



eZee

www.eZeebike.com

TORQ MK II

USER MANUAL



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Simply Moving

Congratulations on the purchase of your eZee bike. You're one step closer in realizing a whole new way of commuting that is fast, fun and friendly to the environment.

The hub motor is brushless and uses a technology called Pulse Wave Modulation control, so that its not subject to wear like a regular DC motor. Planetary reduction gears incorporated into its hub gives it a very strong torque, working in unison with your leg power to flatten out those hills and to overcome headwinds.

Under normal cruising conditions (26 kmh, 16 mph), the motor draws about 5 amps at 140 watts with 5 Nm torque and has an efficiency about 80%. Its electric consumption is about 1.0 kWh for 100 km / 62 miles in ebike mode - even less energy than the food you would consume riding by leg power alone. Making it by far the most efficient vehicle ever made.

While the eZee pledge to quality means our components are high value and reliable. Its your part to understand safety implications and the possible risks of cycling. So please take some time and read this manual. It explains the bike in detail, how to take care of it, so that you can enjoy using the bike for many years to come.





Guarantee Conditions

The following guarantee conditions complement your legal rights.

How the guarantee applies

As the makers, we guarantee against possible material or construction defects. Provided the following conditions are satisfied :

Proof of purchase. The guarantee starts on the date of purchase.

Only the first owner is entitled to the guarantee.

The bike is guaranteed for 2 years, this comprises of the frame, fork, all mechanical and electrical parts, except normal wear and tear items.

1 year for the battery up to 70% depth of discharge from its original rated capacity. This can be verified by the eZee dealer you've purchased the bike from.

How the guarantee does not apply

When the bicycle is used negligently or results in damage due to traffic accident.

Damage ascribed to normal wear and tear.

Poor maintenance, or modifications that no longer complies with regulations or original technical specifications.

Damage due to external causes.

The bicycle is put up for hire.

The battery pack is used incorrectly or tampered with. This also applies during charging.

Compensatory costs arising from damages or accidents, or cost incurred by loss of the bicycle's usage.

How the guarantee covers

Original defective parts that are sent to the manufacturer for assessment will be replaced by the same or equal value part.

Labour and transportation charges are not included. This are borne by the owner.

eZee exclusively makes the decision whether or not the guarantee applies.





Legal Regulations

EU regulations state that your vehicle is an Electric Powered Assist Cycle (EPAC) when the following conditions are met.

[EU directive 2002/24/EC Chapter 1 Article 1 1(h)]

“Cycles with pedal assistance which are equipped with an auxiliary electric motor having a maximum continuous rated power of 0.25 kW, of which the output is progressively reduced and finally cut off as the vehicle reaches a speed of 25 km/h or if the cyclist stops pedaling.”

With EU compliant configuration, the power assist of an eZee bike only functions while the rider is pedalling. The means of controlling the assistance is provided with either a dial or throttle system.

USA regulations allow a power assisted maximum speed of 20 mph. eZee bike made for the USA has a motor speed of 250 rpm for a 20 mph top speed and a maximum rated power of 700 watts. The power assist can function without the aid of pedalling, however there's nothing to stop you from doing so. Putting in some effort will greatly increase the mileage you get from your battery.

This means you do not require a license or moped certificate, there is no age limit and you can take cycling paths. It conforms to regulations of normal bicycles. Legal requirements concerning insurance of your bicycle may differ, so do find out about the rules and regulations in your country.





Weight	22 kgs
Motor	Electric brushless hub motor 250W (EU) / 350W (US) with planetary reduction gears
Battery Pack	Lithium Ion with battery management circuit 37V 10Ah (370 Wh capacity) 3.1 kgs Low voltage protection 28 V Discharge temperature limit -15°C to +55°C
Controller	PWM LED self diagnostic system Overload protection 20 amps
Charger	2 amps Smart charger Maximum charge time 6 hrs charging temperature +5°C +35°C
Interface	Forward magnetic motion sensor with 0 - 4.5 V VPA dial or throttle E-bike throttle with safety ON/OFF switch Pedelec throttle with light switch
Fuse	30 amps





1	Brake cables	20	Shimano roller brakes
2	Front LED lighting	21	Shimano Nexave chain tensioner
3	Mudguards	22	Shimano Nexave 8 speed gears
4	Disc brakes	23	Rear LED lighting
5	Rims	24	Al. luggage rack
6	Spokes (13g)	25	Controller / Ignition
7	Hub motor	26	Battery
8	Reflectors	27	Saddle flip catch
9	Tyres 26" x 1.95"	28	Saddle
10	Suspension front fork	29	Seat post
11	Motor wire casing	30	Seat post clamp (quick fix)
12	Bearing race	31	Threadless headset
13	Frame	32	Headstem
14	Pedals	33	Handle grip (Throttle)
15	Chainwheel 48T and crank	34	Gear shifters
16	Pedal sensor	35	Brake levers
17	Central support stand	36	Battery level gauge
18	Chain 1/2 x 3/32	37	Handlebars
19	Chain stay		

If you have received your bike through mail instead of picking it up from your local bike specialist, please read this section before proceeding to assemble.

