



Please do not use Vehicle before you read this manual carefully and know function of it.  
Please keep this manual carefully.

# EKON 450M2 USER MANUAL



# EKON 450M2 User Manual

Welcome to join SPIRO family! We will guide you to understand every function of EKON 450M2 electric motorcycle and use EKON 450M2 electric motorcycle correctly and safely. To ensure your safety, please read this manual carefully before riding and ensure that you always comply with the following requirements:

Fully understand information in this manual, including but not limited to relevant instructions, precautions and warning information.

Fully understand the operation and emergency measures for EKON 450M2 electric motorcycle.

Pay attention to warning labels of electric motorcycle.

SPIRO will not assume any responsibility arising from unauthorized modification, failure to use original accessories, or installation of components that affect the performance and safety of the motorcycle.

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Please contact SPIRO Customer Service Center at

**Email: [info@spironet.com](mailto:info@spironet.com)**

Should you have any problem on this motorcycle. we will always at your service. Wish you a safe and happy journey!

## Safety Instructions

Please read this product manual carefully, and please do not use this product until you have known the characteristics of the electric two-wheeled motorcycle.

Please abide by traffic rules, do not retrograde or run red lights and do not use mobile phone while riding the motorcycle.

Please don't use third-party accessories or disassemble, crack and modify the motorcycle without authorization, otherwise the losses arising therefrom will be borne by you, and you will lose the right to enjoy our warranty service.

Due to the continuous improvement of the product, the vehicle you purchased may be slightly different from the vehicle described in this manual, and the actual motorcycle shall prevail. If you are unclear about the use, repair and installation of this vehicle, please contact our dealer.

 For the safety of you and others, please read the following instructions carefully:

The rider should abide by traffic rules and pay attention to the traffic safety.

Before riding the motorcycle, please carefully read the Product Manual and carefully check whether all parts are in good condition, so as to guarantee the traffic safety. If any problems are found, please contact the dealer in time.

To ensure your safety, please wear safety helmet, gloves and other protective equipment when driving motorcycles. Please don't wear loose clothes, otherwise you will be uncomfortable and unsafe when driving the motorcycle.

Please make sure that you are in good health and not tired, so that you can control the vehicle in a good state. Please don't ride the motorcycle after taking drugs, medicines and drinking alcohol.

This motorcycle can resist rain and snow, but can't excessively wade into the water. When the water level exceeds 20 cm, if the motorcycle wades into water, all electrical components and lines may be short-circuited!

Please obey the traffic rules, and slow down the electric motorcycle when the weather is rainy or snowy or the road is slippery. When braking the motorcycle, the braking distance should be increased to ensure safety.

Please do not disassemble the components and parts by yourself.

Do not park the electric motorcycle on the hall, escape stair, passageway or safety exit;

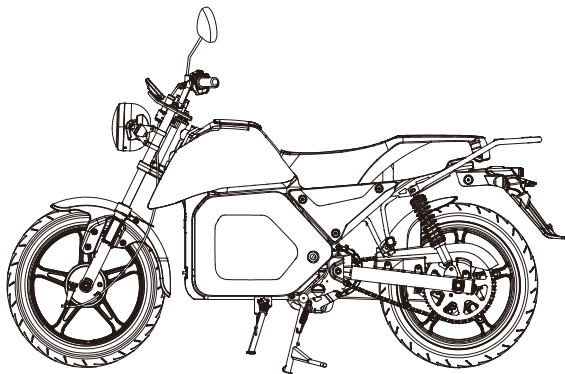
Please do not charge or park the electric motorcycle in the residential building. When charging an electric motorcycle, the electric motorcycle should be kept away from combustibles and the charging time should not be too long.

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## **Product Overview**

Thank you for purchasing the EKON 450M2 electric two-wheeled motorcycle, which is hereinafter referred to as EKON 450M2.

