

# Lumbar Support Robot Q20

User Manual



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## Instructions

Thank you very much for choosing the Q20 Lumbar Support Robot, Q20 will become a strong partner and faithful assistant in your work, helping you reduce the pressure on your waist and physical exertion.

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 follow the instructions or violation of tips and warnings may result in injury or damage to the robot; Kenqing Technology w

ill not be held liable for any damages or injuries resulting from such actions.

Q20 is very powerful, for good use, please CAUTION the following points:

**WEARING: Please follow the steps in the user manual to wear it, fit tightly and tighten the straps for an optimal lifting experience;**

**Make sure the robot is turned off before taking it off.**

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

If you have any questions during use or information not mentioned in the manual, please contact us or your local dealer in time.

## Risk communication

1.  People with poor physical function such as hypertension and heart disease should use this product with caution.
2. Before using, please check whether the rod body and the straps are broken, the wires are exposed or there is physical damage. If it exists, please do not use, and contact us or the local dealer.
3. When using the Q20 for the first time, you will need to adjust the length of the hip strap to fit your height.
4. When using the Q20 please ensure that you wear the robot correctly, making sure that the waist strap is buckled and pulled tight and that the leg straps are glued in place.
5. During normal use, Q20 applies assisting torque to the human legs, shoulder and back, it may cause discomfort for first time. Please practice using it in a safe environment and getting used to it.
6. Q20 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-Y20 to avoid injury, and prevent the equipment from being hooking in the field or crowded environment.
7. Do not use Q20 under the following conditions: immersion in water, high temperatures and near sources of ignition, strong magnetism, strong electricity, extreme temperatures.
8. Please turn off power switch in case of emergency.
9. Be sure to turn off the robot before taking it off.
10. When replacing the battery or removing the Q20, please take care to prevent accidental drops and injuries.
11. Please use the specified charger to charge Q20, charging with a non designated power charger may cause battery damage or self-ignition

# 1. Products Overview

## 1.1. What's Q20

Q20 Lumbar Support Robot is an active exoskeleton product with heavy lifting function, which is used in professional fields such as logistics, agriculture, industry, medical, rescue, fire protection, etc. Can be used in material sorting, transportation, loading and unloading, and other bending operations.

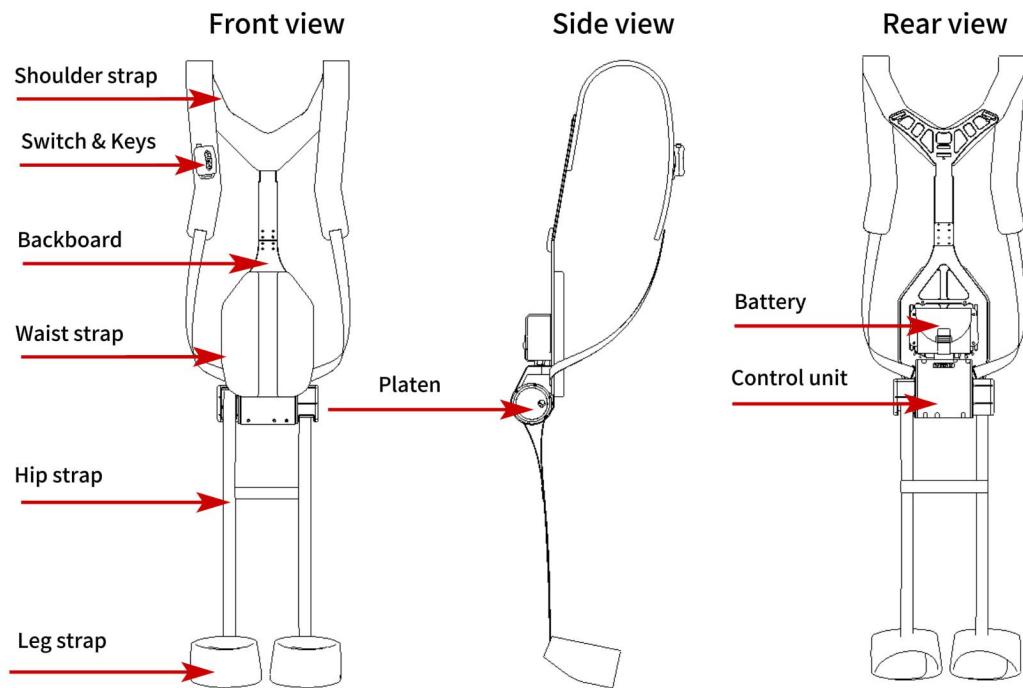
The Q20 Lumbar Support Robot can reduce the pressure on the waist, back, shoulders, arms, and wrists during heavy object handling, reduce the physical burden on operators, and reduce work intensity. It can alleviate the fatigue of workers, save energy, and improve work endurance. Q20 protects the waist of workers to prevent the occurrence of occupational diseases.

