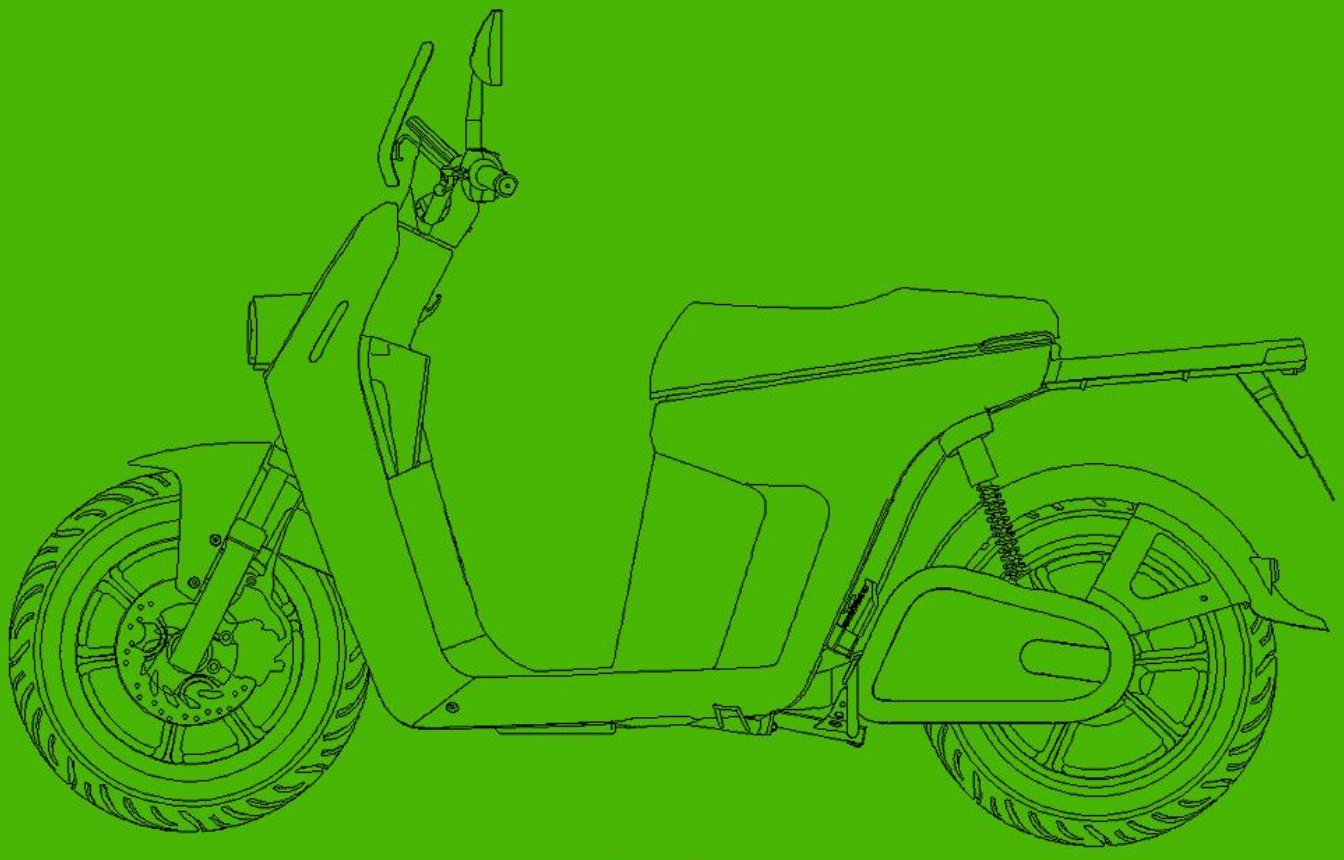


VS2

USER MANUAL

Please read this manual carefully before riding and get full knowledge of the structure, function,maintenance of the vehicle.

Manufacturer: Nanjing Vmoto Manufacturing Co Ltd
Address: NO15, Zhongxing East Rd, Lishui Economic Development Zone, Nanjing,CHN.

Vmoto reserves the right to change design and manufacturing
This manual may differ from actual product without notice.

NOTICE

General

To ensure your safety, please read this manual carefully before riding and make sure you are always following the requirements below:

①Fully understand the information in this manual, include but not limited to the relevant instruction, precautions and warnings.

②Fully understand the operation and contingency measures of VS2 smart electric bike.

③Be Fully aware of warning labels of VS2 smart electric bike.

④Don't disassemble vehicle or any parts, if need replacement, please contact local dealer.

⑤Please keep this manual carefully.

All parameters of this vehicle have been permanently set according to the national standard before leaving factory. The company is not responsible, if the original electrical or circuit has changed and caused excess, such as increase the speed.

Safety Notice

Please follow the safety notice below to keep the safety of both driver and others ：

①Don't lend your vehicle to someone who can't operate it in order to prevent any hurts.