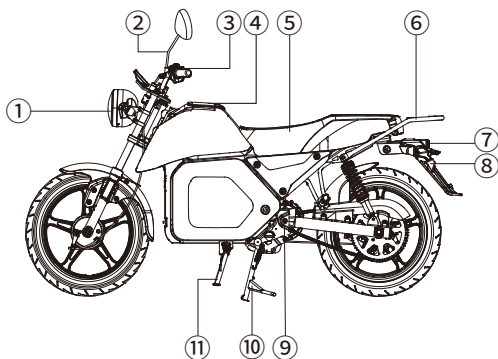
### **Schematic Diagram of Body and Components:**



## Description of Parts

Left Side

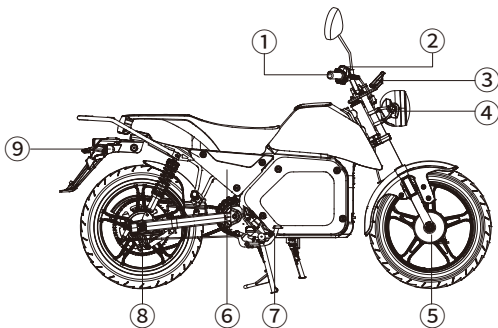
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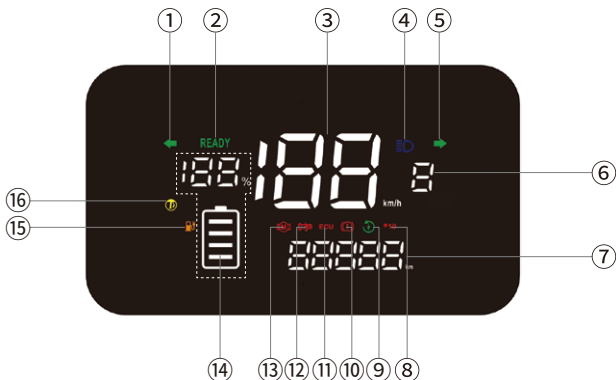
- ① Headlamp
- ② Rear view mirror
- ③ Left combination switch
- ④ Storage box
- ⑤ Seat Cushion Assembly
- ⑥ Rear armrest
- ⑦ Tail Light
- ⑧ Rear License Plate Light
- ⑨ Motor
- ⑩ Middle stand
- ⑪ Side stand

## Right Side

- ① Throttle
- ② Right Switch Assembly
- ③ Display
- ④ Left /Right Turn Signal
- ⑤ Front drum brake
- ⑥ Controller
- ⑦ Rear brake pedal
- ⑧ Rear drum brake
- ⑨ Left/Right Turn Signal



## Instrument and Combination Switch



### ①. Left turn signal

Turn on the right turn signal lamp, the indicator flashes.

### ②.READY light

The vehicle is started and ready to start running

### ③.Speed per hour

Display current speed.

### ④.High beam

The indicator will light up when the high beam is turned on.

### ⑤.Right turn signal

Turn on the right turn signal lamp, the indicator flashes.

### ⑥.Gear display

Display the current gear

### ⑦. Mileage Display

Upon startup, total mileage is displayed. After 5 seconds, trip mileage is shown

### ⑧. Odometer Multiplier

When total mileage exceeds 99,999 km, the display scales up: The ones digit becomes tens. Mileage such as 100,010 km is shown as 10001 followed by the '×10' symbol.

### ⑨.Energy Recovery

(If equipped)

### ⑩. Brake light

This light comes on when braking.

### ⑪.ECU controller failure

### ⑫.Throttle Handle Malfunction Indicator

Illuminates when a fault is detected in the vehicle's throttle handle system.

### ⑬.Motor fault indicator

The motor has malfunctioned. This indicator is on.

### ⑭. Battery Display

Shows battery level as a percentage and with battery bars.

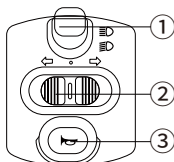
### ⑮.Low battery indicator

When the power is less than 15%, the indicator lights up

### ⑯.Side Stand Safety Cutoff

Automatically deactivates the propulsion system when the side stand is deployed.

# Schematic Diagram of Combination Switch



Left hand combination switch

**① High/low beam**

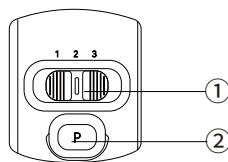
Turn the switch upward, the light is high beam; Turn the switch downward, the light is low beam.

