

# KS-S22 Pro User Manual



# CAUTIONS

Electric unicycle is designed for the outdoors and short distance personal transport.

**SAFETY IS THE NUMBER ONE PRIORITY!**  
**PLEASE RIDE UNDER LOCAL LAW!**

The user manual below is a quick and convenient guide of safety & item functions/features to end user. We can't ensure all types of situation emergency are covered. Therefore, we **STRONGLY** remind you to read this guide very carefully, and ride with attention to ensure your safety.

Riding like all outdoor activities comes with it's risks. You risk serious danger and injury if you fall, collide or lose of control when riding, please ride with caution and at your own risk.

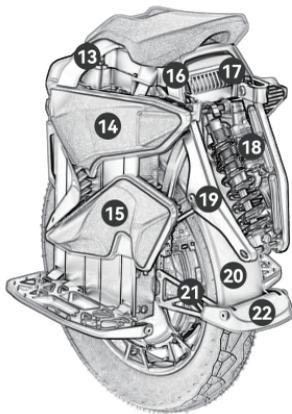
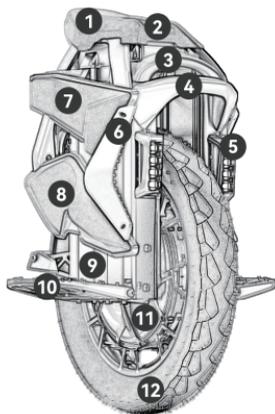
Thanks you for purchasing King Song smart electric unicycle!

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# 1. Product Details

## 1.1 Diagram: KS-S22 Pro



1. Seat cushion

2. Display

3. Trolley

4. Front Handle

5. Front Light

6. Position-limiting device

7. Upper-right leg protection cushion

8. Bottom-right leg protection cushion

9. Battery

10. Pedal

11. Motor

12. Tire

13. Knee protection cushion

14. Upper-left leg protection cushion

15. Bottom-left leg protection cushion

16. Rear Handle

17. Taillight

18. Suspension

19. Suspension bracket

20. Mud Flap

21. Rack

22. Foot Stand

23. Power Button

24. Charger Port

## 1.2 Specifications

Model No	KS-S22 Pro
Rated Power	4000W
Peak Power	8500W
Max Speed	Full speed unlocked after 5km. Max speed of 70km/h (Factory alarm settings: 18km/h first level alarm, 19km/h second level alarm, 20km/h third level alarm and warp plate).
Grade-ability	Around 40°
Battery	Rated Power: DC 111V Top Charging Voltage: DC 126V Rated Capacity: 2220Wh Smart BMS with balance and protect overshoot / over discharge / over-current / short circuit / overheating function, support monitoring the battery conditions via KingSong APP
Mileage	Around 200kms
Max Load	120kg

Adapter Specs	Input AC 100~240V / Output DC 126V 5A
Charging Time	Around 4-5hrs
Working Temperature	-10°C / +60°C
Color	Red
Dimension & Weight	
Suspension	DNM RCP 2S 750lb Spring Suspension
Suspension Travel	Using a variable lever the wheel has dampening travel distance of 130mm, which is transferred to the rear spring suspension with a travel distance of 75mm.
Headlight	5W*8
Pedal Size	277*130mm
Pedal Height	231±26mm
Tire Size	20 inch
Rim Size	2.75-14
Product Size	582(L)*330(W)*747(H)mm

Package Size	680(L)*330(W)*970(H)mm
Weight	Around 35kg
Port	Dual GX16-6 aviation charging port; power switch; light sensor port
Protective Measures	
Lift Sensor	Lift sensor accurately senses and determines when wheel is lifted off the ground to stop tire rotation.
Roll Protection	45° left and right side. ( Motor stalls when over 45° ) Place the machine vertically on the ground will restart automatically, no need to restart manually.
Speed Limit Protection	Beep alarm or voice alarm when exceed limit speed
Low Battery Protection	Low battery protection activated on 30% battery, speed will decreases linearly; when the battery is lower than 5%, voice alarm for charge, when battery at 0%, the front part of the pedal will rise to decelerate until full stop
Higher Temperature Protection	When the motherboard reaches 80°C it will result tilt-back. When the motor reaches 120°C it will result in tilt-back.

