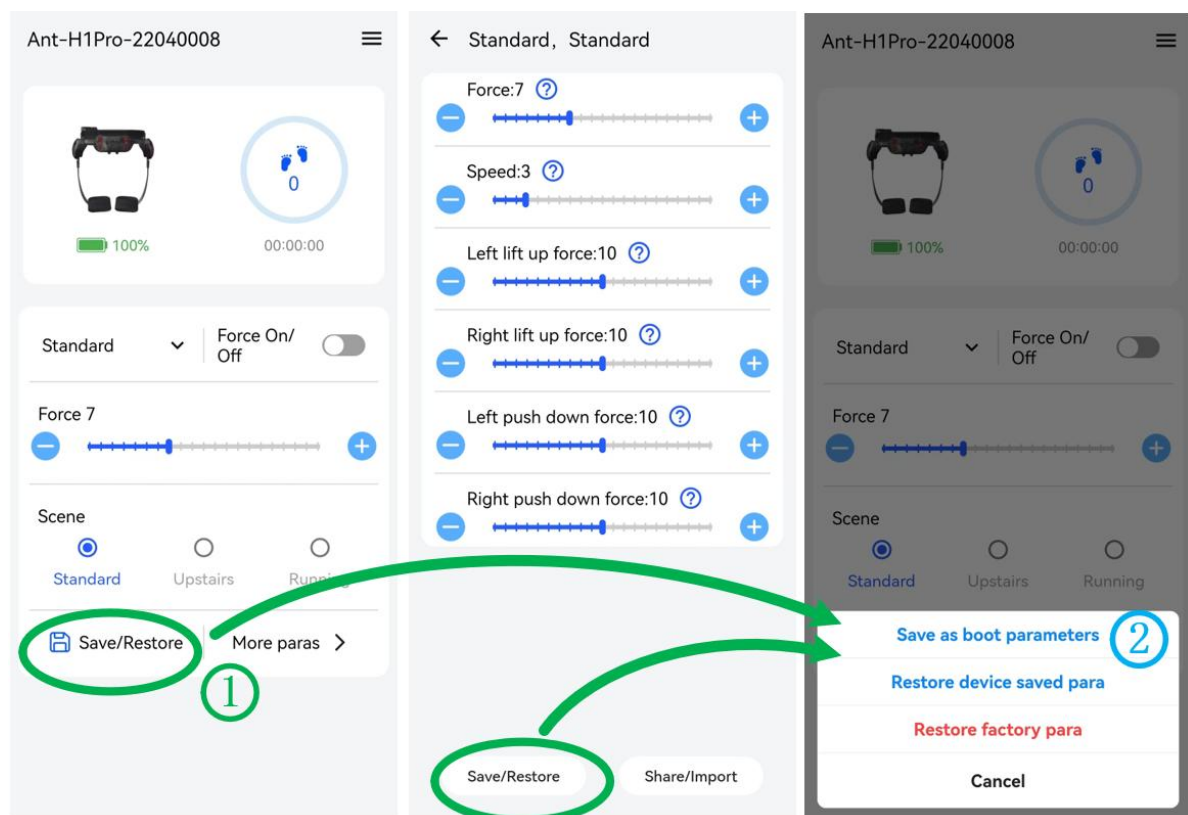
4.5 Others

The app also supports functions such as adjusting assistance level, assistance on/off, setting device language, modifying voice prompt volume, and performing firmware updates. For more features, feel free to explore on your own.

Device language and other settings can be adjusted in the Settings section. The specific steps are as follows:

①Click the Settings button in the upper-right corner of the main interface to navigate to the settings screen.