**② Steering lamp**

Turn the switch to the left to turn on the left turn signal;  
Turn the switch to the right to turn on the right turn signal;  
Turn the switch to the middle position to reset the switch, and turn off the left/right turn signal.

**③ Horn**

After pressing the horn button, the horn rings; after releasing the horn button, the horn stops ringing.



Right hand combination switch

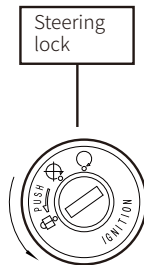
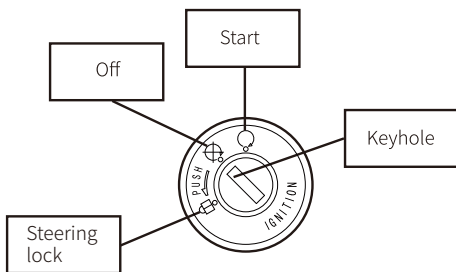
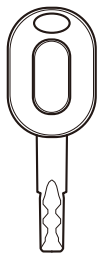
**① Gear mode**

Press the left, middle and right buttons to adjust the gear.

**② Electric start**

Click the button to enter the power-on status.

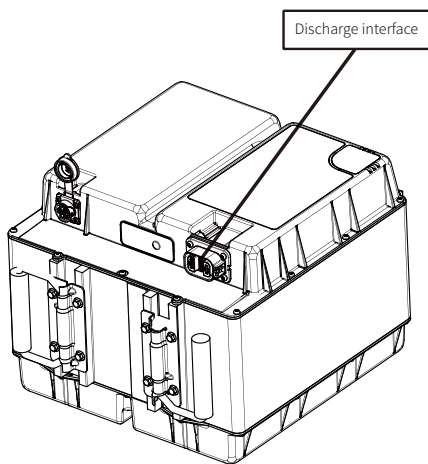
# Mechanical Key



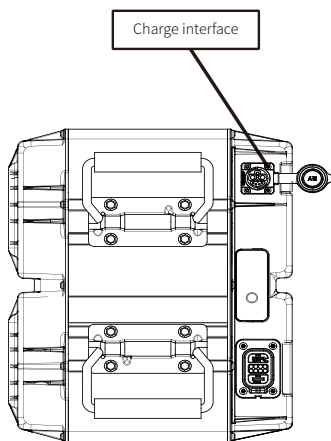
# Battery and Charger

## Battery Use Instructions

The vehicle has one charging mode: battery charging.



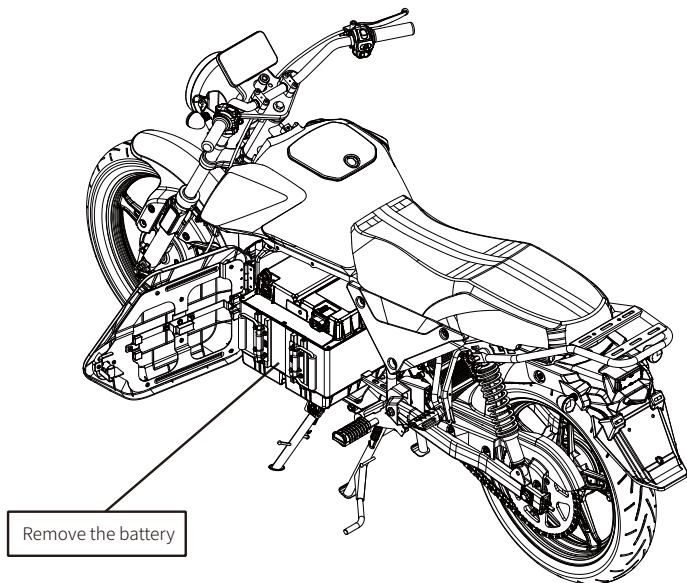
BATTERY



BATTERY

Take out the battery, plug the charger into the charging interface, then plug into the socket and press the battery start button. Then the power indicator will light up and display the real-time power.

## Remove the battery



## Charging interface

Description of battery power indicator

In the charging state, the indicator light shows the battery power. After the battery is fully charged, all indicator lights are normally on and will no longer flash.

**In the Non-Charging state, press the power display button:**

In the normal state, the indicator shows the battery power.

