



VOLTO ELECTRIC BICYCLE USER MANUAL

CROSS5 Series

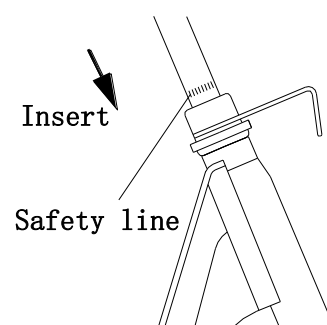
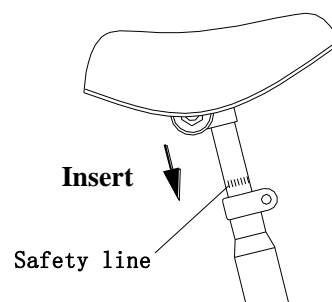
PLEASE READ CAREFULLY

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Safety Precautions

- 1) Don't break traffic rules, follow the road rules carefully.
- 2) Always wear a suitable helmet.
- 3) Always use your lights at night - be visible!
- 4) Don't use your e-bike before reading the user manual, or lend it to others who don't know how to operate it properly.
- 5) When you don't use your e-bike, assure that the power switch is off.
- 6) When raising the saddle don't extend the seat post beyond the safety line.
- 7) Regularly check the performance of the brake pads and leave more time for stopping by increasing the braking distance on rainy or snowy days.
- 8) Make sure that the front hub is secured and the quick release is properly tightened.
- 9) The tightening torques of the rear hub nuts are 30Nm.



Operation Guide and Precautions

RIDING THE ELECTRIC BYCYCLE:

- To secure the battery box on the e-bike body, insert the key into the box lock, press down on the upper cover of the battery box, turn the key clockwise for about 180 degrees, and then remove the key after lockup.
- Before riding, turn the battery on, a blue indicator in the button shows that the power is on.
- Please make yourself familiar with the display:

EN

Functions & features

Functions

1. Speed Indication (0~99.9Km/h/MPH)
2. Trip (0~9999.9Km/Mile) (reset from 0)
3. ODO (0~99999Km/Mile) (restart from 0)
4. AVG SPEED (0~99.9Km/h/MPH) (reset from 0)
5. MAX SPEED (0~99.9Km/h/MPH) (reset from 0)
6. Time (0~99:59) (restart from 0 or reset from 0)
7. Power Indication
8. Assist level 0~9
9. 6Km walk
10. Battery indication

Features

1. Backlight brightness adjustable
2. Error code indication
3. Large screen, wide angle LCD
4. Product shell is ABS, transparent window is made with high strength Acrylic
5. Water resistance IP65

Measuring and display function

SPEED: The riding speed

AVG: Average speed, 0~99.9Km/h (MPH)

MAX: Maximum speed, 0~99.9Km/h (MPH)

Trip: Trip distance (0 ~ 99999.9 Km/Mile)

ODO: Total distance (0~99999.9Km/Mile)

Time: The riding time

: Battery indicator

: Headlamps & backlight indication.

: Error code indicator.

: Brake indicator

LCD display see below: Functional Description

*:88% (BMS) & (DST) need BMS support, not available yet.

: Assist Level, 0~9, 0 for neutral.

Remark: not all icons are used for the current controller setup. PAS level range is 0-5, no lights are fitted to the Cross5

- Turn the controller on by pressing the power button on the display for 1 second.

Operation:

- 1. Power On/Off:** Press and hold Power button for 1 seconds can turn on/off the display. The Display can automatically shut down when there is no operate & riding speed for n minutes (n could be 0-9).
- 2. Assist level operating** short press UP/DOWN button can change the assist level.
- 3. Speed mode switch & Mileage mode switch:** Short press POWER button can change the speed mode & the mileage mode, Speed->AVG Speed->MAX Speed->Trip->ODO->Time.
- 4. Headlight/backlight On/Off:** Press and hold UP button for 1 second can turn on/off the headlight/backlight.
Note: The moto does not work when the battery voltage is low, Display still can keep the headlight on for a while when E-bike is in riding.
- 5. 6km walk:** Press and hold DOWN button can get into 6km walk mode, out of the mode when release the button.
- 6. Data clean:** Press and hold UP&DOWN buttons together for 2 second can reset several temporary data, include AVG Speed/MAX Speed/Trip/Time.
Note: Display will not erase these data when power off.

