

E-TRIKE XT MANUAL



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WELCOME

First off, welcome to the Wattwheels family! We are so happy to have you on board! You have picked a great model and, in this manual, we're going to break down the basics to make sure that your trike remains in top shape and performs to the highest standard.

You are about to experience the ride of your life. To get you out and having fun as quickly and as safely as possible please read the all the manual carefully, paying close attention to the safety section.

Also, we highly recommend familiarizing yourself with local regulations for e-trikes and the components of the model that you have before your first ride.

Please also ensure that the trike is regularly serviced as per the instructions later in this document. Failure to get the trike serviced can result warranty claims being void if they are required. A trike is a vehicle, and like a car needs to be serviced on regular occasions.

Wattwheels assumes that all persons involved in using, repairing, maintaining, cleaning, or disposing of this or any Wattwheels product must have fully read and understood the content and meaning of these operating instructions.

Additionally, Wattwheels claims no responsibility for any injury or damage resulting in improper use of any electric trike.

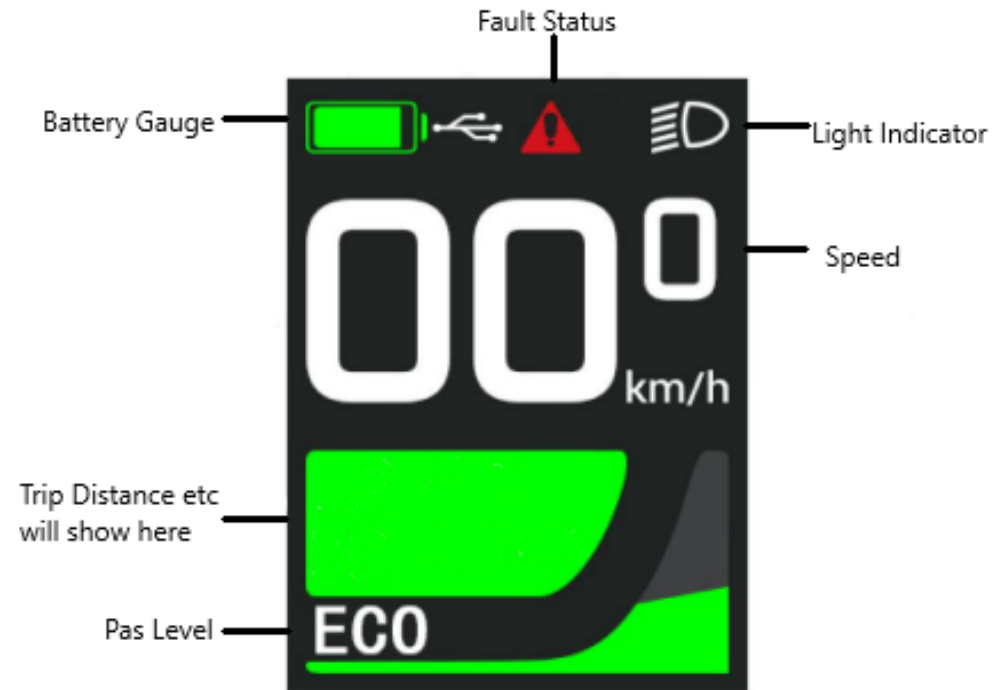
USING THIS MANUAL

This manual contains details of the electric trike, its equipment, and information on its operation and maintenance. Read it carefully and familiarize yourself with the E-Trike XT before using it to ensure safe use and prevent accidents. This manual contains many Warnings and Cautions concerning the safe operation and consequences if safe setup, operation, and maintenance are not performed. All information in this manual should be carefully reviewed and if you have any questions you should contact your local retailer immediately.

Because it is impossible to anticipate every situation or condition which can occur while riding, this manual makes no representations about the safe use of tricycles under all conditions. There are risks associated with the use of any tricycle which cannot be predicted or avoided, and which are the sole responsibility of the rider. You should save this manual, along with any other documents that were included with your bicycle, for future reference, however all content in this manual is subject to change or withdrawal without notice. Visit www.wattwheels.co.nz to download the latest version. Wattwheels makes every effort to ensure accuracy of its documentation and assumes no responsibility of liability if any errors or inaccuracies appear within.