②Please comply with local laws and regulations to drive on the road.

③Do not ride after you take medications which may affect your riding ability, drink alcohol, or when you are unwell.

④Observe traffic regulations and traffic signs, according to the provisions of laws and regulations to carry man and cargo.

⑤Confirm the surrounding road conditions and bike condition any time,so as to actively avoid danger.

⑥In rainy and snowy weather, braking distance will be extended, please slow down, Avoid travelling in bad weather such as storms and typhoons.

⑦Wear safety equipment, such as helmet, and appropriate protective clothing if necessary, such as gloves and mask.

⑧To ensure the safety of you and others, please avoid using the high beam under good lighting conditions. Continuous use of the high beam will cause visual obstacles to the opposite vehicles and pedestrians and affect the safe driving .

⑨Turn off the power and remove the key immediately after use. Do not allow children to play, so as to avoid loss to your family and property.

⑩Perform a basic check each time before riding, and regularly go for maintenance. Check before riding. If there is any abnormality, please timely carry out maintenance or seek professional maintenance.

a. Check the status of power circuit, lighting circuit, etc.

b. Check whether the front and rear brakes work normally.

c. Check fixing of handlebars、 front and rear wheels d. Check tire pressure.

Main technical parameters

A1 General	A1.1 Vehical Size mm	1940×730×1160
	A1.2 Wheel base mm	1327
	A1.4 Max Speed km/h	45
	A1.5 Range km	80-100
	A1.6 Power Comsumption KWh	≤3.3
	A1.7 Maximum load of VS2	175KG
	A.1.8 Maximum load for rear shelf	25KG
A2 Battery	A2.1 Battery Type	Lithium
	A2.2 Capacity Ah	45
	A2.3 Voltage V	60
A3 Motor	A3.1 Motor Type	Brushless wheel motor
	A3.2 Power W	2000
	A3.3 Rated r / min	520
	A3.4 Rated Voltage V	60
A4 Controller	A4.1 Voltage protection V	51±1
	A4.2 Over Current protection A	45±1