Each grid displays 20% of power.

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## Battery Manual

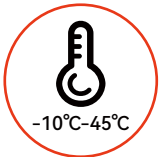



Before using the battery, please make sure that the battery is the original battery, and do not use other brand or type of battery.

Check whether the appearance of the battery is intact, and ensure that there are no obvious phenomena such as damage, liquid leakage, overheat, water immersion and smoke.

In order to ensure transportation safety, the power of the battery when leaving the factory is about 50% (when transported by air, the power of the battery leaving the factory is about 40%). Due to self-consumption factors such as transportation cycle and storage cycle, when using the battery for the first time, the battery will have low or no power, which is a normal phenomenon. Please don't worry, just charge it according to the charging instructions.

Waste batteries shall not be dismantled without authorization, and shall be recycled by relevant professional department.

## Use Environment

 <p>-10°C-45°C</p>			
<p>Please use the battery at -10°C~45°C</p>	<p>Please avoid the battery being soaked by liquid such as water, beverage and corrosive liquid</p>	<p>Please avoid keeping the battery close to heat source, open flame and inflammable and explosive gas (liquid)</p>	<p>Please avoid metallic foreign body from entering the battery box</p>

At low temperature, the available capacity of the battery will decline in different degrees.

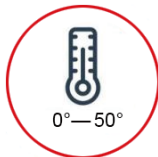
In case of abnormal conditions such as peculiar smell, overheat and deformation, please stop using the battery immediately, stay away from the battery and contact the dealer.

The battery is not the component that can be repaired by the user. In case of abnormal phenomenon, please contact the dealer. If the battery is disassembled without permission, the user will not enjoy the three-guarantee service, and the battery may be heated, smoked, on fire or exploded.

## Charging Environment



Please use the original charger to charge the battery, and do not use other brand or type of charger to charge the battery.



Please charge the battery at the ambient temperature of 0°C~50°C



Please do not charge the battery for more than 8 hours, otherwise the service life of the battery will be affected.

- In the early stage, the charging speed is fast, and in the later stage, the charging speed is slow, which is because that the procedure is set for charging safety and belongs to the normal condition.
- In the winter, if the outdoor temperature is low and below 0°C, the charging will be suspended, which is a normal phenomenon. Please charge the battery at a suitable ambient temperature to ensure the charging effect.
- During charging, some aluminum shell chargers have the thermal effect, and the surface temperature is high, which is a normal phenomenon, so please feel free to use the charger. Please avoid children touching the charger.

## Precautions for Charger Use

- The charger can only be used indoor.
  - It is strictly forbidden to charge the battery in a confined space or in the high temperature environment, and the battery shall not be placed in the seat bucket or tail box during charging.
  - During charging, plug the battery, then connect the charger to the commercial power; After the battery is fully charged, cut off the commercial power and then unplug the battery.
  - When the green light is on, please cut off the power in time. It's forbidden to connect the charger to the AC power for a long time when the battery is not being charged.
  - In the charging process, if the indicator is abnormal, the charger has peculiar smell or the charger shell is overheated, please immediately stop charging the battery and repair or replace the charger.
  - Please do not disassemble the charger or replace the components in the charger by yourself.
  - When the charger is replaced, the new charger should match the battery model.
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## Storage Environment


- If the battery is placed on the vehicle, the battery power will be consumed in real time due to the operation of the alarm system. After being placed on the vehicle for a period of time, the instrument shows that the electric quantity is reduced, and this is normal.
- Please store the battery in an environment at 10°C~30°C, and do not store the battery in the environment at the temperature higher than 40°C, otherwise the capacity of the battery will be irreversibly attenuated.
- In winter, summer or other special circumstances, if the vehicle is not used for a long time, the battery must be taken out of the vehicle, stored separately, maintained and charged regularly, otherwise the battery may be completely drained and irreversibly damaged. With regard to such problems, the battery failure will not be covered under warranty.

- When the battery is stored for a long time, the most suitable battery power is 50%. If the battery power is too low, the battery capacity will be irreversibly attenuated.
- With regard to the self-consumption protection mode when the lithium battery is stored safely, the technical standards are as follows:

1.If the battery is not used for a long time, it can be stored on the vehicle (the battery plug is not unplugged) and the maximum safe storage period is 15 days, otherwise the battery feeding may be caused and the battery cannot be restored.