Q20 is simple and lightweight, fast wearing, easy operation and flexibility.

## 1.2. Wearing



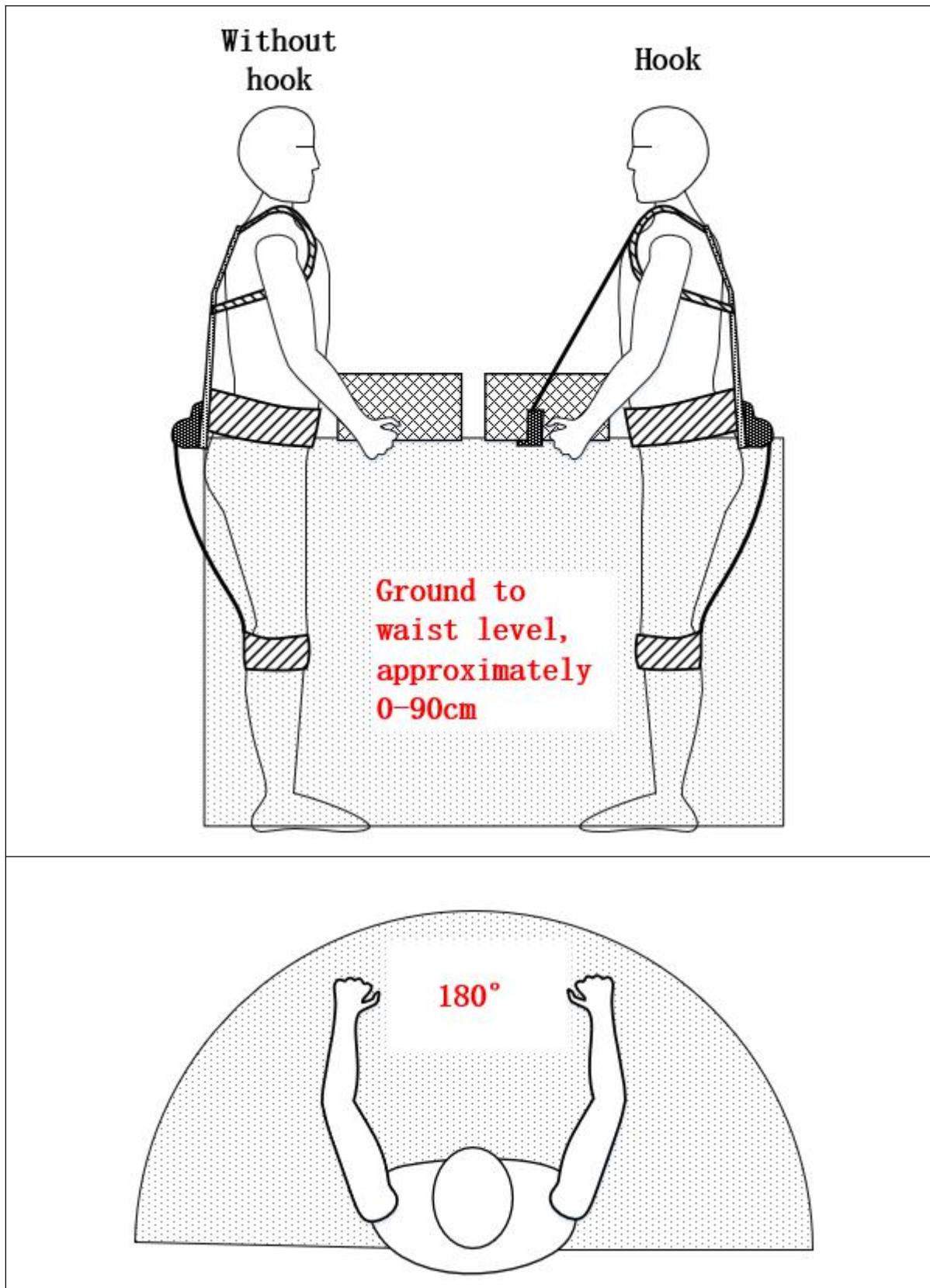
### 1.3. Appearances and Structure



### 1.4. Accessory list

Class	Item	Quantity	Description
default	Main frame	1 set	Installed with straps at the factory
	Battery	1 piece	Lithium ion batteries
	Charging device	1 set	1 charger and 1 charger adapter