Quick Start

---Check Accessories---



× 2

Intelligent remote control



× 1

Rear view mirrors



× 1

Certificate,Operating manual



× 2

key



× 1

Rear view mirror wrench



× 1

Charger

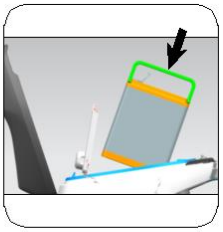
---Load battery---



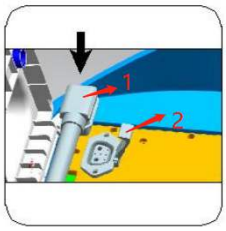
1、open battery case



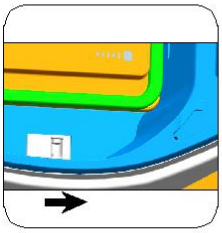
2、open plstic cover



3 put in battery pack



4 Plug- in the main connector(marked1),, make sure the battery buckle(marked 2) must be fastened properly before riding



5、turn on air-switch

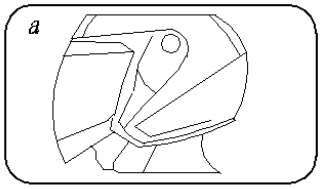


6、close plastic cover

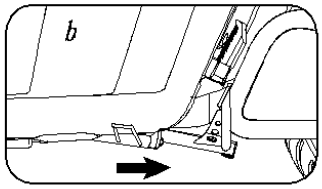


7、close the seat

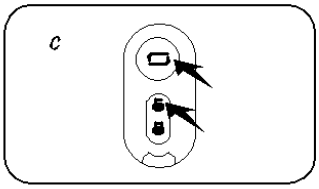
---Start Riding---



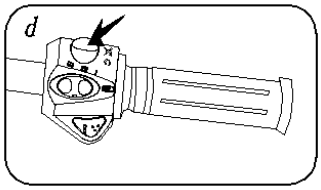
1、put on helmet



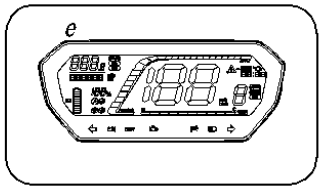
2、kick out the main and side stand



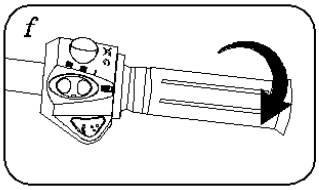
3、Press unlock button, then press start



4、press the port switch



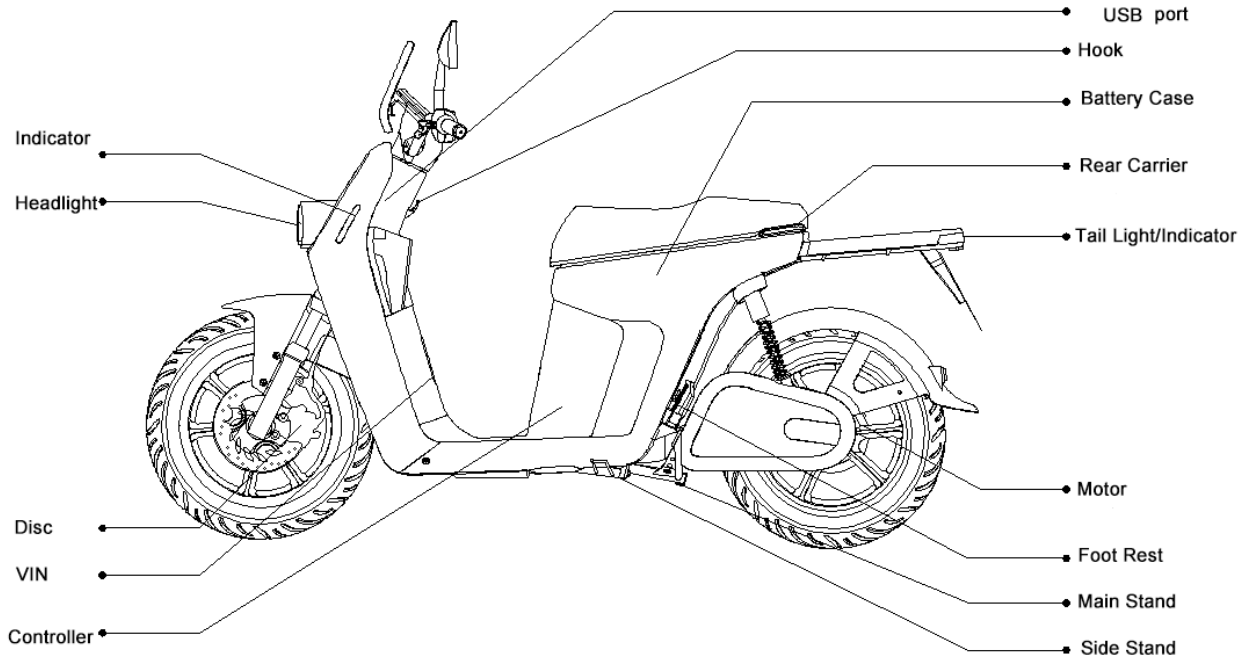
5、EV ready

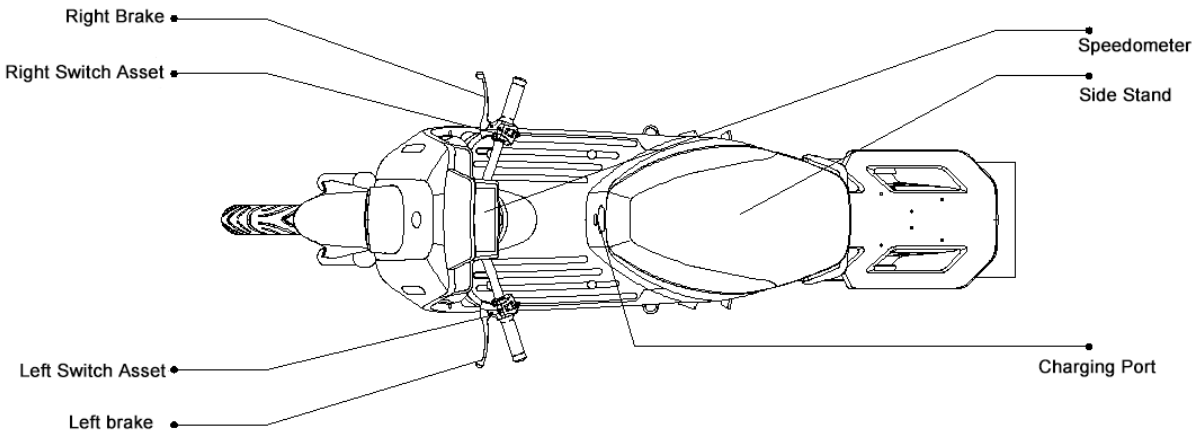


6、accelerate slowly

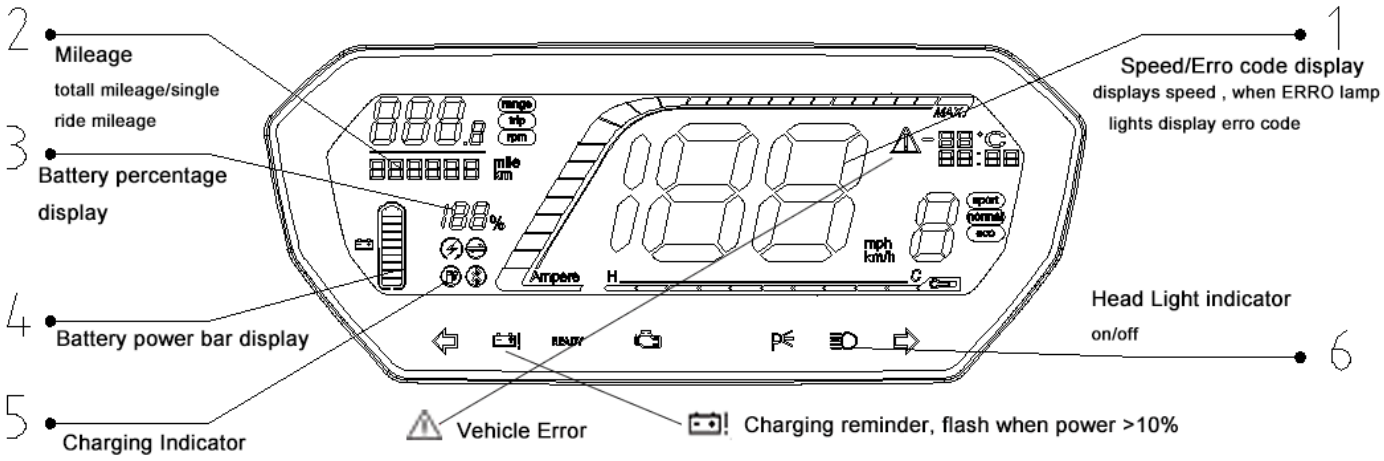
Description of Parts

---Vehicle parts overview---

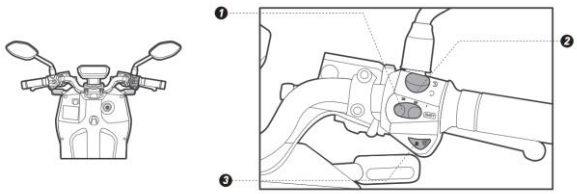




---Speedometer---



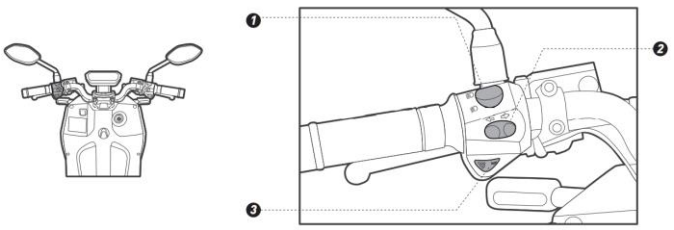
---Switch Assets---



❶ Mode switch
VS1 is set with 3 modes: 1: ECO mode 2: NORMAL mode 3: SPORT mode. Position at left, mode 1; position in the middle, mode 2; position at right, mode 3.

❷ Parking switch
Press the parking switch up,VS1 at parking position,parking indicator (P) light on;press the park switch down display (READY) ,VS1 at unparking status.