Motherboard Waterproof Protection	The U-shaped groove between the motherboard base and the upper cover is connected with a silicone sealing ring, which greatly enhances the waterproof performance and provides safe waterproof protection for the motherboard base
Pedals Anti-slip Protection	Uniform force on the pedals with raised small columns which is more effective than traditional sand sticking to protect anti-skid, greatly improving safety performance and riding experience
Foot Stand	Add foot stand, easy to open and close, no worry about crash the wheel when stop it
Power Pad	The left, right, upper and lower leg protection pad are ergonomically designed to use the safe foams, which is moderate, easy to accelerate and decelerate and also better to protect the body
Alarm & Features	
Switch On/Off	Short press power key: turn on Long press: hear a click then turn off
Battery Indicate	Led shows battery level when EUC power on at rest
Speed Indicate	LED dot matrix screen displays speed in riding mode

## Hardware Features

Main Board	The motherboard is designed with a 4 layer structure, allowing for better stability performance. 12 large individual TO-247 imported MOS to sufficiently support the 4000W motor. MOS is attached to the magnesium alloy body frame of the wheel, and 16 heat dissipation channels have been added to the bottom of the magnesium alloy motherboard base, for better heat dissipation, which provides a strong guarantee for fast and stable operation.
Bluetooth	Bluetooth 5.0. stronger compatibility and allowing strong stable data transmission.
Front Light	8*5W lights on the left and right, automatically adjust the brightness according to the speed (twice the S18), and the two lights can adjust the angle separately to 15°, which provide good lighting at night
Taillight	Red brake light at the tail and steering light are integrated
Display Screen	Integrate power, speed, and other information into one matrix display

Temperature System	Temperature of the motherboard and motor is continually monitored to ensure rider safety
Handle	Aluminum constructed handle designed for ergonomic pushing of the wheel or lifting of the wheel
Trolley	Independent trolley design, more portable to use
Motor	Higher power 4000w motor that provides a maximum torque of 200N.m providing fast acceleration
Battery	Using LG21700 5000mA batteries, the S22 Pro is designed with two independent batteries, the battery protection board adopts a new BMS battery management system, real-time monitoring of battery cell safety, aluminum body and battery box integrated design, the design is more reasonable and safer to use
Suspension System	Unique X shaped suspension system. Pro level suspension provides the ultimate support and shock absorption
Seat Cushion	Added a comfortable seat cushion for skilled and long-distance cyclists, ergonomic design, alleviating the toil of standing riding

Protection Pad	With the dual functions of acceleration pad and jump pad, the acceleration and deceleration during riding are more stable and safer
	Package
Standard Accessories	1x Charger, 1x Manual, 1xSeat Cushion, 1x QC certificate

## 2. Safety Instructions

● S22 Pro is an entertainment product, Which is different from motor vehicles driving on the road. Before mastering riding skills, you need to practice. Kingsong is not responsible for any injuries or damage caused by a rider's inexperience or failure to follow the instructions in this document.

● Please understand that you can reduce the risk by following all the instructions and warnings in this manual, but you cannot eliminate all the risks. Remember that whenever you ride the S22 Pro you risk injury or death from loss of control, collisions, and falls. When entering into public spaces always comply with

the local laws and regulations. As with other vehicles, faster speeds require longer braking distance. Sudden braking on smooth surfaces could lead to wheel slip, loss of balance, or falls. Be cautious and always keep a safe distance between you and other people or vehicles when riding. Be alert and slow down when entering unfamiliar areas.

- Respect pedestrians by always yielding the right of way. Pass on the left whenever possible. Avoid startling pedestrians. When approaching from behind, announce yourself and slow down to walking speed when passing.

- In places without laws and regulations governing self-balancing electric vehicles, comply with the safety guidelines outlined in this manual. Kingsong is not responsible for any property damage, personal injury/death, accidents, or legal disputes caused by violations of the safety instructions.

- Make sure each new rider wears a helmet and other protective gear.