	Strap set	1 set	Shoulder straps, waist strap set, hip strap set, leg strap set ,Installed on the main frame
optional	Load bearing hook	1 set	Used to assist in handling
	Load bearing gloves	1 set	Used to assist in handling

## 1.5. Operation range



## 2. Assembly and adjustment of accessories

### 2.1. Battery assembly / disassembly

#### Disassembly:

Open the battery pack,  
unplug the battery.



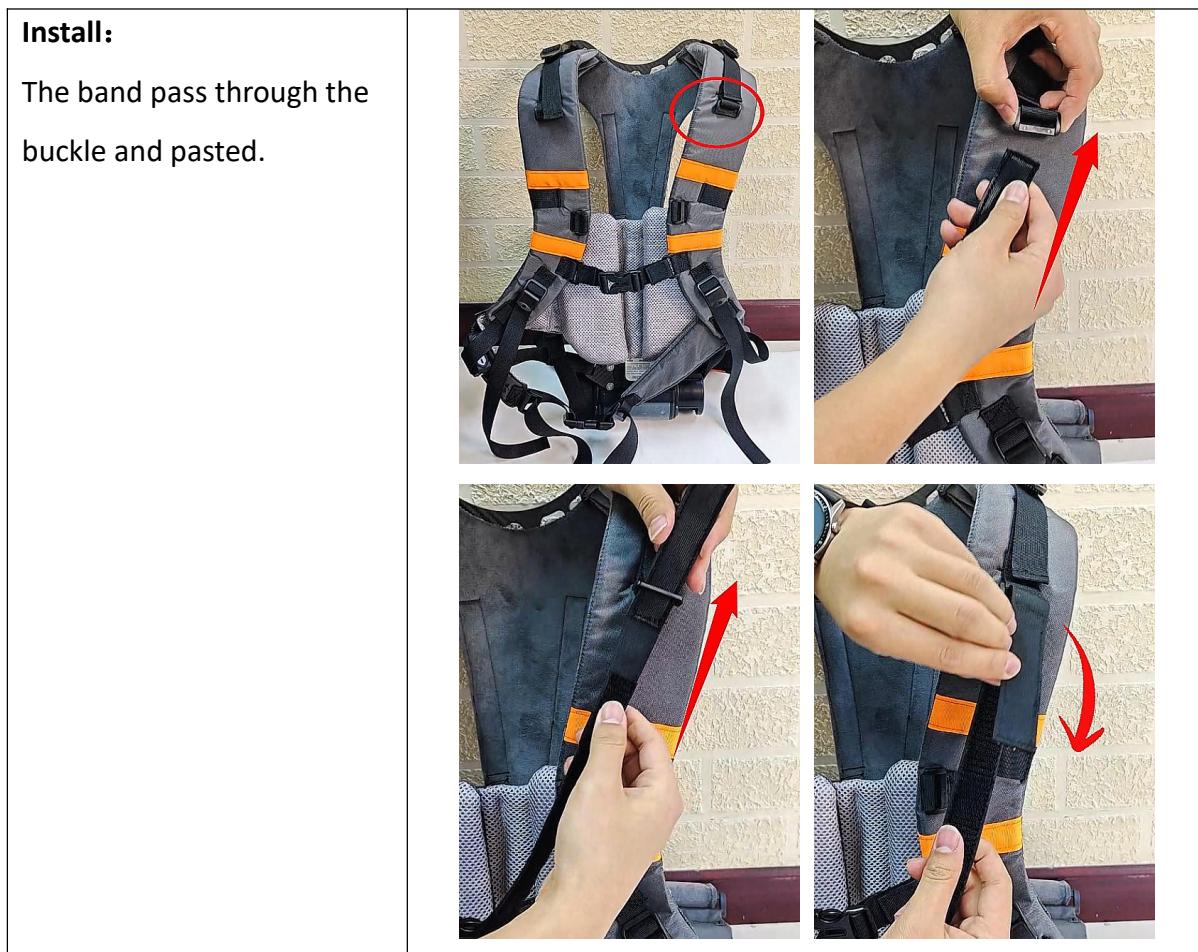
#### Assembly:

Put in the battery and snap  
the bag.





## 2.2. Install load-bearing hook (load-bearing hook optional)



**Adjust:**

Adjust the length.



### 2.3. Leg straps height adjustment

The height of the leg straps must be adjusted according to height before wearing. If the leg straps is not of the correct height, it will not pass the wear test. The adjustment method is shown in the figure below.

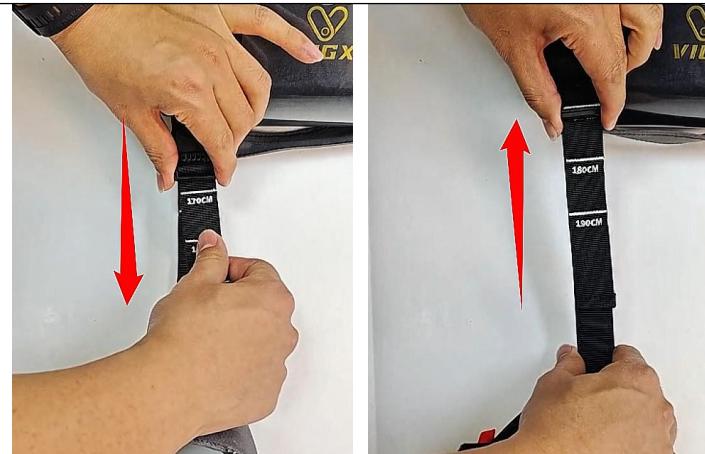
**Leg strap length standard:**

**Step 1:**

Open the buckle.

**Step 2:**

Adjust the height of the leg straps to the right position.

**Step 3:**

Lock the leg straps.



**CAUTION: Leg straps is a consumable product, need to be replaced in time after the discovery of wear and tear**

### 3. Wearing and Using

#### 3.1. Robotic wearing

##### 3.1.1. Wearing

Before wearing, please refer to section 2.3 for leg straps height adjustment to ensure that the height of the leg strap is appropriate.