②Select the function you need to adjust and modify it as required.
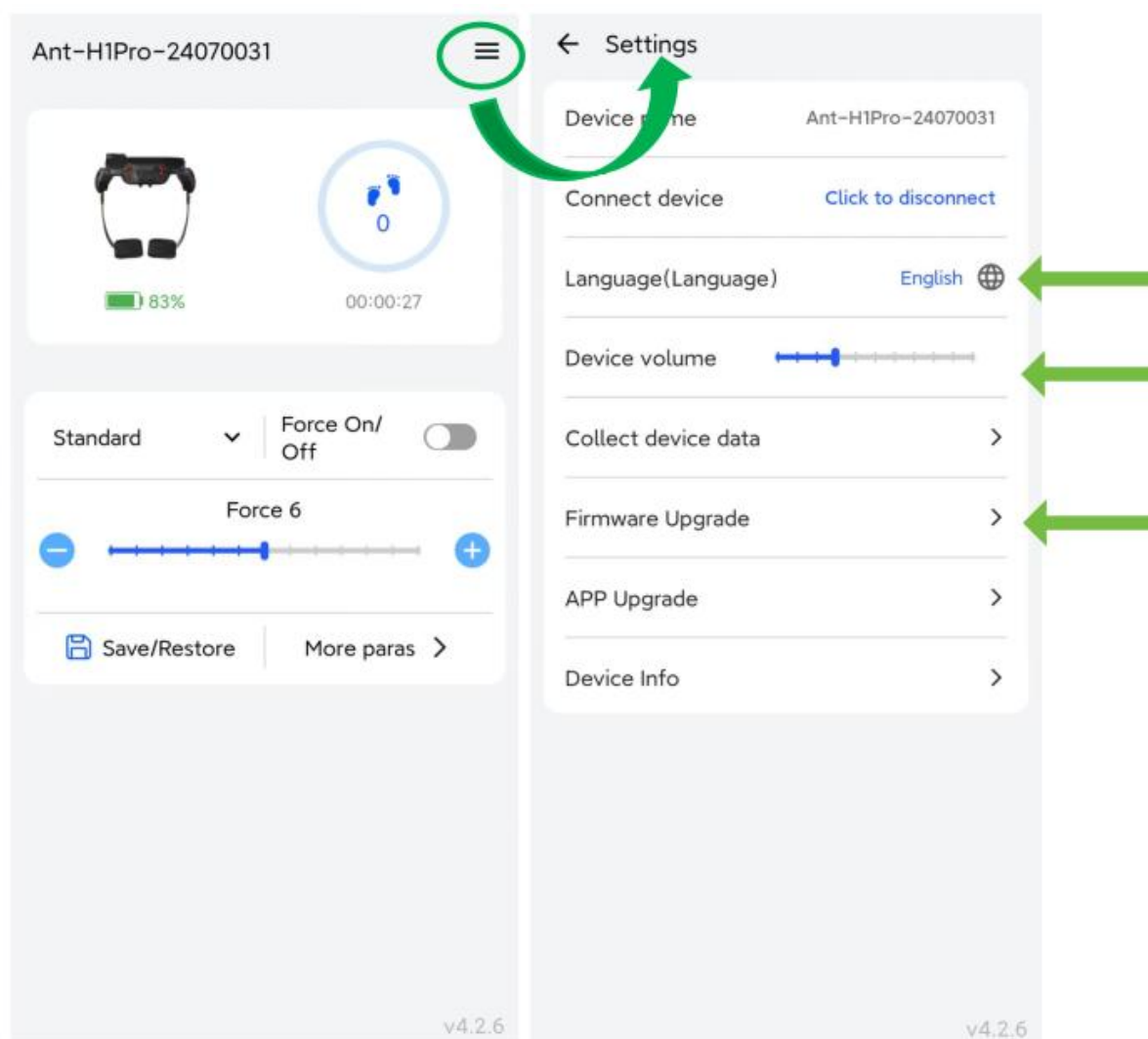
5. Maintenance

5.1 Charging

Due to different accessories, the battery supports two charging methods. The specific charging procedures are as follows.

5.1.1 Full-device Charging

Ant-H1 Pro charging port is located on the left side of the host on the back of the device. The charging steps is shown in the following figure.

① Insert the charging line into the charger to complete the charger assembly and connect charger plug to the 220V power grid.

② Find Ant-H1 Pro charging port in back host.