Unpack Carefully remove the bicycle by lifting it straight out of the box. Be careful not to scratch yourself on the carton staples. Remove the packing material around the bike and stand the bike on a clean flat surface. Be sure to keep any part packages that comes along with the bike. Discard box and packaging material only.



Dispose responsibly, recycle when possible.

Check

This box should contain....the eZee Torq bicycle!
An accessory box containing.

- a. 3 Ignition keys
- b. 1 Pair of pedals
- c. 1 Battery charger
- d. 1 Power cord
- e. 2 Fuses (30 amps)
- f. Nylon ties
- g. Heat shrink tubes (assorted pre-cut sizes)
- h. 1 Hex Key #5
- i. 1 Hex Key #3
- j. 1 eZee Torq User manual
- k. Shimano Nexave Gear and Brakes Manual

1 Battery, Lithium Ion 37V 10Ah

and check the box again for any additional purchases or variations that should be included, according to your eZeebike dealer.



Torq

Assembly

Tools required

Tools are the first step to proper assembly, you will need a

Allen / Hex key metric set

Philips head screwdriver

Open-end flat wrenches metric
measurements 6mm - 17mm

Front wheel

Insert the hub motor wheel into the front fork, ensuring that it is properly seated in the dropout slots. Tighten the nuts *alternatively* on both sides till the wheel is secured.

Tightening torque 35 Nm

Seat post

Insert into the seat tube of the bicycle frame and align. Tighten clamps and ensure seat is firmly fastened.

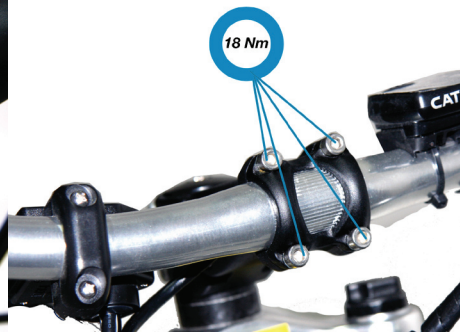
Tightening torque 16 Nm



Do not adjust the seat post beyond its maximum extension mark.

Headstem

Align headstem and handlebar so that it is perpendicular to the frame before tightening as shown below.





Pedals Pedals are marked “L” and “R” for left and right respectively. Screw in clockwise for the “R” pedal and counter-clockwise for “L”. Tighten both with a wrench firmly but not excessively as the crank threads are made of aluminum alloy.

Front Mudguard The supports are attached to the sides and top of the front fork, the mudguards are made of polycarbonate and should not rattle when they’re securely fastened.

Brakes One of the most important safety features on the bicycle. To minimise the risk of injury, it's vital to ensure they are correctly adjusted. Ensure that the V-brake blocks are parallel to the rim, and that the distance between them does not exceed 2mm, then tighten the brake mounting bolts. Fine tune with a philips head screwdriver. Squeeze brakes to test its responsiveness.

For more information about the rear Shimano Roller brake, please read the Shimano manual that comes along with your purchase.

Models that come with disc brake options, check that the wheels rotate freely without touching the pads.



If you have little experience with bicycle maintenance. We recommend you get this done with your local bike shop.

Accessories Install any optional accessories you have purchased with your bike. Read the manufacturer’s manual provided.



Battery

Insert key into keyhole located by the controller box and turn key counter clockwise while pressing it in, so that it arrives in the open position. Release the catch located at the underside of the saddle to flip it over. Locate the battery flanges in their slots in the battery holder; then push the battery firmly into the holder until the connecting pins are firmly in the battery sockets.

The fit can be tight when new, so it may be required to apply gentle pressure. Once the battery is in position, lock into place by turning the key one click clockwise to the “OFF” position. Ensure that the key is in “OFF” position until you are ready to ride.



Do not use excessive force to fit the battery, which could result in damaging the connection sockets or pins.

If there is an A/C outlet near to where your bicycle is parked. It may not be necessary to remove the battery from the bicycle to charge.

Tyres

Ensure that the tyres are inflated to the correct pressure of 60 psi. Well inflated tyres enhances the comfort, safety and efficiency of your ride.