LCD DISPLAY FEATURES

The image shows the various features and information displayed on the LCD display. The display is controlled using the 5-button remote mounted on the left side of the handlebar.



D16 Normal display interface

LIGHTS & BACKLIGHT DISPLAY

To activate the lights and illuminate the display hold down the light button, located at the top of the keypad. A little icon should appear above the speedo indicating the light is on. This will turn on the front and rear lights. To turn off, hold down the light button again.

TRIP/ODO & TIME

To change between the various modes press the mode button. They will be displayed in the following order:

Odometer- Single trip distance- Single trip time- Single trip max speed- Single trip average speed- Single trip average power- Instantaneous power- Motor power- Riding power- Remaining distance- Riding frequency

BATTERY DISPLAY CAPACITY

The LCD readout on the handlebar of your E-Trike features a battery capacity gauge (much like the fuel gauge on a car). It is recommended that users stop operating the bike on electric once the indicator starts flashing on the last bar and recharge. Remember you can still ride without using the motor or display.

PAS (Pedal Assist Modes)

Your Trike has 5 levels of PAS. PAS levels 0-5 will be displayed as OFF, ECO, TOUR, SPORT, TURBO and BOOST. ECO is the first pedal assist level and will give you some slight assistance. Press the plus and minus buttons on the control panel to toggle between the levels. As you select the higher levels, the assistance will increase with BOOST basically doing all the work for you. Using higher levels of PAS will drain the battery faster. The recommended PAS levels are ECO, TOUR, and SPORT to ensure good battery life. Note- OFF means no assistance from the motor and you would have this on if you wanted to ride without assistance but measure distance/speed etc.



If the bike is stationary for a period of 5 minutes or longer without any movement it will automatically turn off. These are safety features employed on the bike. If transporting the bike on the back of a vehicle, please ensure the display is covered with a waterproof cover. Although they are designed to be ridden in wet conditions traveling at high speeds in wet weather can cause water to get past the display seals.

WALK ASSISST

To activate the walk assist, hold down the walk button. This will propel the bike forward at around 6km/h. This can be used if you need to walk the bike up a hill and need some assistance in doing so. Release the walk button to deactivate walk assist.

ODO - Displays total distance ridden on the bike. This cannot be reset and keeps accumulating

Trip Distance – The distance ridden on your ride. This can be reset in the settings menu

Trip Time – The time it's taken you to ride on your trip. This can be reset in the settings menu

Max Speed- The maximum speed you have reached on your ride. This can be reset in the settings menu

Avg Speed- The average speed of your trip. This can be reset in the settings menu

SPECIAL FUNCTIONS

Hold down the plus and minus buttons at the same time to enter the settings menu. The plus and minus buttons will move the selector up and down and the on/ off button is used as the confirm button.

Trip distance reset-. Switch to the “reset trip” option in the menu. Press confirm. Select yes, then select return to go back to previous interface. Hold down the confirm button to return to normal operation screen

KM/h or MP/h setting – press the plus or minus button to select the speed unit option and press confirm. Select your desired unit and press the confirm button to select. Select the return option to return to the main menu.

Please see the separate display manual for more detailed information

Please contact your local retailer if you need any assistance on this. Alternatively, you can check Wattwheels website for up-to-date instructional videos.

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THROTTLE

The throttle is located on the left-hand side of the handlebars in the form of a thumb piece as pictured below. Please be careful as these throttles are set to operate the E-Trike XT from stationary so any slight press of this will propel the E-Trike XT forward if the trike is in PAS 1 or above. The throttle can be used when taking off from a stationary start, as a cruise control or just if you need a break! Please be aware using the throttle will drain the battery much quicker than normal riding. Also, the throttle is not designed to climb steep hills. To get the maximum amount of power from the E-Trike XT on steep gradients select the highest level of PAS, use the lowest gear, and assist the trike by pedalling.