<b>Step 1:</b>  Carrying the exoskeleton on the body.	 A photograph showing a man from the waist up, wearing a light blue button-down shirt and tan pants. He is carrying a black exoskeleton unit on his back with straps. A red arrow points upwards from the unit towards his neck.	 A photograph showing the man from the waist up, adjusting the harness on his back. He is holding the straps with both hands. A red arrow points downwards from the harness area.
<b>Step 2:</b>  Smooth the leg straps and place them under the knees, thread the straps from back to front and tie them tightly.	 A photograph showing the man from the waist down, wearing dark blue pants. He is adjusting the leg straps of the exoskeleton. A red arrow points downwards from the straps near his ankles.	 A photograph showing a close-up of the man's legs and the exoskeleton's leg straps. He is tying the straps together. A red arrow points upwards from the straps near his knees.

<p><b>⚠ CAUTION:</b> Avoid tangles and knots in the leg straps.</p> <p><b>⚠ CAUTION:</b> The leg straps must be fastened tightly, if they are loose they will slide upwards.</p>	 <div style="text-align: center; margin-top: 10px;"> <span style="color: red;">X</span>    <span style="color: red;">X</span>    <span style="color: green;">✓</span> </div>
<p><b>Step 3:</b></p> <p>Close the buckle of the chest strap and waist strap and tighten.</p>	
<p><b>⚠ Caution:</b> Adjust the height of the chest strap by tearing the strap fixed Velcro.</p>	

For taller user, the chest strap adjust to a lower position.



For shorter user, the chest strap adjust to a higher position.

**Step 4:**

Open the shoulder strap buckle, pull the shoulder strap tightly, and then lock the shoulder strap buckle tightly



### 3.1.2. Taking off

<b>Step 1:</b> Release the leg strap.	
<b>Step 2:</b> Loosen the chest strap buckle and waist strap buckle, remove the Q20	
	<b>WARNING:</b> Always make sure the robot is turned off before taking it off.

## 3.2. Power on/off

### 3.2.1. Power-on and wear detection

<b>Power on:</b>  Press the switch(  ) on the shoulder, and the robot will perform self-test and wear detection.		
<b>Wear detection:</b>  Wear detection pass, robot prompts: "remaining battery xxx percent".		
<b> The length of the leg strap is too long:</b>  the wearing test fails, the red light blinks and the voice prompts: "Strap too long, wear detection failed, press key to retry". Please adjust the height of the leg strap according to section 2.3, and then press  key again for wear detection.		

<p><b>⚠ The length of the leg strap is too short:</b></p> <p>the wearing test fails, the red light blinks and the voice prompts: "Strap too short, Wearing test fails, please press the key to retry". Please adjust the length of the leg strap according to section 2.3, and then press  key again for wear detection.</p>	 
<p><b>⚠ Body not upright:</b></p> <p>wear detection failure, red light flashes, voice prompt: "Please stand at attention". Please stand upright and the robot will automatically carry out wear detection.</p>	

### 3.2.2. Shut down

Disconnect the switch() to turn off the robot. When the robot shuts down, it will voice prompt: "Shut down , please watch your steps".

	<b>WARNING: Always make sure the robot is turned off before taking it off.</b>
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### 3.3. Start using

#### 3.3.1. Keys:

<p>⊕ Key: Add Key</p> <p>▶ Key: Start/Pause key</p> <p>⊖ Key: minus key</p>		
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#### 3.3.2. Power startup / pause

<p>Short press the ▶ key, the robot voice the status and switches between power startup and pause.</p> <p>Startup status: ▶ key and ⊕⊖ keys light constantly.</p> <p>Pause status: ▶ key blinks, ⊕⊖ keys light off</p>		
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#### 3.3.3. Waist assist adjustment

<p>Short press ⊕ key to increase assist output.</p> <p>Short press ⊖ key to reduce assist output.</p>		
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### 3.3.4. Mode Switching

Press  $+\ominus$  keys at the same time to switch the work mode



#### Carrying Mode:

$+\ominus$  keys light green.