❸ Forward reverse switch
Gently press two times forward reverse switch R,display mode number change to "F",VS1 is ready to move forward,turn accelerator gently,VS1 can drive forward;press again,VS1 in reverse position,keep pressing "R" button,turn accelerator gently,VS1 can move backward;press again,display show mode number as normal, VS1 in normal driving position.



❶ High/low beam switch
Up position, high beam on;
Down position, low beam on.

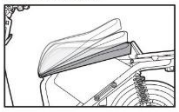
❷ WINKER SWITCH
Turn to left, left winker on;
Turn to right, right winker on.

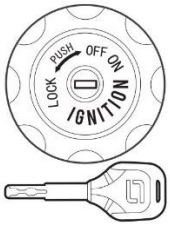
❸ HORN SWITCH
Press, horn on; release, horn off.

---Control & Key---

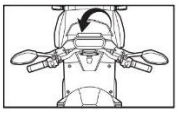
1. Mechanical key start
After unlocking **EV** via remote control,turn the key to "ON"position,power on,turn the key back to "OFF" position,power off.

3. Open storage & seat
Put key in storage&seat lock, turn key to right direction, when hear sound "click", storage&seat open. Press "unlock" 3s via remote control, when hear sound "click", storage&seat open.



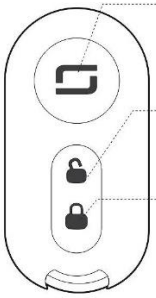


2. HANDLEBAR LOCK
1. **EV** in parking position, turn handlebar to the extreme left position, put key in handlebar lock, and turn the key to right position, handlebar locked.
2.Put the key in handlebar lock, turn the key to left position, handlebar unlocked.



Put in the key and press then turn left
Put the key in then turn left

VS2 use second generation smart remote control, within 50 meter radius, press the button, can lock or unlock your **EV** .