When using the throttle from a standing start please ensure you start in a lower gear and low PAS. Starting the trike in Level 5 PAS and the highest gear can put a lot of stress on the motor and will wear the motor faster. As a preventative measure we have included a program on the trike that the throttle will only allow 50% power until the trike reaches 10km/h. Once it's over 10km/h the throttle will allow 100% power if required. This is to help preserve the motor and prevent wear and tear on the chain and cogs.



BRAKES

The E-Trike XT electric trikes are equipped Tekro hydraulic disk brakes. Please take care while braking initially, when getting familiar with the trike. The front wheel brake is located on right hand side with the rear wheel brake on the left. For riders which prefer the brakes the other way around please get your nearest bike shop to switch over if required. There are also park brakes located on the levers. A little clip on both sides. To use please hold in the brake lever and clip the latch over.

TYRE PRESSURE

To avoid flats, keep tyre pressure at the recommended PSI. On off-road terrain a slightly lower PSI will provide more grip, but flats can occur. We recommend a pressure of between 5-35PSI.

CHAIN

The E-Trike XT has a mid-drive motor which transfers immense torque through the chain when shifting. In response, KMC has developed E-bike specific, torsion resistant chains to manage these extreme drivetrain conditions – the X E-bike Series. The direct force from the mid-motor to the cassette causes an enormous strain load on the chain which means a stronger and more durable chain is crucial. KMC has contended with this by combining 20% upgraded durability with the highest Pin Power on the market to ensure longer chain life and higher torsion and stress resistance for the KMC X E-bike Series Chains. When replacing a chain please make sure you get an e-bike graded one to cope with the torque as mentioned above. Also ensure the chain is lubricated on a regular basis so talk to your local trike shop on what they suggest. The current model chain supplied with the trikes is a KMC E-bike specific chain.

CHANGING GEAR

Wattwheels uses a Shimano Nexus 7 speed gear hub on our trikes. To change gear twist the shifter to go up and down a gear. The gear number is displayed in a small box on the shifter unit.



When changing gear please stop pedalling momentarily to allow the system to change gear.

DRIVING RANGE

The range of your E-Trike XT is the distance the trike will travel on a single full charge of battery pack. The range values in this manual are estimates based on expected usage characteristics. Some of the factors which effect range include changes in elevation, speed, payload, and acceleration, number of starts and stops and ambient air temperatures. Tyre pressure and terrain are also important variables to consider.

We suggest that you ride conservatively when you first get your E-Trike XT to get to know your trike and travel routes.

Once you become familiar with the range requirements of your travel routes, and the capabilities of your E-Trike XT you can then adjust you riding characteristics if you so desire.

The following table provides general estimates and outlines various factors effecting range and their combined estimated effects on range. This table is meant to help owners understand the factors that can increase or decrease range, but Wattwheels makes no claims to the range that individual users might obtain.

Expected Range	Operating Conditions
40 Km	<ul style="list-style-type: none">o Hilly Terraino Heavy Payloado High Throttle useo High Speedso High PAS
65 Km	<ul style="list-style-type: none">o Flat Terraino Normal Payloado Not Windyo Medium Speedso Moderate PAS
100+ Km	<ul style="list-style-type: none">o Flat Terraino Normal Payloado Not Windyo Low Pedal Assist Levelo Moderate to Heavy Pedalling



With the battery indicator located on the bottom left of the display please take note on new trikes the indicator can drop quite quickly initially. If this happens do not be alarmed as this is normal and is due to the BMS (battery management system) we use in the trikes and it will take a few charges for the cells to balance out. There will also be instances of voltage sag where the voltage drops when using a high level of PAS, biking up hills or under a heavy load which again is normal. As mentioned, it is good to do a few smaller rides first to get familiar with the trike and the range you can get depending on what settings you have the trike on. Pay close attention to the section in looking after your battery to prolong and maximise its life.

ADJUSTING THE SEAT HEIGHT

Use the quick release seat post clamp to release the seat post and pull upwards or push downwards to reach desired height.