- There are two riding modes:
 1. PAS (pedal assist) and pedal only.
 2. If you are using PAS mode, the motor will only operate while the pedals are turning, and the motor will start after several turns of the pedals. When using PAS level 0 the motor will not start and you can ride the bicycle as a normal push bike.
- While riding and using the motor, the battery indicator will change as power is consumed. When the indicator shows that the battery is out of charge, use the pedals instead. The battery can be used again once it has been re-charged.

Note: The battery level is best judged by the display status of the indicator during the steady running at full speed.

- The riding distance after each battery charge will vary according to factors like road type, hills, user weight, and wind direction. When starting the e-bike uphill, tackling repeated steep hills or riding upwind, it is better to assist the motor by pedalling in order to save power, and extend the lifetime of the motor and battery.
- After use, turn off the power switch.

Human powered riding

- Keep the PAS level on 0 (default when powered on). No motor support will be engaged.

USING YOUR BATTERY CHARGER

- Before using the charger, please read the manual, including the warning label on the charger and battery pack.
- Do not expose the charger to rainy, snowy or wet weather, or to low temperatures (below 0°C) or high temperatures (above 35°C). These conditions may destroy the inner parts of the charger and battery pack.

- The charger can only be used with VOLTO rechargeable Lithium batteries and rechargeable polymer batteries. Use with other types of batteries may cause burns or fires.
- When not charging, pull out the jack plug to prevent the plug and power wire from being damaged.
- Do not lengthen the power wire. Never undo the charger and battery pack wiring. Incorrect wiring may cause electric shock or fire.
- Using the charger with other accessories may cause fire, short circuit or injury.
- If the battery or charger is damaged, don't use it any longer. Take it to your service centre to have it checked or repaired.
- Make sure that the power plug is pulled out when cleaning and maintaining the e-bike or battery to prevent electric shock.
- Keep the power wire tidy so people do not trip over it or it is damaged by other objects.
- The charger and battery pack are designed to work together. Never use the charger for batteries of power tools or other different types of battery pack. And don't use other chargers for the e-bike battery.
- Do not store the battery in an environment which is above 50°C (eg in a metal shed or in a car in summer). Exposure to high temperatures will reduce battery life and performance.
- Don't throw the battery pack into the fire, it may cause an explosion. Please always recycle old battery.
- The **INPUT** and **OUTPUT** voltage details are marked on the rating label on the charger. Please operate according to these specifications. Don't insert the plug into wrong voltage power point as this may destroy the charger.
- Take care of the power lead. Don't pull the power wire when holding the charger or when pulling out the power point. Keep hot, oily, sharp objects away from power wire.
- Always charge the battery in a well ventilated location. Don't cover the charger with cloth or other objects.
- Don't make the battery pack short circuit, as this would create a high current surge which may cause the battery pack to overheat or explode.
- Don't let inexperienced people use the charger without guidance or supervision.
- Don't let children play with the charger. Place the charger on a platform which is at least 150cm high.
- If the charger is not used for a long time, please put the charger and battery together with the manual in the packing box, and store in a dry environment.
- **Charge the battery regularly every three month to prevent damage to the battery during periods of none use.**

WARNING: To ensure your safety, do not use your VOLTO charger for any other battery pack or it may cause the battery to be destroyed or even explode.

BATTERY CHARGING

Note: when the battery pack is first being charged, keep charging for ten hours until the battery pack is fully charged.