Suitable for regular carrying operations, power disappearance after the body upright, support carrying and walking.



#### Lifting mode:

$+\ominus$  keys light blue.

Suitable for fixed-point carrying operations, power continues after the body upright, but walking will be hindered.



### 3.3.5. Battery indicator

The  key light color indicates the remaining power level:

Green - fully charged

Yellow - low battery

Red - power is about to run out



Long press the  key and the robot will voice announce the remaining battery level.



### 3.3.6. Tips for use

Please bend down quickly. The higher the speed, the smaller the resistance.

After stopping, the assistance gradually increases.

The assistance rapidly increases during getting up to assist the waist.



### 3.3.7. Load-bearing hook

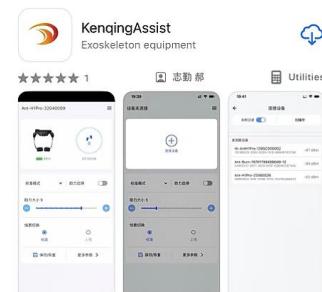
Without load-bearing hooks, suitable for objects without handles and for fast handling requirements.		
Use of load-bearing hooks (for objects with handles, such as transportation boxes).		

### 3.3.8. APP download

#### Iphone:

Method 1: scan the QR code on the right.

Method 2 : in App Store directly searches for "Kenqing Assistant".

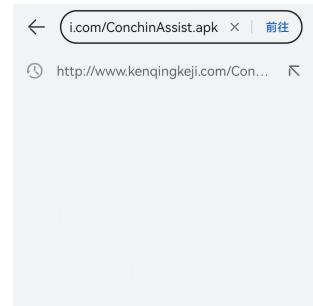


#### Android phones:

Method 1: scan the QR code on the right.

Method 2: Enter the download address directly into the mobile browser to download.

<http://www.kenqingkeji.com/ConchinAssist.apk>



**CAUTION: Manual updates maybe delays, the actual app interface shall prevail.**

### 3.3.9. Bluetooth connection

#### Step 1:

Agree Bluetooth and location permissions, click to connect the device



#### Step 2:

Click on the device serial number to connect the device (the serial number can be found on the device label, Last 8 digits)



#### Step 3:

For the first time, press  key to confirm the connection



## 4. Maintenance

### 4.1. Charging

- 1、Please refer to Chapter 2.2 for battery disassembly;
- 2、Connect the charger, charging adapter, and battery (please pay attention to the direction of the plug), and connect the charger to the household circuit;

Connect the charger, charging adapter.



Connect the battery.



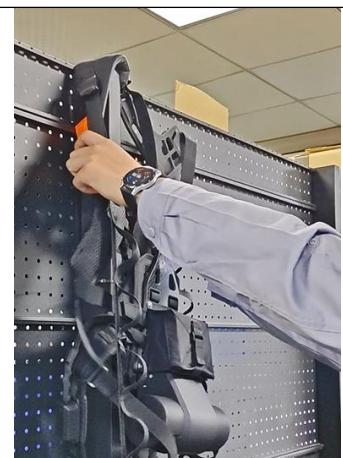
When charging, the charger indicator light is red.

Charging completed, the charger indicator light is green

**CAUTION:**

- 1. Charging without the specified charger may damage the battery or even cause a fire;**
- 2. Do not perform charging operation for a long time.**

## 4.2. Storage

Close the switch and wait for the power to retract the hip strap harness to its shortest length	 A close-up photograph showing a hand pressing a small, rectangular black switch with two gold-colored buttons. The switch is attached to a grey and orange harness system.
Hang the robot.	 A photograph showing a person's arm and hand hanging a black Q20 robot from a black metal pegboard. The robot is suspended by a strap.

If the robot is not to be used for a long time, remove the battery and store it in a dry, ventilated environment with ambient temperature of -10°C to 45°C and humidity of no more than 75%.

Avoid contact with corrosive materials when storing, and keep away from fire and heat sources.