Usage

The eZee Torq is designed for your daily commute and for long treks. Understand your bike well and be well equipped before venturing far out onto traffic. It is your responsibility to be attentive of your environment and traffic rules, as this concerns the safety of all who share the paths, especially you.

- a. wear shoes that stay on your feet and grip firmly to the pedals. No barefoot or sandals.
- b. dress to be visible on the road and avoid loose clothes that will tangle with moving parts of the bicycle.
- c. keep your speed at levels appropriate to road conditions
- d. be aware of wet weather conditions, as these affect braking distance. Brake earlier than you normally would on dry roads.
- e. familiarise with the traffic rules in the country you are riding in.
- f. avoid cycling in poor weather and visibility conditions such as fog, night, heavy rain and snow. keep your lights on in such conditions.
- g. familiarise yourself with the usage of the bike and how to maintain it.

Inspect

Before every ride, make a quick inspection of your bike's mechanical and electronic features. Be safe, not sorry.

frame & fork

Visually check for damage, do not ride if bent or fractured.

wheels and tyres

Check for missing or damage spokes. Feel spokes to ensure tightness. wheels should be true (straight) and tyres inflated to its correct pressure.

handlebar and stem

Tightened firmly in the 'face forward' positions, the handlebars will rotate the front fork and wheel, ensure that the grips are also firmly seated.

Brakes

Squeeze brake levers to test .Brake cables should remain unobstructed by other cables or accessories.

Chain

Turn crank arms to ensure chain runs smoothly. Keep the chain lubricated and clean. Chain tension is adjusted by the tensioning bolt located at the end of the frame.

Electronics

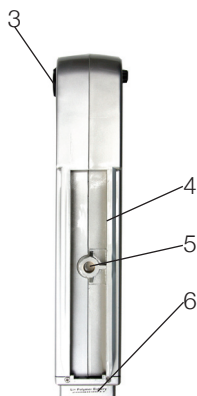
Red light from the controller unit should be illuminated when the electric bike is 'ON'. All wires to be fastened securely in place





Battery Charging

Before your first ride, the battery needs charging. Bring it to a wall socket. (220V - 230V AC EU other countries or 115V AC US)



- 1 Fuse / Fuse holder (30 amps)
- 2 Battery grip
- 3 Charging socket
- 4 Battery slot guides
- 5 Battery lock slot
- 6 Serial number, battery information

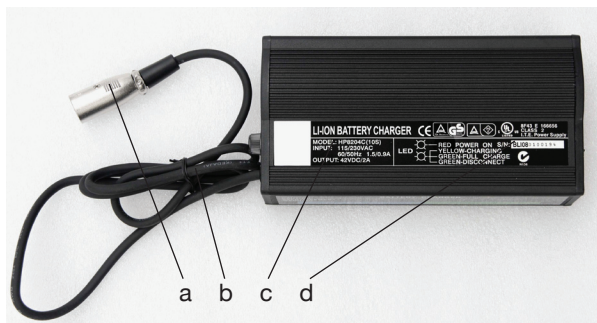
Insert charging plug into socket on battery and connect charger power cord to A/C outlet. Turn on A/C outlet. Turn the '1' switch on the charger.



It's important that to follow this sequence of actions everytime you charge the battery.



Do not remove the plug by pulling the cord, always grip the charging port by its metal body.





Battery Charging

Check the indicator lights on the front of the charger.

RED	light indicates that the charger is connected and running from an A/C outlet.
YELLOW	light indicates that the battery is charging
GREEN	light indicates that the battery is fully charged

It will take a maximum of 6 hours to fully charge your battery. You may interrupt the charging at any time.

As Li Ion batteries do not suffer from memory effect, it is not required for the battery to be empty to commence a recharge. Top-up charging everytime you've completed your cycle ride is recommended.

Kept in good condition Li Ion battery will perform at least 350 full charge cycles, with a retention of 70% from its original capacity.

Please use only the Li ion charger as provided.

- | | | |
|-----------------------|------------------------|---------------------------|
| a. Male charging plug | b. Charging cord | c. Charger specifications |
| d. Charger serial no. | e. Cooling fan | f. Fuse 10 Amps |
| g. Charger 'ON' LED | h. Charging status LED | i. Warning label |
| j. Power switch | k. A/C voltage switch | l. Power cord socket |



A new battery might take 2 - 3 charges before it performs at its stated capacity.



Dispose your battery responsibly, refer to your town council or eZee dealer.





Battery Charging

Sometimes after temporary disconnection, the charging status light may give a false green reading. To verify that your battery is fully charged, switch the charger off, wait for the charger lights to go out and switch it back on again. The charging status light should quickly return from amber to green, when the battery is fully charged.