- To charge first firmly insert the charging jack into the battery pack.
- Then insert the charger's power plug into AC outlet. Then the red indicator light on the charger will illuminate, showing that charging is in process. When the plug is firstly inserted into the socket, a spark will sometimes occur if the power point was not first switched off. This is normal and not dangerous.
- During the charging process, the light on the charger will be red. It will turn green when the battery pack is fully charged. Once the charging light is green the charger will supply the battery with a small current.
- The green light will remain illuminated when charging is over.
- If a fully-charged battery pack is inserted into the charger again, the green light will illuminate to indicate charging is complete.
- **CAUTION:** When the battery pack is moved from a location where the temperature is low (below 5°C) to a warmer location it is better to leave it for at least one hour until the temperature of the battery pack is similar to room temperature. Then charging can commence.
- When holding the charger, never put your finger into the output hole of the charger.

WARNING:

- * **Never connect the charger directly to an unregulated generator.**
- * **Don't open holes on the charger or battery pack.**
- * **Keep away from explosive gas, flame or spark during the charging process.**

The Indicator Light (LED):

RED LED: A red light indicates that the charger is working to charge the battery pack, and the current is on.

GREEN LED: A green light indicates that the battery pack is fully charged.

CAUTION

- If the light is green, it means the battery is fully charged. Then the charger will turn to constant low voltage charging status. Normally it takes about 5-10 hours to get the battery pack fully charged, with the actual time varying depending on current supplied.

ATTENTION: The charging time should not be over 10 hours. If the battery seems to take more than 10 hours to charge, have it and the charger inspected.

- Under the constant voltage charging state (when the light is green), the battery will not be damaged even if it left connected to the charger, but it is preferable to switch off the charger and disconnect it from the battery pack once the battery pack is fully charged.
- After charging is complete, please first pull out the power plug, and then pull out the charger's jack from the battery pack.

- No matter how much or how little power was consumed during a trip, please re-charge the battery promptly to preserve battery life. If the battery is not used for a long time, store it when it's full and charge it once a month.
- During the charging process, the charger and battery box should be in a stable position to prevent the falling over. Don't cover the charger or battery box or restrict ventilation.
- When the life span of the battery is exhausted, return it to NZEBIKES for replacement and recycling. Do not dispose of in domestic rubbish collection. The old battery must be recycled.

Care and Maintenance

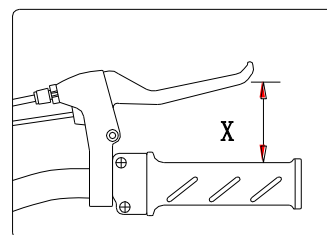
- Before using your e-bike always check that the battery box is locked up, and the battery level meter shows normal status.
- Ensure the bike is clean and that there is no dirt or moisture in the plug connecting the battery pack to the bicycle.
- Regularly check tyre pressure so extend riding range and avoid punctures. We recommend a pressure of 50 psi or 3.5 kPa for both tyres.
- Regularly check that the brakes are working properly.
- As with non-electric bikes, regular mechanical driving and safety checks are required.
- Your e-bike can work normally on a flooded road if the water depth is lower than the lowest part of wheel hub. Do not immerse your e-bike in water above the hub or above the level of the battery or these units will be damaged.
- Keep the bicycle body away from the moisture, high temperature and toxic gases to avoid chemical corrosion on the electroplated surfaces of metal parts.
- Avoid prolonged exposure to direct sunshine or rain so as to avoid damage to the parts inside the control unit or cause accidents due to other component malfunctions.
- Don't try to reassemble or repair a complex structure in the electrical control unit by yourself.
- It is normal that the bicycle feels much heavier when pushed backwards.
- To avoid damage to the battery or electric motor do not overload the e-bike (including by carrying objects or people of excess weight).
- Lubrication is an important item in the maintenance of the electrical bicycle. According to your pattern of usage, scrub and lubricate (preferably with specialised bicycle lubricant) once or twice a year all moving parts such as the front, back and middle axles, chain ring, and front fork. Special lubricating oil has been smeared on the driving components inside electrical wheel hub, so it is unnecessary to do scrubbing and lubricating yourself. Take your e-bike to your service centre if you find an unusual situation.

