

Lower limb exoskeleton robot

Instruction manual

Model

KS- YDKF05



read this instruction manual carefully before use

Company reserves the right to interpret the manual

refer to the actual product appearance

keep it properly together with the in voice after reading

In the event of product technology or software upgrades, there will be no notice

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# Safety Notes

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Before using this product, please read this instruction manual carefully and keep it properly for future reference. Any information related to this instruction manual non-compliant operations may cause damage to this product, and may cause accidental injuries such as electric shock and fire.

1. This product is for adults only, suitable for height 150-190cm and weight  $\leq 100$ kg
2. Do not use this product if you have serious heart disease, high blood pressure, mental illness, pregnant women, weak people, and users who are not suitable for standing or walking in the opinion of doctors
3. Users must be able to stand for  $\geq 10$  minutes with assistance; Disabled for those who cannot maintain balance
4. Persons under the age of 16 or with cognitive limitations are not allowed to operate alone and must be accompanied by a guardian throughout the process.
5. Equipment, batteries and power cords must be kept out of reach of children, and it is strictly forbidden to use them as toys
6. Remove all packaging protective film and promotional stickers immediately after unpacking
7. Perform spot inspection before each power on: the strap lock is intact, the emergency stop button is flexible, the power  $\geq 30\%$ , and the power cord is not damaged.
8. Confirm that the charger input voltage is consistent with the local main power; Damaged power cords should be stopped immediately and must be replaced by a professional.
9. Avoid contact with sharp edges or heat sources (stoves, radiators, etc.), and keep them dry and tidy.
10. The body and power cord are strictly prohibited from being immersed in water or other liquids. Please charge in a dry area without splashing water.
11. The device must be completely turned off and disconnected from the wearer while charging; It is strictly forbidden to run while charging.
12. The charging time should not be too long; If there is abnormal heat, bulging or charging time out, stop immediately and contact the after-sales service
13. After long-term deactivation, all interfaces, cables and housings must be checked before running a complete self-test
14. Keep an eye on the sound, vibration and temperature of the device during use; If there is an abnormal noise, burnings or abnormal shaking, stop immediately and check.
15. It is forbidden to walk on waterlogged, soft gravel, oily ground or over-limit slopes
16. Ambient temperature  $0-40^{\circ}\text{C}$ , humidity  $\leq 90\%$ ; Avoid heavy rain, snow, strong magnetic fields, and use near high-voltage equipment.
17. The device is not waterproof; Do not store, use, or charge in areas where water or mist may enter.
18. Do not use any third-party batteries or chargers.
19. Do not disassemble, repair or modify the equipment without permission.
20. Do not throw away the battery at will, it can be disposed of by a professional recycling agency
21. Wipe the bracket and straps with a lint-free cloth or wet wipes after each use, and do not use a high-pressure water gun to clean it
22. Prolonged exposure to the sun, flames or storage near heating can damage the battery and electronic components, so be sure to avoid it.
23. If you experience pain, dizziness, shortness of breath, etc., stop immediately, sit down and untie the strap; Seek medical attention if necessary
24. If you smell peculiar smells, leaks, or severe heat during battery charging or use, stop using the battery immediately and stay away from it

Product Overview:

1. Equipment introduction



- 1. Armrests
- 2. Electric actuator
- 3. Lift handle
- 4. Status indicator
- 5. Hip module
- 6. Knee module
- 7. Calf baffle
- 8. Photosensitive components
- 9. Power button
- 10. Control panel
- 11. Emergency stop button
- 12. Soft cushions
- 13. Waist strap
- 14. Stool
- 15. Calf straps
- 16. Shoes
- 17. Wheels
- 18. Brakes

Drawings are for reference only. Please note that there may be changes or differences

in the design, functionality, or specifications of the actual product

## 2. Introduction to training mode

Active training mode  
forward, and the robot provides auxiliary force in the process of the  
(adjustable pace, assistance)  
user's leg lifting to better activate the user's own muscle strength

In the backward training mode, the robot will guide the user to  
Backward training mode  
(adjustable pace, assist)

resistance training, and the robot will provide resistance to the Fatburning training mode  
(adjustable resistance) joint during the user's joint movement to achieve the effect of  
weight-bearing training.