The battery may be also charged on the bicycle, do make sure that the bicycle is switched off so as to not waste electricity.

If the battery refuses to accept a charge, refer your eZee dealer for more information.

Battery charging is automatically regulated, there is no danger of overcharging. We advised that you disconnect the battery and switch the charger off when the charging process is completed.

- ✘ Do not charge the battery in wet conditions.
- ✘ Never allow children to play with the battery or charger.
- ✘ Do not leave your battery in a fully discharge state for long periods of time. The battery will continue to self-discharge, resulting in damage.





How eZeebike works

Your first ride Before you wheel your bike out into the world, we recommend you practice handling the bike in a safe area away from obstructions and traffic. The motor may look small, but it's powerful! You'll be riding faster than you think.



Turn the key to the 'ON' position. A red LED will illuminate below the key socket. If the light flashes, read the **Troubleshooting** section of this manual. If it shines steadily, you're ready for the next step.

EPAC / Pedelec As you pedal, rotation on the crank is picked up by a sensor in the bottom bracket. This allows the drive system to be engaged. A twist of the throttle then provides power-on-demand, reducing the pedalling effort required.

E-Bike The motor runs as soon as you turn the throttle. Ensure that you are seated and ready to ride off before you use the throttle. You may toggle the throttle on and off with the switch located on it.

In E-bike mode, the range of your bike will be approximately 40 kms (25 miles). The hillier the terrain, the less you pedal, shortens your range. While EPAC, judicious use of gears, power assistance all contributes to increasing the mileage you can get out of your ride. 40 - 60 kms (25 - 40 miles).





How eZeebike works

Variable Power Assist (VPA) In lieu of a throttle, you may have received or chosen a potentiometer dial. This set-up is only compatible with EPAC mode eZeebikes.

The dial settings from 0 - 8 correspond accordingly to the level of continuous power assistance achieved by the motor during pedalling. The level of assistance remains the same throughout regardless of road conditions until you re-set the dial to another position. This is especially useful for long treks or when you do not wish to fuss about with a more sensitive throttle.

You can always choose to ride your bicycle as an ordinary bicycle.

Battery level gauge When riding a fully charged bicycle, the battery level gauge shows 'green'. Powerful acceleration or uphill riding causes the battery voltage to drop and may bring the level gauge to 'amber' or even 'red' (in the cases of very steep hills).

As you continue to cycle and the battery power drops, the level gauge will correspond to the state of charge remaining. When it remains in 'amber' and dips into 'red', you have approximately a 1/3 of the charge left. Best to recharge the battery soon.

To prevent the battery from deep discharge, the controller has a low voltage protection cut-off set at 30.0 V. You may reboot the bicycle if it cuts off however,

✘ 'Pulsing', or straining any capacity left in the battery will deteriorate its quality fairly quickly. Charge often!






How eZeebike works

Lighting system eZee bikes features wide angle high performance reflectors at the front, sides and rear. Front and rear LED lights are powered by the main battery, electrical consumption is negligible, be safe, use them often.

Lock When parking your bicycle, turning the key to the 'OFF' position and removing it will shut the system off and lock the battery in place. Use a chain lock to further secure your bicycle when necessary. We also recommend you insure your bike against theft. Consult your eZee dealer or LBS for more information.

Kick stand This spring loaded stand supports your eZee-bike. Use your feet to depress the stand downwards, ensure the stand is firmly rested on the ground before leaving the bike.

 Do not sit on the bike with the stand parked. The kick side stand is made of aluminum alloy and meant to only take the weight of the bicycle and not with the rider on it.

Luggage rack The luggage rack provided comes equipped with a spring loaded catch and elastic strap. If you plan to carry luggage on the rear, make sure everything is securely fastened and clear from the rear wheel. There are many useful accessories that can be fitted on the rear rack, from panniers to child seats. Do however, take note that the load limit is 25 kgs.





Maintenance



Maintaining your bicycle ensures you'll get the most out of every ride and out of the entire life of your eZee bike. How much of your bike's maintenance you can do yourself will depend on your knowledge, skill, experience and whether you have the necessary tools for the job.

Learning from available cycling literature and joining cycling communities can be an enjoyable way of improving your skill and knowledge about maintaining bicycles. Beyond this manual, it is good to consult your LBS and eZee dealer for advice regularly.

Before every ride Mechanical safety checks, use a fully charged battery, visual inspection for damages.

Every 150kms (100 miles) Clean the bike, incl. chain rings and sprocket. Clean and lightly oil the chain and gears.