Maintenance on the brake system

The hydraulic brakes usually do not need any maintenance. When brake pads are worn they can be easily replaced.

Check both brake levers as shown in Fig1. It should reach full braking when its stroke reaches 1/2X. If the lever goes

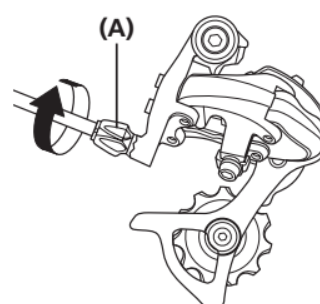
further the brake needs a hydraulic bleeding. Please ask your local bike shop to do this work for you if you are not familiar with the process.



For further adjustments and maintenance please refer to the Shimano Maintenance Manual.

Maintenance on the gear system

The Cross5 has a Shimano Alivio 8 gear system at the rear wheel and a 3 gear Alivio system at the crank. It can happen after a while that gears do not perfectly change anymore or you experience a rattling noise while peddling. This is normal due to the nature of the used control wire hulls which gets compressed over time. To re-adjust it is usually enough to slightly tighten the gear wires.



For the rear derailleur turn (A) clockwise while turning the pedals till the rattle goes away – otherwise turn counter-clockwise.

For the front derailleur the user can adjust the wire tension at the gear shifter.

Troubleshooting

Problem	Trouble Description Causes	Solution
The power indicator at the battery is not on and the display cannot be turned on.	<ul style="list-style-type: none"> ● Main battery fuse could be faulty 	<ul style="list-style-type: none"> ● Remove right side of label covering main fuse socket, remove rubber cap and check fuse. ● If fuse is OK bring battery to service centre
Power indicator at battery is on, but display cannot be turned on	<ul style="list-style-type: none"> ● Contact problem between battery and controller ● Internal wiring issues 	<ul style="list-style-type: none"> ● Remove battery from holder and check contacts. Clean from any dust or moist ● If contacts OK, bring bike to service centre for further tests
The motor immediately starts running once the battery is turned on. (Note: immediately turn off the switch to avoid accident.)	<ul style="list-style-type: none"> ● The controller is damaged. 	<ul style="list-style-type: none"> ● Replace the controller.

Slow speed, and the riding distance after each charge is short.	<ul style="list-style-type: none"> ● The tyres are not inflated enough. ● Frequent uphill starting, or climbing, or riding against the wind ● Battery capacity is in reduced. 	<ul style="list-style-type: none"> ● Inflate the tyres. ● Pedal at the start or while climbing. ● Replace the old battery with a new one.
Charger: The green power indicator is not on after the charger is connected to a power supply	<ul style="list-style-type: none"> ● AC outlet has no power. ● Input 2A fuse inside the charger is fused. 	<ul style="list-style-type: none"> ● Check another appliance to test if the outlet has power; or connect the charger to another outlet. ● If the above steps are not effective take the charger to your service centre. Do not open the charger.
Charger: Green power indicator stays always green, even when plugged into an empty battery	<ul style="list-style-type: none"> ● 5A output fuse inside the charger is fused ● Internal battery charging fuse is fused 	<ul style="list-style-type: none"> ● Try to use different charger ● If no charging possible even with different charger take battery to service centre to check internal fuse
When using pedal assist motor starts and stops on it's own intermittent	<ul style="list-style-type: none"> ● Wrong magnetic disc position 	<ul style="list-style-type: none"> ● Check magnetic disc at the inside of the right crank. Replace if loose or broken ● Distance to sensor should be less than 4mm.

IMPORTANT!

- The figures in this manual are used only for the purpose of explanation and showing the operation, not as criteria to examine the products.
- Our company has the right to change some modifications for higher performance without further notice.

"WARNING - In the interests of safety it is recommended that you have this cycle assembled and serviced by a skilled mechanic."

**Declaration of Conformity:
This bicycle meets the AS/NZS 1927:2010 Standard for Pedal Bicycles**

**For further information visit
www.volto.co.nz**