2.If the battery is not used for a long time, the power is no less than 50% and the battery is stored separately and stored on the vehicle (the battery plug is unplugged), the maximum safe storage period shall be 1 months, otherwise the battery feeding may be caused and the battery cannot be restored.

- Please do not store the battery in a place with the falling risk, otherwise the battery will be damaged uncontrollably and the battery will be leaked, heated, smoked, on fire or exploded.

 Undervoltage and feeding of the battery caused by improper use will not be covered under warranty.

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## Precautions for Battery Use:

- When using the battery for the first time, please drain the battery as much as possible, then fully charge it before formally using it, so as to ensure that the actual capacity of the battery is as accurate as the electric quantity displayed on the instrument.
- In the later period, please keep the battery power at least 20% and charge the battery in time, so as to prolong the service life of the battery.
- When riding a motorcycle normally, it is recommended to control the speed at the middle speed. When starting the motorcycle, please slowly operate the throttle handle and gradually accelerate the motorcycle, thus extending the battery life.
- When the battery is used for many times, there will be a deviation between the actual capacity of the battery and the electric quantity displayed on the meter. Please charge and discharge the battery completely at regular intervals (no more than 3 months). The internal battery core and intelligent system can automatically calibrate the electric quantity of the battery, thus improving the experience effect.
- It is recommended to check the power plug of the battery every two months, and confirm whether the contact reed has the phenomena such as carbon deposition and oxidation (blackening). In case of these phenomena, please contact the dealer for maintenance.



The battery shall not be caught in the rain or flushed by water, and shall not be soaked in water. If the vehicle wades into the water, the water level shall not exceed the height of the battery compartment, otherwise the water will enter into the battery and the battery will be short circuited, thus causing the permanent battery failure. In this case, it is forbidden to charge the whole vehicle or battery again, otherwise the battery may be on fire, burned and exploded. Please transfer the battery to the dealer for maintenance immediately.

# Riding Guide

## Precautions for Preparation

Drinking is a direct cause of death in motorcycle driving. Every year, 50% of drivers die from driving after drinking. Do not drive after drinking

Before your first drive, we strongly request you to:

Read the user manual;

Confirm that you have fully understood all safety information;

Understand how all control accessories work;

Before your first drive, please confirm that you:

Are in good physical and psychological conditions;

Wear helmet (fasten connecting shackle of the helmet and the safety belt), glasses and other protective clothing;

Do not drive after drinking or taking medicines;

## Protective Clothing

For safety consideration, we strongly recommend that you always wear qualified helmet, glasses, boots, trousers and long sleeves or jackets when driving.

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## Warnings

In a collision, not wearing a helmet may increase the risk of injury or death. Please make sure to wear helmet, glasses and other protective equipment at all times when driving.

## Driver Training

It's necessary to improve your driving skills. Even if you have the experience of riding other motorcycles before, you still need to take time to get familiar with the working principle and driving control of EKON 450M2. Please practice driving the motorcycle in a safe place until your skills are mature and you have got used to the size and weight of EKON 450M2.

We request all drivers to take driving courses certified by local government. New drivers should attend basic training, even experienced drivers can benefit from advanced courses.

## Inspection before riding

### Cautions

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When inspecting EKON 450M2, should you find any damage or problem, please correct it or have it corrected with assistance from authorized dealer before riding.

Before riding the EKON 450M2 electric motorcycle, please check the following items to ensure your safety on road.

Whether the handle rotates stably and flexibly.

Can left/right handle switch work normally.

Can the speed control handle work normally.

Ensure normal pressure of tire. Suggested tire pressure: 32psi for front and rear wheels.

Check the tire surface for fracture, damage, wear or foreign matter piercing or adhesion.

Whether the tread depth is sufficient (> 0.8mm).

Is there any fault alarm lamp on the instrument panel on.

Is the battery fully charged.

Can the headlamp, tail lamp, stop lamp and turn signal lamps work normally.

Can the horn work normally.

Are rearview mirrors clean. Adjust them to proper angle.