Every 20 - 30 hours of riding Squeeze the brakes and rock the bike to check for any looseness with each forward of backward movement. If the headset is loose, have your dealer check it. Lift the front wheel and rotate handlebars to check for tightness of steering, it may be necessary to lubricate ball bearings. Check and recalibrate the brakes, replace if worn out. Squeeze spokes in adjoining pairs between your thumb and index finger. They all should have the same tension. Have your dealer respoke or true the wheel if necessary. Check cables for rust, kinks and fraying, have your dealer replace them if necessary.





Maintenance

Repairing a punctured tyre

If you have a punctured tyre, we recommend that you get a specialist to carry out the repairs. You can always of course consult a specialist and carry out the repairs on your own.

As there are no electronic components on the rear wheel, its removal follow standard procedures as with normal bicycles with internal gears. Read the Shimano gear manual provided for more instructions.



As the front wheel contains the hub motor, there are additional steps in the case you require the entire wheel to be removed from the bike.

A philips head screwdriver will be required to open the cable housing (shown on left) to first unplug the wires than run from the motor to controller. There should be 1 x 6 pin connection and 3 colour coded wire connections (Blue, Yellow, Green). Unplug these before proceeding to remove the front wheel. Be mindful of the tightening assembly sequence of washers, nuts and spacers.

Hub motor and general inspection

After 5,000 kms (3,000 miles) of cycling. We recommend you arrange to have a thorough inspection of your bicycle by an eZee dealer. This includes opening up the hub motor to inspect and lubricate the gears.





Troubleshooting

Electronic self-diagnostic system

When the bicycle is functioning normally, the red LED that is situated by the controller is lit continually.

In the case of an electronic malfunction, the controller comes programmed with diagnostic capabilities to determine where the fault lies. The red LED will emit a series of blinks, count them and refer to the table below for its explanation and solutions.

No. of blinks	Explanation	Solution
ON	No response on motor	lost connection on 5V wire to motor , check connectors at front fork
2	Brake lever cut off in contact	check brake lever spring, brake levers should return to position (applicable with electric cut-off levers)
3	Brake lever cut off in contact	check wiring connection, inspect for damage to the battery level gauge
4	Throttle not in position	check if throttle spring is faulty
5	Throttle failure	Ground + signal wire to throttle shorted 5V+ signal wire to throttle shorted Moisture penetration / leave it to dry Check throttle connections and cable, or replace
6	low voltage	Activated when voltage drops below 30.5 V .This continue to blink and will stop when voltage recovers to 34V, Or when the main switch is powered off. Battery charging
7	excessively high voltage	Battery voltage is above 44 V./ do not use battery that is not supplied by eZee, contact your eZee dealer





Troubleshooting

No. of blinks	Explanation	Solution
8	Hall sensor in motor faulty	One or more hall sensor disconnected or faulty. Check connector at the front fork. If connector is OK, contact your eZee dealer
9	Supply 3 phase wire	Check phase wires at the front fork. Contact your eZee dealer
10	Controller overheating	Motor continue to function but the amps directed will be lessened to reduce the load and cool controller
11	Thermostat faulty	the motor will continue to work, but extreme temp. arise without thermostat protection may damage controller - Replace controller
12	Controller failure	Motor does not work - Replace controller
2+3	Controller failure	Motor does not work - Replace controller
3+4	Stalled motor	Extremely overload stalling motor, switch off and on – reboot
3+5	Supply 3 phase wires	Inspect cable and connector for dislocation or damage. Diagnostic appears during throttle usage.
No Light	Power supply faulty / Controller failure	Inspect battery and power connections for damage / Replace controller

The faults listed may not cover every possible failure. In the event of moisture or water entering the controller, haphazard signals might appear. We've designed the eZeebike to repel water as much as possible, encapsulating circuit boards with silicone resins and connections with silicone grease.

Since this manual simply cannot cover every detail that might occur during the lifetime of your product. Check our websites and dealers website routinely for updates, or contact us directly for more detailed questions you might have.





Troubleshooting

Serial Numbers Record the serial numbers found on your motor, frame, controller, charger and battery here for reference. This are important datas for us to understand and troubleshoot your eZeebike.

Proof of purchase Keep your proof of purchase handily, with the date of purchase clearly marked.

Afterword

As people all around the world have begun to realize how easy and beneficial it is to ride our electric bike. At eZee, our mission is simple - to continue to make the best electric bike out there. We're on the constant lookout for ways to evolve our bikes, to find methods and adapt solutions for our bikes to enrich lives everywhere.

We also want to get to know and thank everyone of you. If you have anything to ask, to comment or suggest; perhaps you have an idea, a project to discuss, or simply would like share your stories and photos with us. Contact us directly, we want to hear from you!

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