*Ensure seat post and seat are properly adjusted before riding. Do not raise the seat post beyond the **MINIMUM INSERTION** marking etched onto the seat post. If your seat post extends from the frame beyond these markings, the seat post or frame may break, which could cause you to lose control and fall. Prior to first use, be sure to tighten the seat clamp properly. A loose seat clamp or seat post binding bolt can cause damage to the bicycle or can cause you to lose control or fall. Periodically check to make sure these the seat clamp is properly tightened.*

RIDER COMFORT

To obtain maximum comfort, the rider should not overextend his or her arms while riding. To obtain the most comfortable riding position and offer the best possible pedalling efficiency, the seat height should be set correctly in relation to the rider's leg length. The correct saddle height should not allow leg strain from over extension, and the hips should not rock from side to side when pedalling. While sitting on the bicycle with one pedal at its lowest point, place the ball of your foot on that pedal. The correct saddle height will allow the knee to be slightly bent in this position.



BATTERY & CHARGING

The battery can be charged by leaving the battery in the trike or by removing it. To charge while on the trike open the rubber cap located on the right-hand side of battery and plug in the cable. On the new Ananda trikes there is also an additional charge port located on the black plastic housing on the seat tube.



To remove the battery, Turn the key to the unlock position and then slide the battery out of the battery holder. Removing the battery from the trike when storing it for a long period of time is recommended. In this case store it in a cool, dry area away from water. The charge left in the battery should be 50%-75% for long storage times. Cleaning the battery and battery housing should only be done while disconnected and powered off. Use a dry rag or if needed a lightly damp rag.



DO NOT spray with high-pressured water to prevent damage or possible short-circuiting. Only charge the battery with the supplied charger as others may not function properly, and this increases the possibility of fire or explosion.

Do not store the charger or battery in a wet/damp place or in direct sunlight.

Lithium-ion batteries can last longer if you recharge with 10-15% of the charge remaining to prevent damage to the cells. Keep both the battery and charger out of the reach of children and if there appears to be an issue with the charger or battery, stop use immediately and contact either the manufacturer or Wattwheels at admin@wattwheels.co.nz

BEST PRACTISES FOR EXTENDING BATTERY LIFE

- o Use Pedal to assist when climbing hills and accelerating from a stop. Keep throttle to a minimum
- o Avoid sudden starts and stops.
- o Accelerate slowly.
- o Keep within the recommended weight limit (130kg)

CHARGING

- Firstly, insert plug of the charger into charging socket of the battery box.
- Second, Insert the charger into the socket of the home power supply. It shows the power has already been put through when the indicator lamp of the charger is on.
- It is charging when the indicator light is red. When the light turns from red to green, it indicates that the battery is fully charged.
- After the green light is on, the charger is in little electric current and "fill slowly mode". It will not be harmful to the battery if left to charge for a longer period or overnight. We recommend not leaving on charge for longer than 48hours.



DO NOT use the charger of other brands to charge. The electric apparatus contains a high-pressure circuit and is not compatible with some brands.

USEFUL TIPS

- When starting off or climbing hills, please try and ride with the pedal assist over the throttle, otherwise the energy consumption will be extremely high. By doing this it can lengthen the life of battery and motor.
- This specified load of the Electric Bicycle is 130kg, please do not overload otherwise it will void the warranty
- While riding if the level of charge shows only one bar flashing it is recommended to ride without power in PAS 0 at this time and charge as soon as you can.
- Turn off the display and remove the key, while parking or storing the trike.
- Inspect the bolts on a regular basis, to ensure that they are tight, and all components are secure. Pay close attention to crank bolts, cranks, stems, quick release front and rear wheel nuts.
This is especially important if you are riding in demanding conditions.
- Regularly check the brake pads. The provided Tektro pads should be replaced if they have:
 - Been contaminated.
 - Have less than .8mm of material
 - Cracks or deformation
- To replace the brake pads or perform other maintenance take it to a qualified bicycle mechanic at your local bike shop.
- Properly inflate your tyres according to riding conditions. Under-inflated tyres are prone to get flats, especially if riding off-road.
- Please do not dismantle and repair parts by yourself. Please go to your local bike repair shop. This trike comes with a manufacturer's warranty (document included) so any standard repairs please contact Wattwheels, and we will arrange a service agent close to you to look at the trike. We carry spare parts so anything electrical that a standard trike shop doesn't have we will ship to your nearest retailer.