Is the brake oil sufficient. Can handles and brake system work normally.

Should there be any abnormality or operation issue, please contact SPIRO customer service center.

**Email: [info@sironet.com](mailto:info@sironet.com)**

# Restrictions and Guidelines on Roads

## General Information

### Cautions

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Overloading or improper loading may lead to abnormal motorcycle operation, which may cause serious injury or death. Please follow all load limits and other loading information in this manual.

## Loading Instructions

The technically permissible maximum laden mass of EKON 450M2 is 270KG, including weight of driver and passenger(s), as well as all components of the vehicle body. Your EKON 450M2 shall be preferentially used for you and your passenger(s). However, if you want to load more goods, we suggest to use saddle bag.

Please check with your dealer about the correct loading method and capacity range of EKON 450M2.

Improper loading may affect the stability and maneuverability of EKON 450M2. Even if your EKON 450M2 is correctly loaded, you should drive within safe speed range.

When loading goods, please following the following rules:

Check whether the two tires are properly charged;

If you change your normal load, you may need to adjust the way the goods are hung;

To prevent goods from loosening which may cause hidden danger, please ensure that all goods are firmly bound;

Lower the center of gravity of goods and make it as close as possible to your own center of gravity;

Distribute the weight of goods evenly on two sides of the vehicle body;

## How to start the vehicle

EKON 450M2 can be started in two ways: **by mechanical key**;

**Start the vehicle by using mechanical key:**

Step 1 Please wear a safety helmet, sit on the vehicle, insert the key to rotate the ignition lock to the starting state, and then start the vehicle.

Step 2 Please retract the side stand/middle stand, and press the "Start Switch",then the instrument displays "READY".

Step 3 Turn the throttle handle gently and enjoy your first riding.

## Instructions for Braking

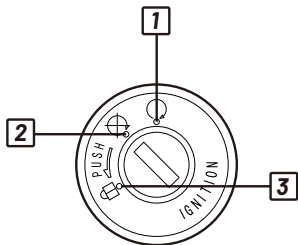
- Before riding the vehicle, it is necessary to check whether the front and rear brake handles can work normally
- Excessive sudden braking may cause dead lock and slide of wheel, reducing control over the motorcycle. In this case, release the brake lever and continuously drive forward until the control restores, then brake more gently.
- Decelerate or completely stop before turning as far as possible. Avoid braking in turning which may cause slide of one or two wheels and reduce control over the motorcycle.
- The ability to brake in turning and emergencies is an important riding skill. We suggest taking a safety basic experience training course for motorcycle drivers to obtain these skills.
- When riding in wet or rainy conditions or on soft ground, the maneuverability and braking capacity of motorcycle will be weakened. In this case, all your actions shall be slowed down; sudden acceleration, braking or turning may lead to loss of control over the motorcycle. For your safety, please be careful in braking, accelerating or turning.
- On long steep road section, intermittent use of brake and continuous braking may overheat the brake and reduce its working effect.
- When riding, if your foot rests on the brake or your hand rests on the brake lever, the stop lamp may be turned on by mistake, giving wrong signal to other drivers; this may also overheat the brake and reduce its working effect.

# Closing the Riding System

The methods of turning off the riding system are as follows:

1. Lay down the side stand, the "READY" on the instrument will not light up, the electrical system of the whole vehicle is in standby state, and the vehicle will not move forward after the throttle is turned.

2. If the vehicle is started with a mechanical key and front lock, directly turn the front lock key to position 2 and the electrical system of the whole vehicle is turned off.



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## Product Manual

Due to the continuous improvement of our products, design changes and other reasons, the product described in this manual may be inconsistent with the product you purchased. Please refer to the actual products.

## Maintenance Plan

When a new motorcycle reaches a range of 1000 km or service life of two months (whichever comes first), the first inspection and maintenance shall be carried out in the service center.

Regular inspection and maintenance for each 3000km or 6 months (whichever comes first) are recommended in the service center.

## Service Tips

Please turn off the vehicle power before cleaning the vehicle.

Do not flush with strong water jet directly which may cause fault to mechanical components by damp.