- Before each ride check for loose fasteners, damaged components, and low tire pressure. If the S22 Pro makes abnormal sounds or signals an alarm, immediately stop riding. Contact your dealer/distributor for service.
- Always wear a helmet when riding. Use an approved bicycle or skateboard helmet that fits properly with the chin strap in place, and provides protection for the back of your head.
- Do not attempt your first ride in any area where you might encounter children, pedestrians, pets, vehicles, bicycles, or other obstacles and potential hazards.
- Use caution when riding in new environments.
- To reduce risk of injury, you must read and follow all “WARNING” notices in this document. Do not ride at an unsafe speed. Under no circumstance should you ride on roads with motor vehicles. Always follow these safety instructions:

- A) The following people should not ride S22 Pro:
- i. Anyone under 18 years old or above 50 years old.
  - ii. Anyone under the influence of alcohol or drugs.
  - iii. Anyone who suffers from disease that puts them at risk if they engage in strenuous physical activity.
  - iv. Anyone who has problems with balance or with motor skills that would interfere with their ability to maintain balance.
- B) Comply with local laws and regulations when riding this product. Do not ride where prohibited by local laws.
- C) To ride safely, you must be able to clearly see what is in front of you and you must be clearly visible to others.
- D) Do not ride in the snow, in the rain, or on roads which are wet, muddy, icy, or that are slippery for any reason. Do not ride over obstacles (sand, loose gravel, or sticks). Doing so could result in a loss of balance or traction and could cause a fall.

- E) Do not accelerate or decelerate suddenly. Do not accelerate when the S22 Pro tilts back or sounds an alarm. Do not attempt to override the speed limiter.
- F) While the Kingsong App is useful, do not allow the App to distract you while you are riding. Always pay attention to your surroundings.
- Never restart and ride your S22 Pro after it has indicated an empty battery condition or powered off due to low battery. Your S22 Pro may not have enough power to keep you balanced, especially if you demand a lot of power at once. If you restart and continue riding, you risk falling. Also, you risk damaging your batteries, resulting in reduced battery life and capacity.
  - Do not insert the power cord if the charge port is wet.
  - Use a surge protector when charging to help protect your S22 Pro from damage due to power surges and voltage spikes. Do not use a charger from any other product.

- Always shut down your S22 Pro and unplug the AC Power Cord before performing any maintenance.
- Do not modify your S22 Pro. Modifications to your S22 Pro could interfere with the operation of the S22 Pro, could result in serious injury and/or damage, and could void the Limited Warranty.

### 3. APP

- For Android apk: Please download from Google play, 'kingsong' is the exact one.
- For IOS app: Please download from apple store, 'kingsong' is the exact one.



KingSong APP(Android)



KingSong APP(IOS)

## **4. Learn to Ride**

### **4.1 Precautions**

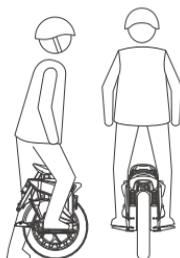
- Please find a surface to practice on.
- Warm up your body and ensure you're wearing safety gear such as helmets, knee pads, elbow pads and wrist guards.
- Ensure the wheel's battery level.
- Check the unicycle for imperfections such as any looseness, abnormal sound. We also highly suggest pushing the unicycle by ahnd to see if there's any friction between tire and the case of the wheel.
- Please do not accelerate or decelerate rapidly, please also try to avoid over leaning or leaning too fast to prevent rider injury.

### **4.2 Start Learning to Ride**

- Like riding a bicycle or unicycle, it takes a certain skill level to ride Kingsong S22 Pro. For different customers, it may take 2-20 hours to ride well.



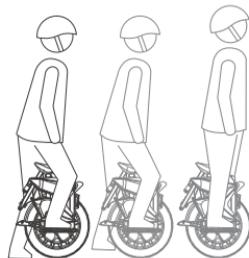
01. Get used to the way Kingsong S22 Pro: step on one pedal, then swing your leg back and forth to feel the controls.



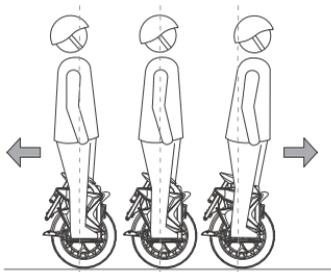
02. Using a friend, wall, or handrail: put both feet on Kingsong S22 Pro and practice riding slowly forward and backward.



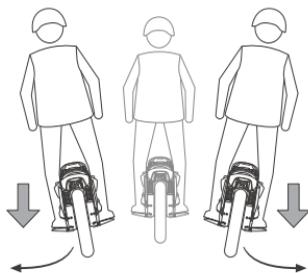
03. With one foot on a pedal, slowly lean forward. Push off with your other foot and glide for 1-2 seconds.