1. POWER
After unlocking **EV** via remote control, press the "POWER", power on, press again, power off

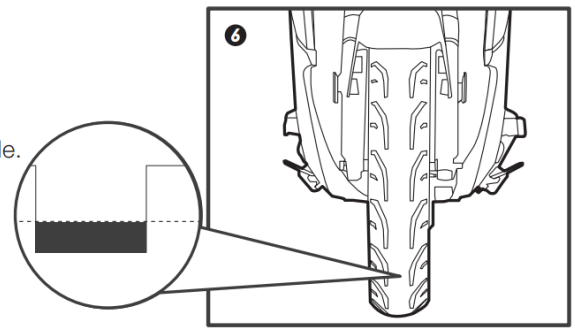
2. UNLOCK
When **EV** in lock state,press "UNLOCK", "POWER" continuously on, **EV** unlocked.

3. LOCK
When **EV** in resting state, press "LOCK", "POWER" flash, **EV** locked.

Riding Guidance

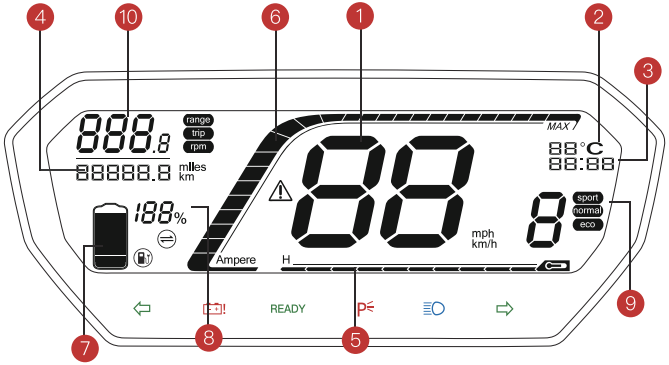
---Check Points before Riding---

❶ Whether the handlebar is stable and flexible when turning.
❷ Whether the right and left switches on the handlebar can work properly or not.
❸ Whether the accelerator can work properly or not.
❹ Make sure the tyre pressure is correct. The recommended tire pressure is 175Kpa for front wheel, 200kpa for rear wheel(without passenger),225kpa(with passenger)
❺ Check tyre surface, make sure no cracks, damage, and foreign matter puncture or attachment.
❻ Whether the tread depth is enough,such as worn to the black shadow position on the sketch ,tyre need to be replaced.
❼ Whether any error warning light in the speedometer with power on or not.
❽ Whether the battery capacity is enough for your trip.
❾ Whether all light work properly or not.
❿ Whether the horn work properly or not.
⓫ Whether the mirrors are clean and adjust them to the appropriate angle.
⓬ Whether the brake oil is enough, whether the brake lever and brake system work properly or not.



DESCRIPTION OF COMPONENTS AND PARTS

DIAGRAM OF INSTRUMENT PANEL



1 Speed / fault code

Display current speed When fault indicator goes on, fault code will be displayed.

2 Ambient temperature

Display current ambient temperature

3 Clock

Display current time

4 Total mileage

Display the total mileage.

5 Controller temperature

Display the temperature under current operating conditions.

6 Real–time current

Display current output current.

7 Power display bar

Display current battery level

8 Power display

Display current battery level.

9 Gear display

Display current gear

10 Distance per charge/ trip distance/ rotating speed

RANGE Remaining distance per charge. RPM Current rotating speed.
TRIP Current riding distance.

TURN ON SWITCHING ADJUSTMENT MODE

1. Press the high beam switch for 3 times
(i.e., the high beam indicator flashes for 3 times) in continuous time such as 4 seconds;
2. At this time, the current display mode
(driving range/ single mileage/ revolving speed) is flashing, indicating that the motor has entered the adjustment mode;

DISPLAY SWITCHING (DRIVING RANGE / TRIP RANGE / REVOLVING SPEED)

Turn on switching adjustment mode, and turn on or off the high beam switch to toggle the display mode (driving range / single mileage / revolving speed) once.
Cycle the switching in this way.

REMOVE SINGLE MILEAGE

If not in trip state; debug to single mileage state (trip) ,
Turn on and off the high beam 6 times within 4 seconds, at which time the instrument's single mileage returns to zero.

SWITCH THE DISPLAY UNIT (KM AND MILE, KM/H AND MPH)

Retract the side stand, and enable the switching adjustment mode. Toggle the "parking brake handle switch" from OFF (P gear indicator on) to ON (in 2 seconds), and then to OFF, thus switching the display units (km and mile, km/h and mph); toggle the "parking brake handle switch" from OFF to ON (in more than 2 seconds), and then to OFF, thus turning on the LCD backlight. (Remarks: now the brightness is fixed at the brightest level).

eco Economical Gear, corresponding to number "1"
normal Cruising Gear, corresponding to the number "2"
sport Sport Gear, corresponding to the number "3"

Fault Charging Data connection

High beam indicator, indicating high beam on.