## 3. Introduction to system settings

0

Screen brightness



Screen brightness:

The screen automatically adapts to the ambient brightness, tap "+" to increase brightness, tap "-" to decrease brightness

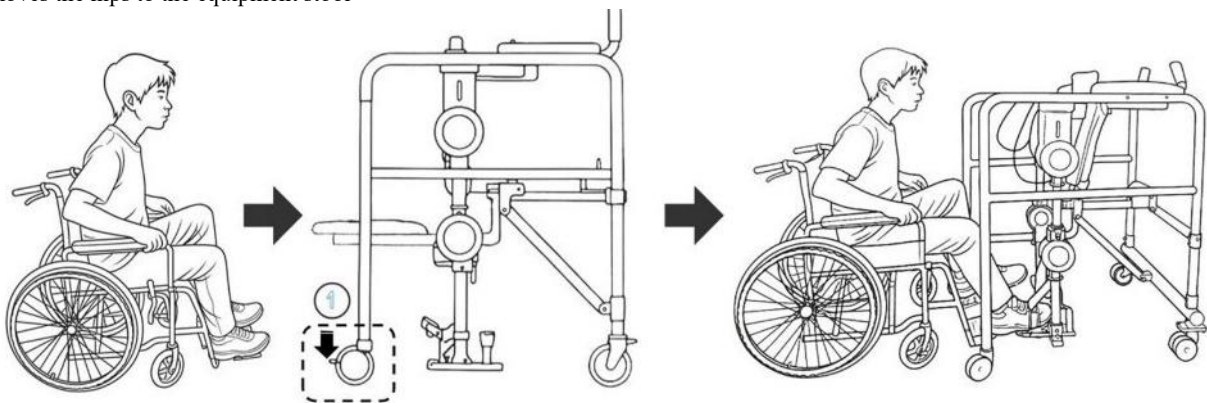
Device volume:

The device volume is in the range of "0- 10", "0" is mute, and "+" is tapped to increase the volume and tap "-" volume down

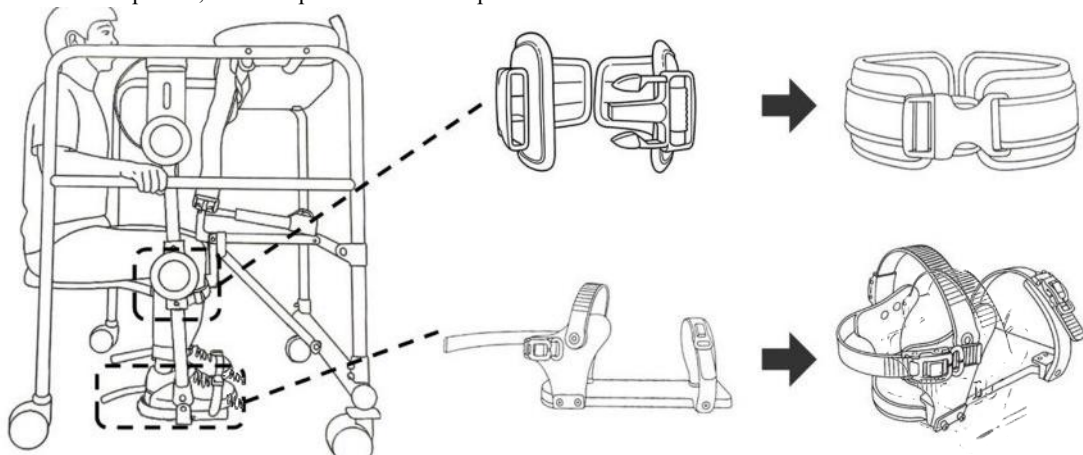
## Wearing details

When wearing the device, you need to turn it on, untie the strap before putting it on.