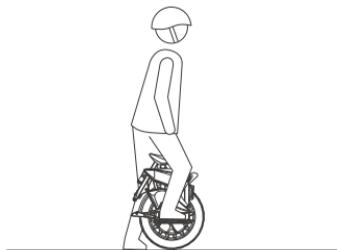
04. After you are able to comfortably glide for a few seconds, try gliding for 10-20 ft (3-5 m) with both feet on the pedals.



05. Practice travelling forward and backward by controlling your body's center of gravity. The further you lean, the faster you go.



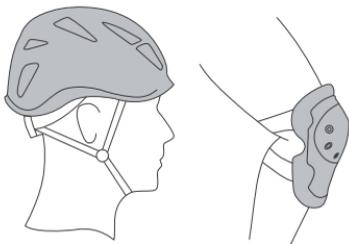
06. Turn by pressing harder on one pedal than the other, and by shifting your weight slightly.



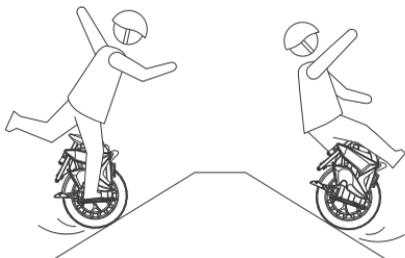
07. To get off: come to a stop by centering your weight, then step off Kingsong S22 with one foot.

## 5. Warning

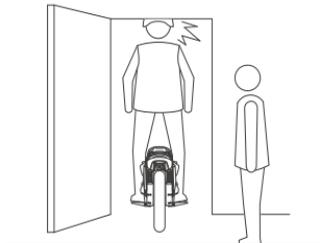
- You must read and understand the Warning Instructions section of this manual before attempting to ride the S22.



- Always wear a helmet and protective clothing when riding.



- Use caution when riding on slopes. Avoid riding on steep slopes.



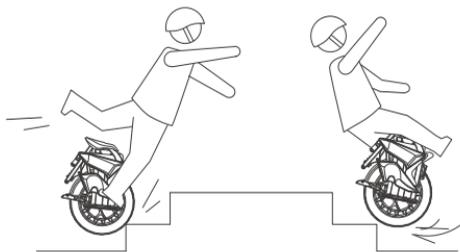
- Watch your head when passing through doorways.



- Use caution when riding over any changes in terrain.



- Do not ride on limited traction surfaces.



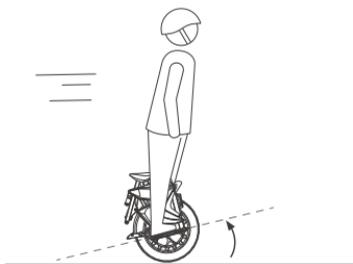
- Do not ride over holes, curbs, steps, or other obstacles.



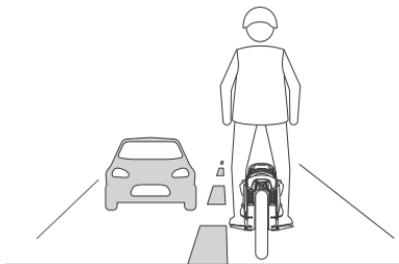
- Do not rock back and forth or shift your weight abruptly.



- Do not ride double or carry any passengers.



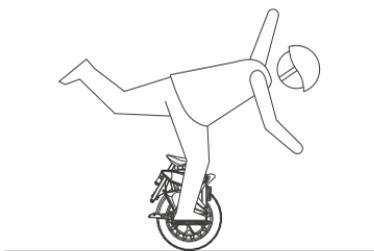
- Do not accelerate when the Kingsong S22 tilts back or sounds an alarm.



- Do not ride on public roads, motorways, or highways.



- Do not exceed the speed limit of 70km/h.



- Do not ride with single leg on the pedal



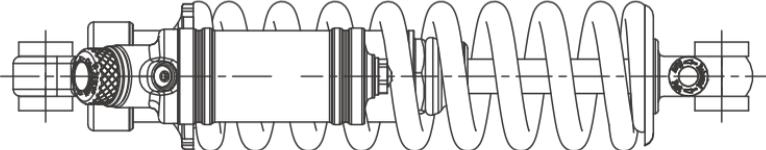
- Maintain contact with the ground at all times. Do not jump or attempt stunts.