Please charge every three months when storing.

## 4.3. Straps assembly / disassembly

### 4.3.1. Shoulder straps

#### Disassembly:

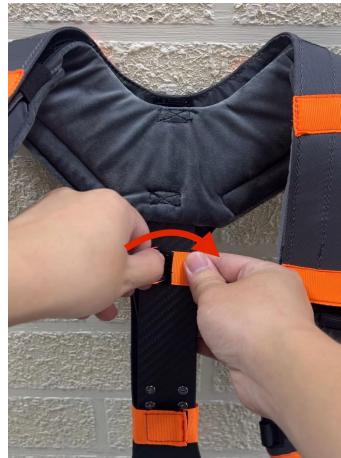
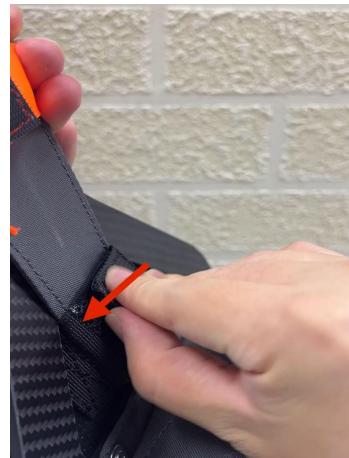
Remove the back strap by tear off the fixed Velcro tabs.

Remove the shoulder strap by tear off the fixed Velcro tabs.



**Assembly:**

Tear off fixed Velcro tabs of shoulder strap and back strap to assembly.



#### 4.3.2. Leg straps

Unlock the buckle and remove the leg straps.



### 4.4. Cleaning

#### 4.4.1. Fabrics Cleaning

- 1、 Remove the robot straps;
- 2、 Wash the straps with neutral detergent in clean water.
- 3、 After cleaning, dry them and install them on the robot.
- 4、 Or you can wipe the fabric with a non-dripping wet rag to remove dust and dirt or with alcohol wet towel for disinfection.

#### 4.4.2. External Surface Cleaning

Wipe the robot with a non-dripping wet rag to remove dust and dirt or with alcohol wet towel for disinfection.

 **CAUTION: do not wash or soak with water when cleaning, that will damage robot.**

## 5. Common Troubleshooting

Malfunctions	Reason Analysis	Problem Solving
<b>Can't power on</b>	1. Battery is not installed 2. Emergency switch is not closed 3. Battery is exhausted	1. Load battery 2. Close the emergency switch 3. Charge the battery
<b>No power output</b>	● key blinking, power pause	Press ● key to select mode
<b>No power output</b>	"Wear detection failed, press key to retry"	Refer to sections 2.3 and 3.1 to adjust the height
<b>No power output</b>	"Please stand at attention"	Stand at attention and wait for dress test
<b>High temperature shutdown</b>	Voice announcement "Temperature too high, device will shut down soon"	Please use in suitable ambient temperature
<b>Robot failure</b>	Voice announcements error and ● key red indicator flashes	Please contact the after-sales service
<b>Other faults</b>		Please contact the after-sales service

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

## 6. Technical Parameters

Product model	Q20
Maximum assistance	20kg
Population	150cm~190cm
One charging endurance	6~8h, battery replaceable
Charging time	1.5h
Operating ambient temperature	-20 °C~45 °C
Charging ambient temperature	0 °C~45 °C
Voltage	Robot limit voltage: Maximum 42V Charger limit voltage:100V~240V 50/60Hz
Bluetooth	BLE: 2402-2480 Mhz, EIRP: -4.0 dBm (Max)

## 7. Service & Support

APP download:



Android Phone



Iphone



Video guide

(password: kenqing)



official website

Address: A1, 1/F, Block A, Shanshui Building, Nanshan Yungu Innovation Industrial Park, Liuxian Avenue, Nanshan District, Shenzhen, China.

Contact: 400-876-8873.