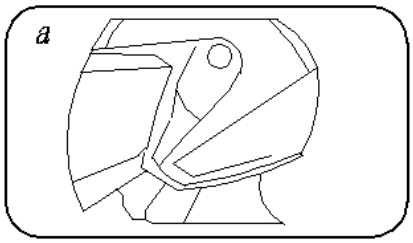
Parking indicator, indicating the parking state.

Winker indicator, flashing in synchronization with the left and right winker.

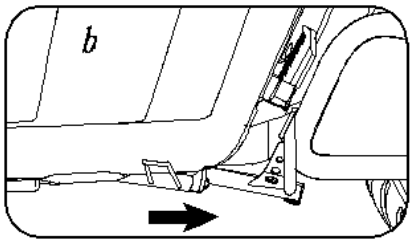
The charge indicating lamp lights up when less than ten electricity remains.

READY The start indicator lights up when the motor can be started.

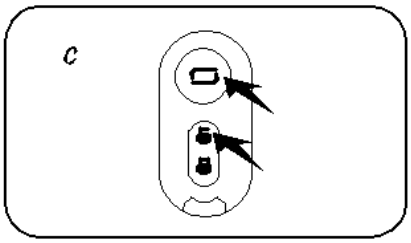
---Start Vehicle---



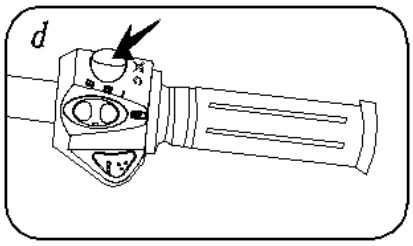
1、 put on helmet



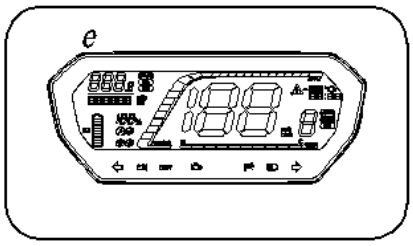
2、kick out the main and side stand



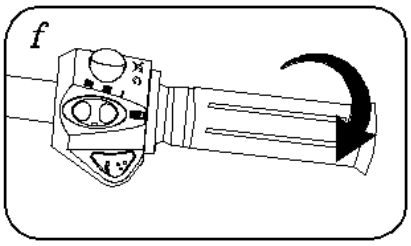
3、Press unlock button, then press start



4、press the port switch



5、EV ready



6、accelerate slowly

WARNING:

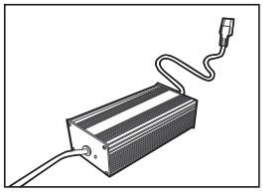
①Before riding, make sure side stand and main stand is kicked out, handlebar is unlocked.
②DON'T press "PARKING" during riding, in case any dangerous due to motor power off and in parking status. DON'T put side stand at standing position, in case any dangerous due to motor power off and in standing status.
③In case any unusual situation, please move the bike to side of the road, in case any dangerous, please don not restart the bike when it still running or in the middle of the road.

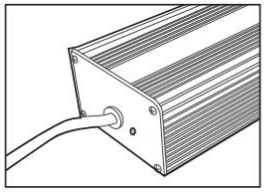
①After the riding start, it should accelerate slowly to avoid excessive starting current caused by instantaneous rapid acceleration and increase energy consumption.
②Under the premise of ensuring safety, try to keep a constant speed on the way you are driving, reduce frequent starts, brake, instant acceleration, etc.
③The maximum load of VS2 is 180KG. Overload is strictly prohibited .
④When push bike moving forward manually, please press "packing" button, in order to prevent accidents caused by sudden start of the vehicle due to unintentional turning of the throttle.
⑤Please turn off the power while packing and remove the key.

Battery Guidance

---Battery Charging---

①Connect the charger to vehicle charging port.
②Connect the charger with power supply, during normal charging, red light keeps on.
③When fully charged, green light keeps on.

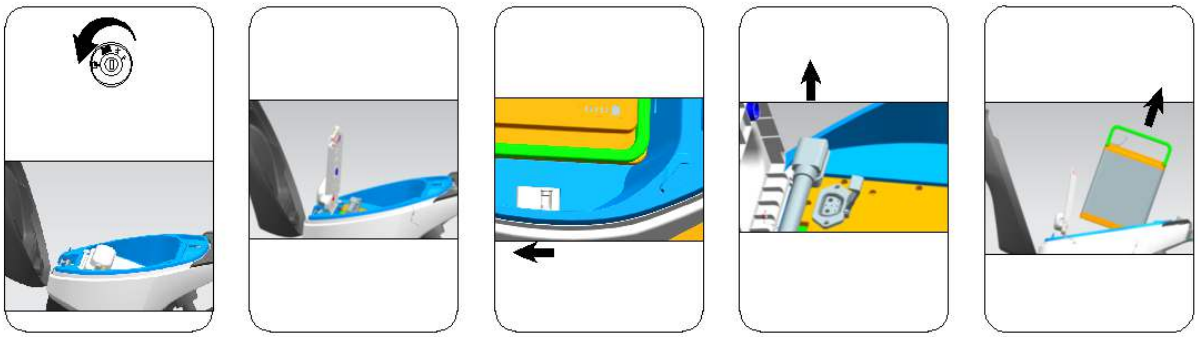




Battery Charging Display

Charging: Red light on.
Full Charged: Green light on.
Error: Red light, green light blink.

or



Connect charger with battery, then connect charger with power supply, charger working, red light keeps on.