PARKING, STORAGE & TRANSPORT

Please follow these basic parking, storage, and transport tips to ensure your trike is well cared for on and off the road.

- o When pushing the trike manually, turn off the power to avoid accidental acceleration from the motor.
- o It is recommended to park indoors.
- o Switch the power off, and any lights to conserve battery. Remove the key from the trike and ensure the battery is locked into the frame or removed and brought with you for security if needed.
- o In public places, your E-Trike XT must be parked in accordance with local rules and regulations.
- o If you must park outdoors in rain, or wet conditions you should only leave your E-Trike XT outside for a few hours and proceed to park the trike in a dry location afterwards to allow all the systems to dry out. Much like a regular trike, using in wet conditions mandates a more regular maintenance schedule to ensure your trike does not become rusty, corroded and to ensure all systems are always working safely.
- o Do not park, store, or transport your E-Trike XT on a rack that is not designed for the size and weight of the trike.
- o Wide tyres, as used on E-Trike XT Trikes, cannot fit into all bike racks, please select an appropriate rack for the width of tyres used on your trike.
- o Locking up your trike is recommended to ensure your trike is secure and the chance of theft is reduced. Wattwheels makes no claims or recommendations on the proper lock hardware or procedures to secure your trike, but we do recommend you take the appropriate precautions to keep your E-Trike XT trike safe from theft. Consult your local bike shop for recommendations.
- o When storing your trike or carrying your trike on a rack for transport, you can remove the battery pack to reduce the weight of the trike and make lifting and loading easier.

SAFETY CHECK	BASIC STEPS
1. Brakes	<ul style="list-style-type: none"> o Ensure front and rear brakes work properly. o Ensure brake pads are not over worn and are correctly positioned in relation to the rims. o Ensure brake control cables are lubricated, correctly adjusted and display no obvious wear.
2. Wheels and Tyres	<ul style="list-style-type: none"> o Ensure tyres are inflated to within the recommended limits displayed on the tyre sidewalls. o Ensure tyres have tread and have no BULGES OR EXCESSIVE WEAR. o Ensure rims run true and have no obvious wobbles or kinks. o Ensure all wheel spokes are tight and not broken. o Check axle nuts and quick releases to ensure they are tight. If your bicycle is outfitted with quick release axles, ensure the locking levers are correctly tensioned and in the closed position.
3. Steering	<ul style="list-style-type: none"> o Ensure the handlebar and stem are correctly adjusted and tightened and allow proper steering. o Ensure the handlebars are set correctly in relation to the forks and the direction of travel.
4. Chain	<ul style="list-style-type: none"> o Ensure the chain is oiled, clean and runs smoothly. o Extra care is required in wet or dusty conditions
5. Bearings	<ul style="list-style-type: none"> o Ensure all bearings are lubricated, run freely, and display no excess movement, grinding or rattling. o Check headset, wheel bearings, pedal bearings and bottom bracket bearings. (contact your local store for assistance)
6. Cranks and Pedals	<ul style="list-style-type: none"> o Ensure pedals are securely tightened to the cranks. o Ensure the cranks are securely tightened and are not bent.

7. Gears & Brakes	<ul style="list-style-type: none"> o Check that the gear hub is adjusted and functioning properly. (see how to tune nexus hub online) o Ensure shift and brake levers are attached to the handlebar securely. o Ensure all brake and shift cables are properly lubricated.
8. Frame and Fork	<ul style="list-style-type: none"> o Check that the frame and fork are not bent or broken. o If either are bent or broken, they should be replaced.
9. Accessories	<ul style="list-style-type: none"> o Ensure all reflectors are properly fitted and not obscured. o Ensure all other fitting on the trike are properly secured and functioning. o Ensure rider is wearing a helmet and any other required riding safety gear.
10. Motor Drive Assembly and Throttle	<ul style="list-style-type: none"> o Ensure mid-motor is spinning smoothly and the motor bearings are in good working order. (contact your local store for assistance)
11. Battery Pack	<ul style="list-style-type: none"> o Ensure battery is charged before use. o Ensure there is no damage to battery pack. o Lock battery to frame and check to see that it is secured.