③ Remove the silicone waterproof protection cover and insert the charger DC head.

④ The indicator of the charger get red during charging and it will turn green after charging.

⚠Note: Please use the specified charger, otherwise the battery or even the device may be damaged.

🛇 The Type-C port is for manufacturer use only. Do not plug in any accessories to avoid damage.
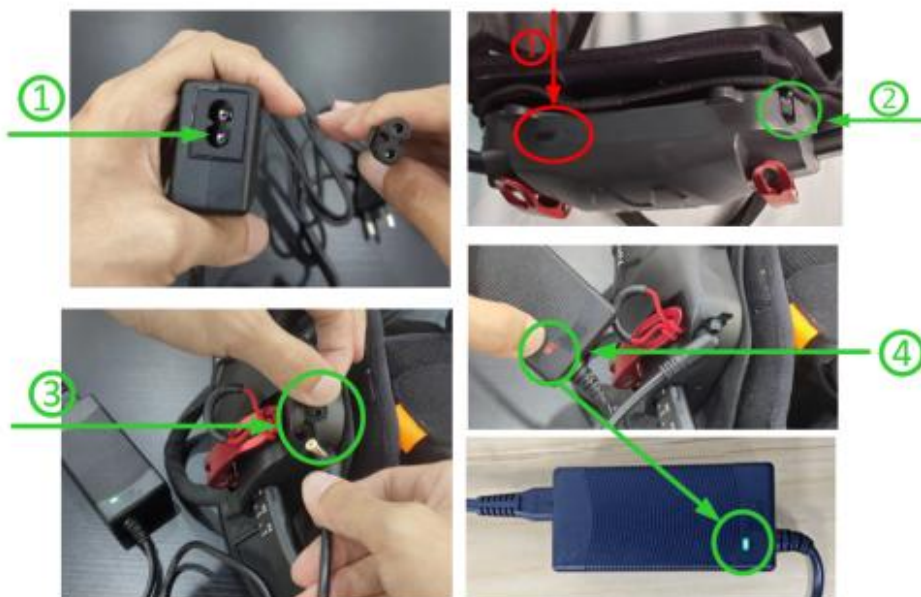
5.1.2 Battery Charging

Preparation：

Refer to Chapter 2 for battery replacement. Connect the removed battery to the charging dock ports one by one. After powering on, the charging dock indicator will flash in a slow flowing pattern.
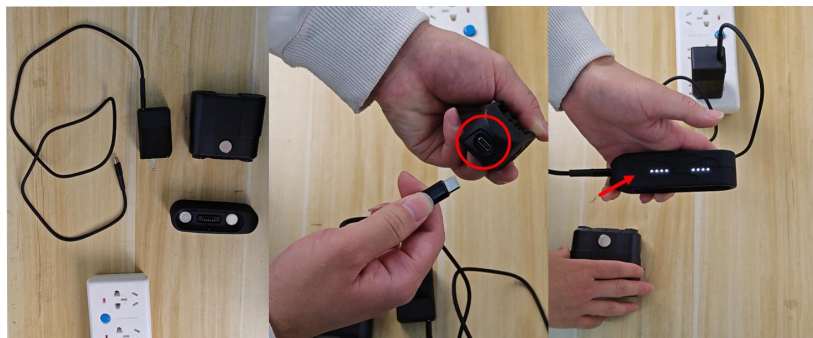
Charging：

Operate as shown in the figure; the indicator light will blink when the battery is charging.

A green indicator means the battery is full.