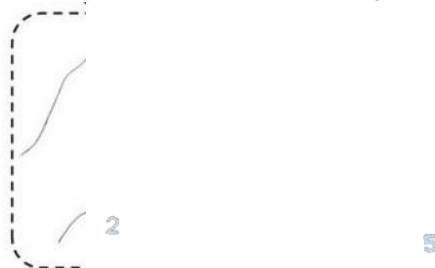
1. The user pushes the wheelchair close to the wheelchair cushion close to the equipment stoollocks the wheelchair, moves the legs from the wheelchair to the equipment shoes, and then moves the hips to the equipment stool



2. Put on the shoes traps first, and then put on the calf straps.



3. After the shoes are tied with the calf strap, press and hold the up button of the lifting handle as shown in (1) to raise the stool to the position of (2), buckle the belt (3) in the way (4), and continue to rise until the stool pushes the user to a standing position (obese users only need to push the stool closer to fix the user), as shown in (5). Find a flat ground, indoor or outdoor,



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# Preparation before use

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please clear the obstacles on the ground in advance, including wires, debris, stones, etc., to avoid tripping



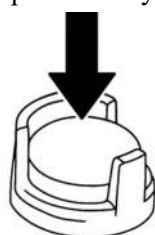
Please use this product with loose trousers and sneakers, and do not use this product with high heels, flip-flops, shorts, or skirts



Understand and familiarize yourself with emergency stop buttons, respond quickly in emergency situations, and ensure the safety of your equipment and yourself.



Escape stop button



Press Emergency Stop

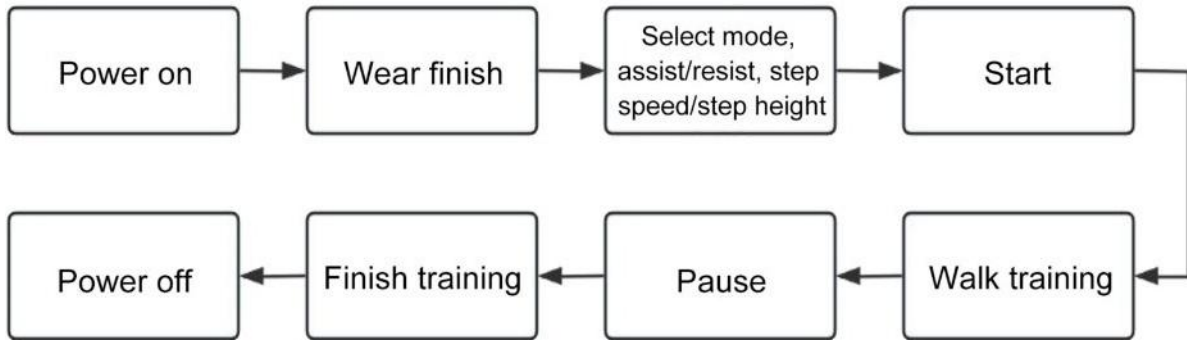


Lift the emergency stop

**A Warning:** Do not use on uphill, downhill, stairs, etc

Product use

Equipment operation flowchart



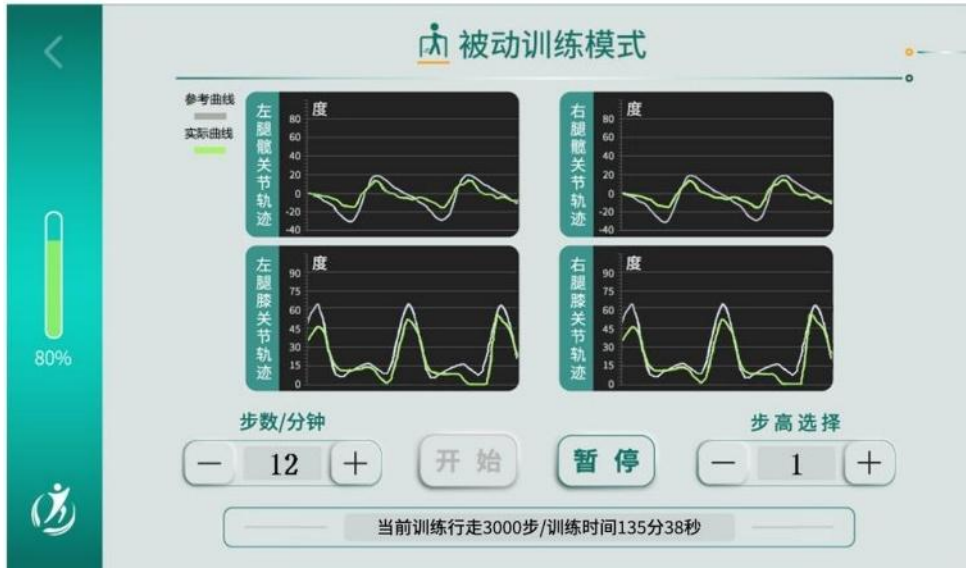
1. After wearing the device, press the power button, the power button will light green, the device will jump to the following mode selection interface after the voice broadcast and the self-test is completed, and then select the mode that needs to be trained and click to enter the control interface