Vehicle Maintenance Plan-EKON 450M2						
Items	Inspection items	First maintenance 1000KM / 1 month (whichever comes earlier)	Routine maintenance Every 2000KM / 3 months (whichever comes earlier)	Major maintenance Every 10000KM/12 months (whichever comes earlier)	Every 20000KM	Remark
Plastic Parts	Inspection to appearance and gap of the vehicle's plastic parts	√	√	√		
	Inspection to appearance of vehicle lighting fixtures	√		√		
	Inspection to vehicle rearview mirror	√		√		
	Inspection to seat cushion and seat cushion Lock	√		√		
Structural Parts	Inspection to nut fasteners for key components of the entire vehicle	√	√	√		Details can be found in the torque list
	Inspection to middle stand/side stand	√	√	√		
	Inspection to tires	√	√	√		
	Inspection to rear fork	√	√	√		
	Inspection to seat cushion lock	√	√	√		

Items	Inspection items	First maintenance 1000KM / 1 month (whichever comes earlier)	Routine maintenance Every 2000KM / 3 months (whichever comes earlier)	Major maintenance Every 10000KM/12 months (whichever comes earlier)	Every 20000KM	Remark
Brake System	Inspection to braking fluid			√		Replace in 2 years
	Inspection to abnormal braking noise	√	√	√		
	Inspection to brake pads		√	√		
	Inspection to brake hose		√	√		
	Inspection to brake switches		√	√		
	Inspection to brake handles		√	√		
	Inspection to brake discs		√	√		
Suspension Steering System	Inspection to front and rear shock absorbers			√		
	Inspection to handlebar and steering	√	√	√		
	Inspection to front tire		√	√		
Electric Parts	Inspection to power lock	√		√		
	Inspection to lighting fixtures			√		
	Inspection to instrument	√		√		
	Inspection to switches	√	√	√		
	Inspection to motor	√	√	√	√	

Items	Inspection items	First maintenance 1000KM / 1 month (whichever comes earlier)	Routine maintenance Every 2000KM / 3 months (whichever comes earlier)	Major maintenance Every 10000KM/12 months (whichever comes earlier)	Every 20000KM	Remark
Electric Parts	Replacement of motor oil seal				√	Replace at 10,000KM
	Replacement of motor bearing				√	Replace at 20,000KM
	Inspection to power handle		√	√		
	Inspection to controller	√	√	√		
	Inspection to horn	√	√	√		
Wiring	Inspection to power connection in main cable	√	√	√		
	Inspection to motor circuit		√	√		
Drive System	Chain tightness and abnormal noise inspection	√	√	√		Per 1000KM
	Appearance inspection of chain disk teeth	√	√	√		Replace at 20000KM
Cleaning	Inspection to appearance cleaning	√	√	√		
	Inspection to vehicle's cleaning	√	√	√		

# Troubleshooting

Troubleshooting of the Whole Vehicle		
Phenomenon	Cause	Treatment Method
Turn on the power switch and the vehicle has no power output	The vehicle is not powered	Treatment Method 1 Check whether the connectors of the battery are plugged on the vehicle properly 2 The battery is under undervoltage condition, please charge the battery
Turn on the power switch, rotate the speed regulating handle, the motor is not started	1. The vehicle is in a braking state 2. The vehicle is in a parking state 3. The side stand is not retracted 4. The start switch has failure 5. The braking handle is not reset	1.Check whether the vehicle is in a braking state 2.Retract the side stand 3. Contact the after sales service personnel and check the automatic switch
The endurance mileage is insufficient	1. The battery is not fully charged 2. The tire pressure is insufficient 3. The vehicle is braked and started frequently and the vehicle is overloaded 4. The battery is aged or normally attenuated 5. The environmental temperature is too low and the battery capacity is reduced	1. Check the charger for damage 2. Check the tire pressure before each use 3. Develop good driving habits 4. Replace the battery 5. Normal phenomenon
The battery cannot be charged	1. The charger plug is not inserted into the socket properly 2. The battery temperature is excessively low 3. The battery temperature is excessively high	1. Check whether the plug is loose 2. Wait until the battery temperature is the charging temperature 3. Contact the after-sales personnel to check the battery status
The mobile phone cannot be charged through the USB interface	1.USB cable plug is not plugged in the interface properly 2. USB cable fails to meet the mobile standard 3. The USB charger is damaged	1.Check whether the cable plug is plugged in the USB interface properly 2. Please buy a connecting cable that meets the mobile standard 3. Contact the after-sales service personnel. Replace damaged parts