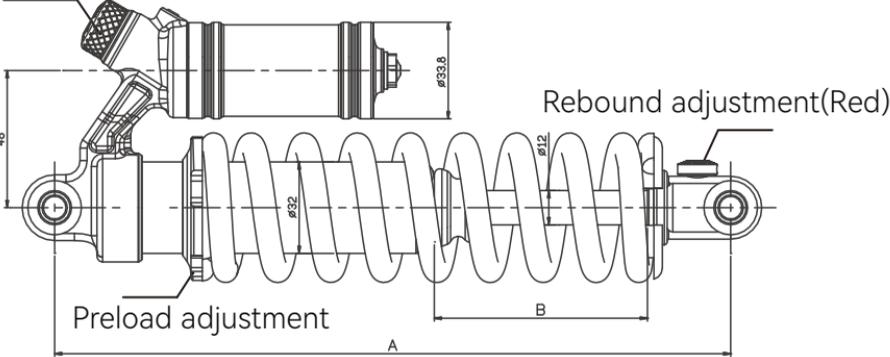
- Do not get wet. Do not ride through puddles or other bodies of water.

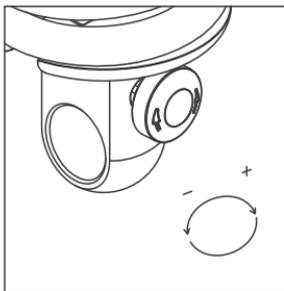
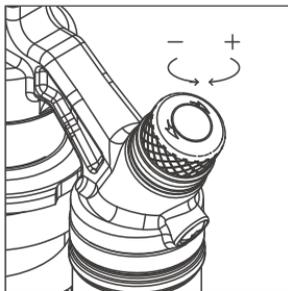
# 6. Suspension

## 6.1 Spring Suspension Description



Compression adjustment(Blue)





specification

A Total Length	B Route
190±2	51±2
200±2	56±2
210±2	61±2
220±2	66±2
240±2	76±2
265±2	85±2

### ! Compression adjustment

- + direction rotation, pressure increase
- direction rotation, pressure decrease

### ! Rebound adjustment

- + direction rotation, damper increase(slow)
- direction rotation, damper decrease(fast)

## 7. Maintenance

### 7.1 Cleaning

#### **WARNING**

- Make sure the S22 Pro is powered OFF, the charge cable is unplugged, and the silicone cap on the charge port is tightly sealed before cleaning; otherwise you may expose yourself to electric shock or damage the electronic components. Do not wash your S22 Pro with a power washer or high pressure hose.
- Wipe your S22 Pro clean with a soft, wet cloth. For stubborn stains, use a toothbrush and toothpaste.

#### **NOTE**

- Do not wash your S22 Pro with alcohol, gasoline, acetone, or other corrosive/volatile solvents. These substances may damage the appearance and internal structure of your S22 Pro.

#### **Storing**

- Store the vehicle in a cool, dry place. Do not store it outdoors for extended periods of time. exposure to excessive

sunlight or temperature extremes (both hot and cold) may affect the vehicle's appearance, battery life, and tires.

## 7.2 Battery Maintenance

### WARNING

- Do not attempt to disassemble the battery.
- Do not allow the battery to get colder than  $-20^{\circ}\text{C}$  or hotter than  $50^{\circ}\text{C}$ , e.g. in a car. Do not expose the battery to fire. Do not discard or destroy the battery. Refer to your local laws and regulations regarding battery recycling and/or disposal.
- To extend the battery's life, charge it frequently and avoid draining the battery completely. At  $30^{\circ}\text{C}$  the battery range and performance is at its best; whereas at temperatures below  $0^{\circ}\text{C}$  range and performance are decreased. Typically, at  $-20^{\circ}\text{C}$  range can be half that of the same battery at room temperature. Battery range will recover when temperature rises.

Temperature( $^{\circ}\text{C}$ )	-20	-10	0	10	20	30	40	50
Range	40%	60%	80%	90%	95%	100%	105%	110%

## **NOTE**

A fully-charged S22 Pro can be stored for about 120 to 180 days before requiring charging. Completely draining the battery may cause permanent damage to the battery. Electronics inside the battery record the charge-discharge condition of the battery; damage caused by over-discharge or under-discharge will not be covered by the Limited Warranty.

## **8. Warranty**

For warranty policy, please consult with the point of purchase or email to the manufacturer's service team:

**[support@szkingsong.com](mailto:support@szkingsong.com)**

Again, we appreciate your purchasing of Kingsong products.







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