A yellow indicator means the battery is damaged and should be replaced!
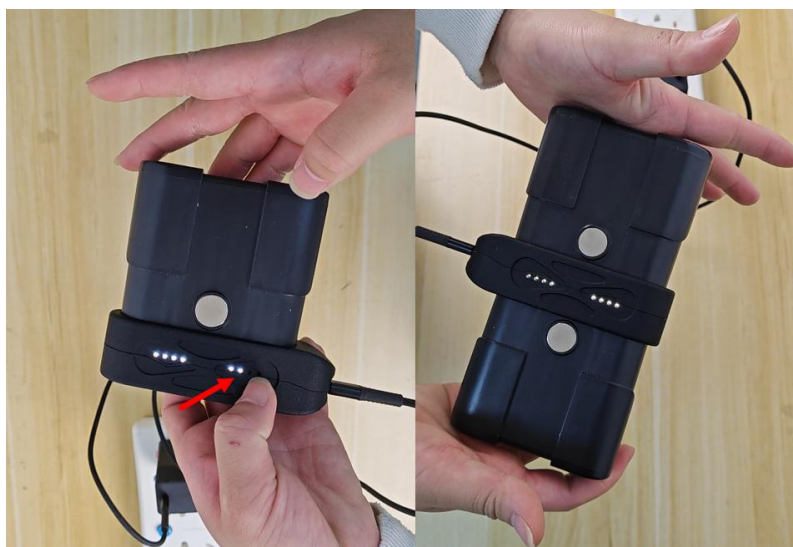
5.2 Storage

If the Ant-H1 Pro is not used for a long time, please take out the battery and store it in a dry and ventilated environment with ambient temperature of -10°C~45°C and ambient humidity of no more than 75%.

Avoid contact with corrosive materials during storage and keep away from fire and heat sources.

Please charge every six months when storing.

5.3 Cleaning

5.3.1 Fabric Cleaning

Method 1: Wash the straps with neutral detergent, please take protective measures to prevent the leg strap Velcro from scratching other fabrics.

After cleaning, dry them and install them on the device.

Method 2: You can wipe the shoulder strap, waist cushions and leg straps with a non-dripping wet rag to remove dust and dirt or with alcohol wet towel for disinfection.

5.3.2 External Surface Cleaning

Wipe the main controller, waist bars, waist strap, actuators, leg bars and other parts of Ant-H1 Pro with a non-dripping wet rag to remove dust and dirt or with alcohol wet towel for disinfection.

⚠ Attention: Do not wash or soak with water when cleaning, that will damage Ant-H1 Pro.

6. Features

6.1 Main Parameters

Product model	Ant-H1 Pro
Weight	2.3kg (including battery, waist cushion, leg straps, excluding shoulder strap, the weigh will vary due to different accessories)
Product Size	$460 \times 280 \times 140$mm(folded)
Battery Capacity	46Wh
One Charging Endurance	Continuous walking for -1.5h@ medium speed @medium force Standby time: 24 hours
Voltage	Maximum: 17.2V, maximum current: 2.5A
Maximum Torque	12N.m
Maximum Speed	11km/h
Bluetooth	BLE:2402-2480MHz,　EIRP:4.0 DBM (Max)

6.2 Applicable Population

Ant-H1 Pro can be used by people with independent walking ability.

Thigh Bat Size	S	M	L
Applicable Height	150~165cm	160~175cm	170~185cm

Waist Rod Size	M	L	XL
Optimal Fitting Body Type	Hip Width：26-34cm Waist Size：60-95cm	Hip Width：30-38cm Waist Size：76-113cm	Hip Width：34-42cm Waist Size：95-133cm

6.3 Operating Environment

Operating ambient temperature: -10°~ 45°.

Charging ambient temperature: 0°~55°.

![Kenqing logo]