BASIC TROUBLESHOOTING

Symptoms	Possible Causes	Most Common Solutions
It does not work	<ol style="list-style-type: none"> 1. Insufficient battery power 2. Faulty Connections 3. Battery not fully seated in tray 4. Improper turn on sequence 5. Brakes are applied 	<ol style="list-style-type: none"> 1. Charge the battery pack 2. Clean and repair connections 3. Install battery correctly 4. Turn on trike with proper sequence 5. Disengage brakes
Incorrect distance, speed readings and/or reduced top speed	<ol style="list-style-type: none"> 1. Insufficient battery power 2. Speed sensor is not centred or missing 	<ol style="list-style-type: none"> 1. Charge or replace battery 2. Check on the rear wheel that the silver magnet matches up in the centre of the black sensor.
When powered on the motor does not respond	<ol style="list-style-type: none"> 1. Loose wiring 2. Loose or damaged throttle 3. Loose or damaged motor plug wire 4. Damaged motor 	<ol style="list-style-type: none"> 1. Repair and or reconnect 2. Tighten or replace 3. Secure or replace 4. Repair or replace
Reduced range	<ol style="list-style-type: none"> 1. Low tyre pressure 2. Low or faulty battery 3. Driving with too many hills, headwind, braking and/or excessive load 4. Batter discharged for long period of time without regular charges, aged or damaged. 	<ol style="list-style-type: none"> 1. Adjust tyre pressure 2. Check connections or charge battery 3. Assist more with pedals or adjust route 4. Replace the battery
The battery will not charge	<ol style="list-style-type: none"> 1. Charger not connected properly 2. Charger damaged 3. Battery damaged 4. Wiring damaged 	<ol style="list-style-type: none"> 1. Adjust the connections 2. Replace 3. Replace 4. Repair or replace
Wheel or motor makes strange noises	<ol style="list-style-type: none"> 1. Damaged motor bearings 2. Damaged wheel spokes or rim 3. Damaged motor wiring 	<ol style="list-style-type: none"> 1. Replace 2. Repair or replace 3. Repair or replace motor.

ERROR DETECTION

Your E-Trike XT is equipped with an error detection system integrated into the LCD display and motor controller. In the case of an electronic system fault an error code should display. The error codes are listed below and can help detect what the issue is on the trike. If your trike has an error code displayed at any time it is recommended that you cease operation and contact your local dealer or Wattwheels.

4. Brake Error (Check brake levers, check plugs, check cables from levers)
5. Controller over temperature (Let the motor cool down)
6. Motor over temperature (Let me motor cool down)
8. Display communication error (Check plugs and cable)
9. Controller over voltage/under voltage (Check battery has sufficient charge)
30. Communication error (check cables aren't pinched or damaged, check display)
31. MCU error (replace motor)
36. Torque Sensor error (replace motor)
37. Speed sensor error (check magnet on rear wheel lines up with black sensor)

SERVICING

To ensure your trike remains in great shape just like a car it requires regular servicing. Failure to do so may void any potential warranty claims. Please retain your receipts for proof of service

2-3 MONTHS:

DATE:

STORE/MECHANIC:

SIGNATURE:

12 MONTHS:

DATE:

STORE/MECHANIC:

SIGNATURE:

6 MONTHS:

DATE:

STORE/MECHANIC:

SIGNATURE:

24 MONTHS:

DATE:

STORE/MECHANIC:

SIGNATURE:

WARRANTY

To activate your warranty please go to <https://www.wattwheels.co.nz/warranty>. A link is located at the bottom of our webpage.