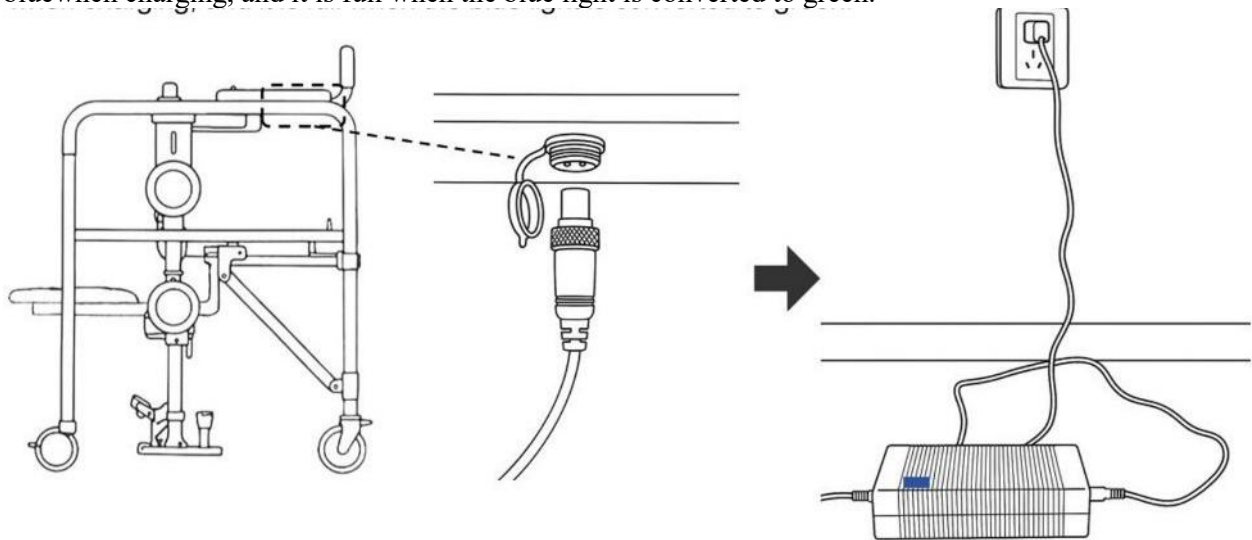
2. Go to the mode control screen, select the pace and step height, and click "Start" to start training.



3. During the training process, you can see the difference between the actual walking curve and thereference curve, so as to know the user's own walking status. You can also adjust the" steps/ minuteto make the robot walk faster, or adjust the" step height selection" to make the robot stride longer.



4. After the training is low, insert one end of the adapter into the charging port at the bottom of the device, and the other side into the socket, as shown in the figure below, the indicator light is blue when charging, and it is full when the blue light is converted to green.



**Warning: Do not use the device while charging**

5. Others

Click"" to return to the modes election screen

The information warning bar, located directly below the screen, displays product alarms, records walking time, and other information.

Battery level display. If the battery is less than 5%, the equipment cannot be rehabilitated and should be charged. If not charged in time, the device may automatically shut down due to insufficient power.