6.4 Product Parts List

❶ Host   1   ❺ Charger   1

❷ Waist cushions 1   ❻ Shoulder strap   1

❸ Leg strap   2   ❼ User Manual   1

❹ Battery   1

7. Q&A

Malfunctions	Reason Analysis	Problem Solving
Can't power on	1. The battery is not installed 2. The emergency switch is not closed 3. The battery is exhausted	1. Install the battery 2. Close the emergency switch 3. Charge the battery
Wearing detection failed	1. Ant-H1 Pro is not worn 2. Ant-H1 Pro is not worn properly	Refer to Chapter 2 for wearing
No power output	1. The collision protection, 2. Accidental key press can cause Ant-H1 Pro to suspend the power output, then the function key ⏻ indicator flashes	Please use the Ant-H1 Pro correctly and press function key ⏻ to start power output
No power output and prompt "Over speed detected"	Ant-H1 Pro detects over running speed	Please press function key ⏻ to start power output and run slowly
No power output and prompt "Falling detected"	Ant-H1 Pro detects falling	Please press function key ⏻ to start power output and walk normally
No power output and prompt "Temperature too high, device will shut down soon"	Ant-H1 Pro detects too high temperature and shut down	Please put Ant-H1 Pro under proper temperature environment and wait it cool down then restart
No power output and prompt "Device error"	Ant-H1 Pro power key ⏻ red indicator flashes	Please contact after-sales services
Other's failure		Please contact after-sales services

⚠ Attention: If the problems cannot be solved, please contact after-sales services do not disassemble the machine by yourself.

8. Risk Notification

1. ⚠ Ant-H1 Pro non-medical rehabilitation equipment does not have the functions of treating diseases, restoring bodily functions, or relieving pain. Therefore, patients should use it with caution.

2. ⚠ Ant-H1 Pro has no weight support function and independent walking ability.

3. ⚠ Ant-H1 Pro does not have the walking balance function, which can not prevent users from falling down. People with insufficient walking ability or poor self balance use Ant-H1 should be under supervision or in a safe environment, it is strictly prohibited to use alone without a guardian. The people mentioned include but not limited to: Patients with osteoporosis, people with weak walking balance due to various reasons, and the elderly over 65 years old, Children under 14 years of age.

4. ⚠ People with poor physical function such as hypertension and heart disease should use this product with caution.

5. Prior to using Ant-H1 Pro, inspect the rod body and straps for breakage, the wires for exposure, or any other physical damage. In the event of such issues, do not operate the device and contact Kenqing Technology or your local dealer promptly.

6. For first-time use, select the appropriate leg bar size and adjust Ant-H1 Pro's waist width and waistband to fit your body. After adjustment, ensure the adjusting wrench is tightened securely, the waistband is fastened and tightened properly, and the leg belt is securely attached.

7. During using Ant-H1 Pro, please pay attention to prevent the belt and leg strap from loosening, otherwise the leg bar may spring up to scare / hurt the user.

8. During normal operation, Ant-H1 Pro exerts torque on the human legs, which may cause discomfort and even present a risk of walking instability or falls during initial use. Users should practice using the device in a safe environment to acclimate to its operation.

9. Ant-H1 Pro contains power rotating parts, which may cause injury to human body / fingers. Please pay attention not to put fingers into the rotating parts during use, and keep children away from Ant-H1 Pro to avoid injury, and prevent the equipment from

being hooking in the field or crowded environment.

10. Do not use Ant-H1 Pro in the following environments: submerged in water, exposed to high temperatures or near fire sources, in strong magnetic fields or strong current areas, or in extreme temperature conditions.

11. Ant-H1 Pro's actuators may heat up during use. Keep them uncovered to avoid overheating.

12. Ant-H1 Pro may swing back once when the user stops walking. Take care to avoid loss of balance and falls.

13. Please do not walk when adjusting parameters during using Ant-H1 Pro.

14. Please turn off Ant-H1 Pro emergency switch in case of emergency.

15. Walking with Ant-H1 Pro, the leg muscles are relatively relaxed, please walk carefully after taking off the equipment to prevent walking imbalance.

16. Please be sure to turn off the equipment before taking off, otherwise the leg bars may bounce up, which may hurt users.

17. Please use the specified charger to charge Ant-H1 Pro, charging with a non-designated power charger may cause battery damage or self-ignition.

App Download:

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Kenqing Technology official website   WeChat account

Official Website   WeChat Account

Addr: A1, Floor 1, Shanshui Bld., Nanshanyungu Park, Liuxian Ave., Nanshan District, Shenzhen, P.R.C

Contact: 400-876-8873

Email:conchin@kenqingkeji.com

Web: www.kenqingkeji.com