WARNING:

- Keep battery pack away from water;
- Charging temperature:0-40℃， battery working temperature:-15℃-45℃;
- Take the battery out of the vehicle if will stop the vehicle for long;
- Watch out, do not let short circuit.
- Avoid children touch the battery pack and put the battery pack into fire;
- Forbidden put strong impact or press on battery pack;
- Must use official charger, forbidden to use any other charger to charge battery pack;
- Do not open the battery pack without professional workers.

---Battery Warehousing, maintenance and Transportation---

①Please charge battery till 50% (in case battery is empty, charge the battery pack 5 hours is enough). Disconnect the battery from bike when storing them. Store in dry ventilated place, at least charge 4 hours each 2 months.

②Battery pack and charger need to be stored in clean, dry ventilated place, avoid connect with corrosive material, stay away from power, fire, heat place.

③Battery storage condition: temperature :0-25 ℃, humidity ≤ 65%RH.

Vehicle Maintenance

Regular maintenance can enhance the service life and driving safety of vehicle. Please refer to the following suggestions and take care of your EV:

a. DAILY CLEAN AND MAINTENANCE The new bike must do the first inspection and maintenance in the official Service Center when it reaches 1,000 km or two months (whichever comes first). The vehicle is recommended to do a regular inspection and maintenance in the official Service Center when it reaches each 3,000 km or six months (whichever comes first).

b. Cleaning: Please use clean water and neutral detergent to clean it, and use soft cloths and sponges to clean the surface; it is prohibited to use metal brushes, sandpaper or the like to clean it, in order not to scratch the parts surface. After cleaning, dry it with soft cloths.

WARNING:

①Please switch off the air switch before cleaning.

②Do not use high pressure water to wash it directly, in order to avoid the default of mechanical parts caused by water invasion.

③Turn off air switch and disconnect the battery from bike, prevent over discharging, please charge the battery at least 4 hours in each 2 months, if vehicle will not be used for long.

④After long-term storage, please fully charge it before use.

Check points for Errors

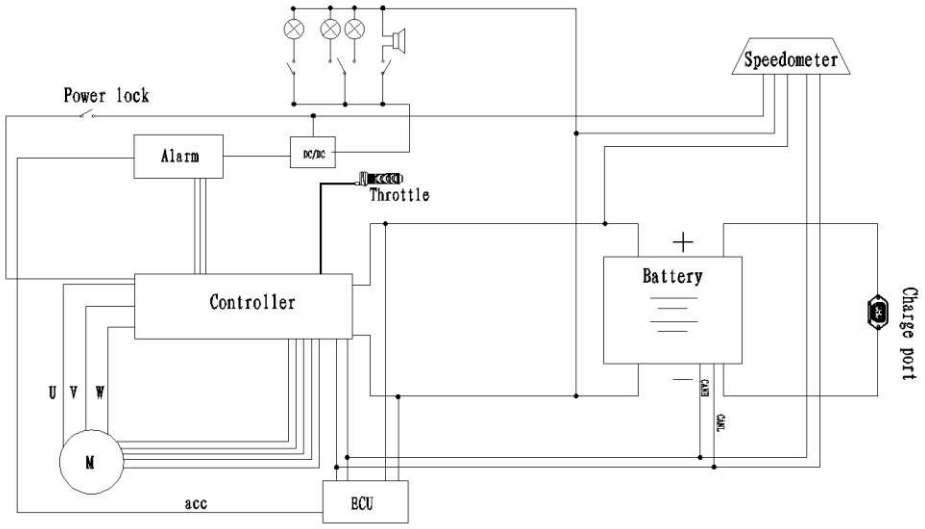
---Error Check---

Error	Causes	Solutions
No power, "start" not on	1. Battery is poorly connected 2. Circuit protector not on	1. Please check the battery main connector 2. Please switch on circuit protector
Power on, turning handlebar, motor not work	1. low battery 2. Side stand not kick out 3. Packing switch not switch off. 4. Accelerator fault 5. Controller plug is loosen 6. Controller fault	1. Charge the battery 2. Please kick out side stand 3. Please switch of packing switch 4. Please change accelerator 5. Please re-plug controller plug 6. Please replace controller
Speed is slow or mileage is short	1.Low battery 2.Flat tyre 3.Heavily overloaded 4.Brake pads need to be changed 5.Battery aging or being scrapped normally	1.Charge the battery 2.Inflate the tyres to normal tyre pressure before riding 3.Form a good habit that keep appropriate load 4.Please change the brake pads on time and check the brake system before riding 5.Change the battery
Battery can not be charged	1.Poor connect of charger plug 2.Do not use right charger. 3.battery aging or being scrapped normally	1.Check whether the charger plug is well connected or not. 2.Please use SOCO official charger 3.Change the battery