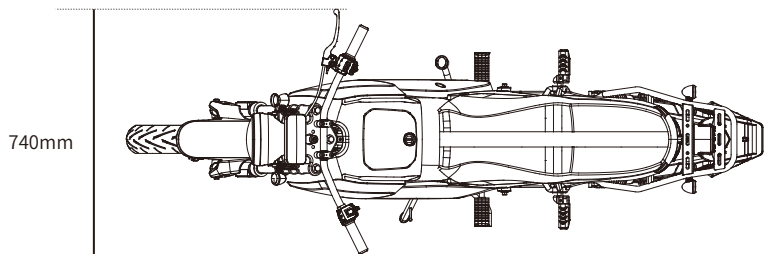
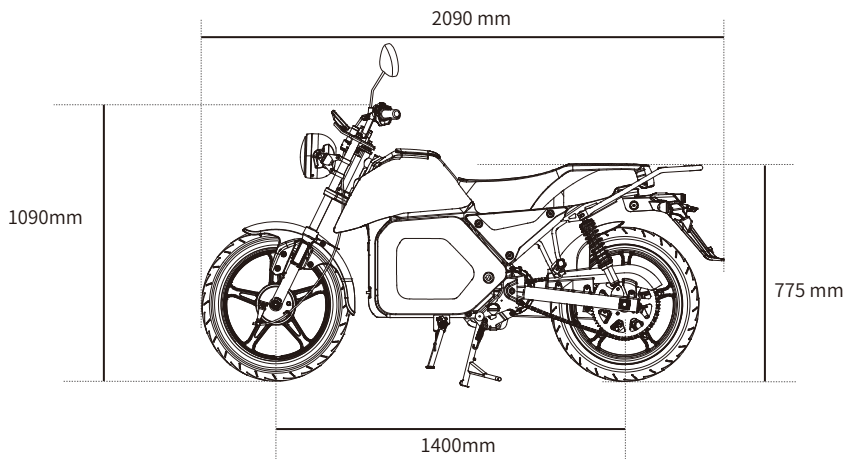
## Cleaning of the Vehicle

- Please mix tap water and neutral detergent to scrub the vehicle. After scrubbing the vehicle, wipe the surface with a soft cloth.
- Please do not directly flush both sides and inside of the instrument with a high-pressure water gun. Electronic components, such as charging interface and controller, are in the side cover above the footboard, so please do not flush them directly, so as to avoid the water damage.

## Safekeeping Method of Vehicle

- Please store the vehicle in a flat, solid, well ventilated and dry place. Please avoid the vehicle from being exposed to the sun and rain, so as to reduce the damage or aging of parts. When storing the vehicle for a long time, please refer to the contents about the battery in this manual.
- When the vehicle is used again after being stored for a long time, the battery should be fully charged;

## Basic Parameter



# SPIRO EKON 450M2

## DIMENSIONS



Length: 2090mm  
Width: 740mm  
Height: 1090mm  
Seat height: 775mm

Motor Type	Mid-motor
Controller	FOC
Battery	LFP Battery 72V, 46AH

## MEASUREMENTS

Front hub	MT 1.6×17	Wheel base	1400 mm
Rear hub	MT 2.15×17	Max.permissible Total Weight	270 KG
Front tire size	90/90-17	Wheel hub	Aluminium alloy
Rear tire size	110/80-17	Minimum ground clearance	135 mm

## ELECTRONIC PARTS SPECIFICATION

Rated Power	4.5kW	Braking System	Drum brake
Max Power	6.0kW	Charging Time (10A)	About 5h
Top Speed	75km/h	Maximum Torque	240N · m
Max. range	80km(one battery,at speed of 53km/h)		

## FEATURES

Removable Battery	Yes	USB	5V/1A
Lights	LED (front,rear)	Optional	Front Bumper/Rear Rack
Screen	LED		/Foot Rest

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