80%

## Troubleshooting

	Possible causes	Solution
	The device battery is low	Please use it after charging
The device turn-on indicator light is on but there is no voice announcement	The device volume is 0	turn up the volume
The robot did not help	The help is too small	Please help adjust it to increase
The robot behaves abnormally	Internal abnormalities of the device	1. Restart the device 2. Contact customer service and return to repair and replace if necessary
Adapter charging is unresponsive	1. The adapter is damaged 2. The charging interface of the device is damaged	1. Replace the adapter 2. Contact customer service and return to repair and replace if necessary
The device boot screen is too dark	1. The screen brightness setting is too dark 2. The photosensitive components are blocked	1. Go to Settings to turn up the screen brightness 2. Contact customer service and return to repair and replace if necessary
The power button does not turn on the green light after the device is turned on	1. The power of the device is too low 2. The power button is damaged	1. Please use it after charging. 2. Contact customer service and return for repair and replacement if necessary
Abnormal communication in the left hip	The communication line of the joint motor is faulty	1. Check the leg wiring and restart the device 2. Contact customer service and return to repair and replace if necessary
Abnormal communication in the left knee	The communication line of the joint motor is faulty	1. Check the leg wiring and restart the device 2. Contact customer service and return to repair and replace if necessary
Abnormal communication in the right hip	The communication line of the joint motor is faulty	1. Check the leg wiring and restart the device 2. Contact customer service and return to repair and replace if necessary
Abnormal communication in the right knee	The communication line of the joint motor is faulty	1. Check the leg wiring and restart the device 2. Contact customer service and return to repair and replace if necessary

If the product still does not work properly after following the form, please contact our

company's after-sales service department for assistance

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## Product Maintenance & Care

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In order to ensure that the "Lower limb exoskeleton robot" is in a safe and reliable state at all times, it is necessary to establish a regular maintenance plan. There are two levels of maintenance: user/ operator maintenance and professional maintenance. Failure to perform inspections and maintenance as required may lead to potential failures being overlooked, resulting in equipment damage or personal injury.

**1. User-level maintenance (once a month, or when the cumulative distance is  $\geq 20$  km)** Power off and shutdown - Always turn off the system and unplug the main power supply before cleaning and inspection.

**Visual inspection** - Visually inspect all connectors, straps, harnesses and housings; Loose, cracked, or worn are found to be deactivated immediately and reported.

**Functional self-test** - Run briefly in the no-load state, confirm that the joint movement is smooth, the emergency stop response is normal, and the voice prompt is not abnormal.

**Clean and disinfect** a soft cloth dipped in a neutral detergent diluent to wipe the shell and parts in contact with the skin; Then wipe it again with a damp cloth with clean water and let it air dry naturally.

**Quickly wipe the contact surface with 75% ethanol once a week; Avoid using chlorine-containing or highly corrosive solvents.**

**Do not pressure rinse and do not remove the case cover to clean the internal components** Use interruption alerts - When the device is worn by the user, it is prohibited to perform any maintenance or maintenance operations.

### **2. Battery maintenance points**

**Use only the original charger; Turn off the machine before charging and place on a dry heat-resistant surface, as a single charge  $\leq 6$  h.**

**It is forbidden to expose to the sun, immerse in water, short circuit, impact, disassemble or put in fire; Keep away from children.**

**If it has not been used for more than 3 weeks, fill it first and then store; If the battery is deactivated for more than 1 month, the battery will be maintained at 50%- 70%, and the battery will be replenished once a month.**

**If the battery life is less than 2 hours or the cumulative charge and discharge  $> 300$  times, it is recommended to contact the after-sales service to replace the battery with a new battery**

**Replacement must be done by an authorized personnel**

**If you find swelling, odor, seepage, overheating and other phenomena, stop using it immediately and hand it over to professional treatment**