Error	Causes	Solutions
Error 99 on instrument	Controller communication error	Please contact with after-sales service or dealer
Error 98 on instrument	Controller stops working (possibly over current, blocking, under voltage, over temperature)	Please park for a while then start again
Error 97 on instrument	Controller power tube error	Please contact with after-sales service or dealer
Error 96 on instrument	Controller hall sensor error	Please contact with after-sales service or dealer
Error 95 on instrument	Controller handlebar error	Please check the wire of handlebar or contact with after-sales service for replace
Error 94 on instrument	Battery communication error	Please check the battery connector status, contact with after-sales service or dealer
Error 93 on instrument	Charging over current	Stop charging then check the charger
Error 92 on instrument	Charging over voltage	Stop charging then check the charger
Error 91 on instrument	Battery over temperature	Stop charging, stop riding, try to ride after the temperature of battery dropping
Error 90 on instrument	Battery discharge over current	In case it shows error 90 all the time, stop riding, wait for a moment
Error 89 on instrument	Charging low temperature	Take out the battery and charge in warm indoor place
Error 88 on instrument	Discharging low temperature	Store the battery or e-bike in warm indoor place , wait for a moment
Error 87 on instrument	Abnormal network connection	Please move the bike to open area,contact with after-sales service or dealer
Error 86 on instrument	Abnormal GPS connection	Please move the bike to open area,contact with after-sales service or dealer

---Battery Error Check---

Status	Errors	Causes	Solutions
Before using	Battery no power"start"not on	Low battery	Charge battery
In use	When riding with low power, power off occurs when battery capacity drops below 10%	Low battery, low voltage protection, normal phenomenon	Charge battery
In use	Error 88 on instrument	Discharging low temperature	Store the battery or e-bike to warm indoor place, wait for a moment
In use	Error 90 on instrument	Discharging over current	In case it shows error 90 all the time, stop riding Wait for a moment
In use	Error 91 on instrument	Discharging over temperature	Stop riding, turn off air switch. Wait for a moment
In use	Error 94 on instrument	Battery communication error	Please check the battery connector, Contact with after-sales service or dealer.
In use	Instrument capacity drops after night or a day	CPU, controller, warning devices consume battery, Normal phenomenon	Use normally
In use	Mileage is different from official announced	Official announced mileage is the one in special surrounding and status, related to road conditions, whether, temperature, wind drag and load.	Any questions, please contact with after-sales service or dealer.
Storage	Start e-bike, "power"not on	Store battery too long, low Battery.	Charge battery, if can't charge, please contact with. After-sales service or dealer.
Charging	Error 89 on instrument	Charge low temperature	Take out the battery then charge it in warm indoor place.
Charging	Error 92 on instrument	Charge over voltage	Stop charging and check the charger
Charging	Chargers become hot during the charging process	During the charging process, inner current of charger is too large, heat emission is too large, metal shell can effectively emit heat,that will lead the temperature of shell is high.	Use normally, use the charge in dry, ventilated place
Battery flooding water	Can't use battery normally, can't start the e-bike	Water spray, water immersion, running into deep water cause battery flooding water	Stop using, please contact with after-sales service or dealer.
Battery case break down	Impact and fall on the battery cause damage and crack to the shell	Use causes damage to the battery shell	Stop using, please contact with after-sales service or dealer.



electric drawing

CHECK LIST	1000KM 3months	3000KM 6months	6000KM 12months	9000KM 18months	12000KM 24months	15000KM 30months	18000KM 36months	21000KM 42months	24000KM 48months	Torque (N·m)
Brake fluid	○		○							
Tire pressure and wear	○	○	○	○		○		○		"FR 200KPa RR 225KPa "
Front and rear lining pad wear		○	○	○		○		○		
Front and rear brake disc wear			○							
Fasten front axle nut and rear wheel bolt	○		○							59
Fasten the swingarm nut	○		○							59
The motor and the motor retainer bolt fastening nut	○		○							80
Fasten Front and rear shock bolt fastening	○		○		◉		◉		◉	F.Upper 22/ F.Lower 32/R45
Steering column locking nut										74
Fasten front caliper bracket (coated glue thread)	○		○							26
Fasten front brake disc (coated glue thread)	○		○							42
Fasten rear caliper bracket (coated glue thread)	○		○							26
Fasten rear brake disc (coated glue thread)	○		○							42
Battery	○	○	○	○		○		○		

Note: Check the lithium battery balance by BMS reading and manual measurement.

MAINTENANCE RECORD:

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