**Following the above maintenance plan maximizes equipment performance and reduces safety risks.**

Description of the product's hazardous substances

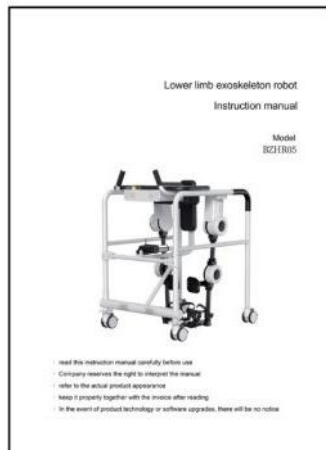
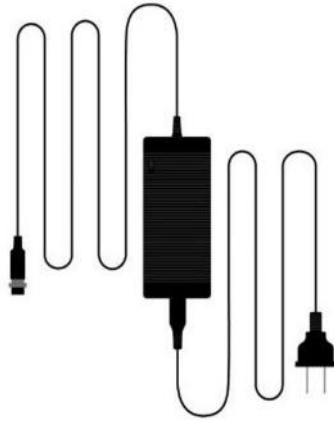
HazardousSubstancesStatisticsTable						
Part name	Hazardoussubstances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	PBB (PBB)	PBDE (PBDE)
Plastics	0	0	0	0	0	0
Hardware (Alloy)	0	0	o	0	0	0
Adapter	0	0	0	0	0	0
Battery	0	0	0	0	0	0
ElectricalModules (SolderJoints/Diodes)	O	0	0	0	O	o

O Indicates that the content of the hazardous substance in all homogeneous materials of the part is below the limit requirements stipulated in the current effective version of GB/ T 26572

X It means that the content of the hazardous substance in at least one homogeneous material of the part exceeds the limit requirements stipulated in the current effective version of GB/ T 26572, and there is no mature alternative in the industry at present, which meets the environmental protection requirements of the EURO HS directive.

Packing list





Device body x 1

Adapter x 1

Instruction manual x 1

## Technical parameters

### Product Specifications

	WAL-D1	WAL-D2		WAL-D1	WAL-D2
Size (cm)	80*100*120	80*100*130	Battery life	>6 ours	
Weight (Kg)	~120kg		Charging time	<5 hours	
Color	White+Black		Functional mode	5 tpes	
Battery capacity	21Ah		Nominal voltage	21.6Vdc	

### Applicable people

Productmodel	Experiencethe optimalheightrange	Weightrange	Agereference
WAL-D1	150~170cm	≤ 100 kg	18-70 yearsold,and be responsiblefortheirown operationandunderstand safetyinstrucions
WAL-D2	170~190cm		

#### Basic conditions:

· Able to stand independently for  $\geq 10$  minutes with minimal assistance

Noun union fractures or severe joint deformities of the lower extremities

Stable cardiopulmonary function without recent myocardial infarction, severe heart failure or uncontrolled hypertension

#### Contra indications:

· Pregnancy, recent major surgery ( $\leq$  March), active deep vein thrombosis

Those who are assessed by the doctor as not suitable for walking with weight or who are at high risk of falling

· Minors under the age of 16 and persons with cognitive limitations who cannot understand operating instructions (unless used under professional supervision)

## Usage environment

	Workenvironment	Storage/Transport Environment
Temperatureconditions	0°C-40°C	-20°C-55°C
Relative humidity	30% - 90%	10% - 95%
Atmospheric pressure	700hPa-1060hPa	700hPa-1060hPa

Thank you very much for purchasing the series of smart products! In order to ensure your legitimate rights and interests, We make standard service commitments to you and wholeheartedly provide you with relevant services when you need them.

## Warranty card

### User Information

User Name		Phone No	
Address			
Product Name and Model Number			
Serial Number		Purchasedate	

### Maintenance Record

Numbering	Repair date	Faultdescription and handling method	Repaircenter	Maintenance engineer
1				
2				
3				

## Warranty period

Productrange	Warrantycontent	Warrantyperiod
Host	buttons,shells,legbars,shoes,motors,control boards,stools,andothers	1 year
Fittings	Lithium battery and power adapter	6 months
Supplies	Leg straps and buckles, leg sponge pads, waiststrapsandbuckles,armrestpads, handrailtubecovers	Nowarranty