Wattwheels Ltd warrants that all new products are warranted to the Buyer against manufacturing defects in materials and/or workmanship for the following periods:

Motor/Battery	24 months
Frame	60 months (Folding trikes & trikes is 36months)
Additional Components	12 months

For commercial operations where the trikes are being used a hire trike then the following applies:

Motor/Battery	12 months
Frame	24 months (Folding trikes is 18months)
Additional Components	6 months

The warranty period is calculated from the point of delivery. The original receipt of purchase is required to establish proof of purchase and must be provided to Wattwheels for all warranty claims. Wattwheels will require the customer to complete a MANDATORY standard procedure for warranty claims that will involve media such as photos and videos to help Wattwheels after sales staff establish the fault with the product.

Goods we sell are subject to a full comprehensive warranty. The costs/inconvenience caused by the loss of use of the product, are not covered whilst the warranty procedure takes place. The warranty for replacement components will be based on the date of delivery. Under no circumstance will a replacement component have a warranty date different than the original date of delivery. If a replacement is necessary due to a defect in materials and/or workmanship, then upon return to Wattwheels, the component will be replaced during the warranty period.

Wattwheels will have no obligation under this warranty in the event the product is damaged or destroyed as a result of any of the following events: components used on a non Wattwheels product, damage or destruction by abuse; collision; theft; improper maintenance or mishandling of the product; natural forces such as wind, lightning, hail, etc.; any wilful or negligent act; penetration, or opening of the product casings in any manner. Replacement will be honoured only by Wattwheels.

This is Wattwheels exclusive warranty. No party is granted express or implied authority to change or annul this warranty in any manner. Implied warranty including that of merchantability and fitness for a particular purpose are expressly limited in duration to the duration of this warranty. Wattwheels disclaims any liability for special, incidental, or consequential damages.

This warranty is not meant to suggest or imply that the products cannot be broken or will last forever. It does mean that the product is covered subject to the terms of the warranty. This warranty applies only to the original Buyer of the product and is not transferable to subsequent owners or any other party. This warranty is void if the product is subjected to abuse, neglect, improper repair, improper maintenance, alteration, modification, an accident or other abnormal, excessive, or improper use, at the sole discretion of Wattwheels.

Warranty Exclusions

This warranty does not cover:

- normal wear and tear
- damage or failure from abuse, neglect, misuse, or accident
- damage from stunt riding, ramp jumping, acrobatics, competitive events, such as bicycle racing, bicycle motocross racing, or similar activities or any activity that is not consistent with the intended use of the product
- damages resulting from improper charging of the battery pack or use of any charger not supplied by Wattwheels
- installation of any parts, accessories, or electrical component(s) not originally intended for or compatible with the product as sold, or any modification of the frame or any component(s) originally supplied; tires, brake pads, chains, lights, motors, battery packs, displays, or vehicle controllers that have been opened for any purpose whatsoever, other than by Wattwheels
- All warranties are void if the product is used for any purpose other than the reasonable intended use of the product. Additionally, this warranty does not cover damage associated with commercial use.
- Aftermarket components or modifications

All implied warranties, including the warranties of merchantability and fitness for a particular purpose, are limited in duration to that of the express warranties stated above.

Warranty Procedure

Proof of purchase must be provided. The original Purchaser must contact a Wattwheels representative to discuss the problem with the product. The original Purchaser is responsible for the return of the product, undamaged in transit, to Wattwheels for warranty work and for the costs associated with shipping the component(s) when returning them. If Wattwheels determines a warranty claim is valid and conforms with this warranty, Wattwheels will replace component(s). For valid warranty claims hereunder, Wattwheels will reimburse the original Purchaser for shipping costs incurred as a result of returning the product to Wattwheels for warranty work at standard ground shipping rates, and Wattwheels will pay for shipping costs to return the product to the original. You must retain and send us the receipts for shipping.

Limited Liability

Unless otherwise provided, the sole remedy under the above warranty, or any implied warranty, is limited to the replacement of defective parts at the sole discretion of Wattwheels. In no event shall Wattwheels be responsible for direct, incidental, or consequential damages, including, without limitation,

damages for personal injury, property damage, or economic losses, whether based on contract, warranty, negligence, product liability, or any other theory.

Cancellation

Buyer has a 14-day period to cancel an order for a full refund. After the cancellation period, no refunds will be awarded. The Goods will be delivered with no returns.

Returns

Our extensive quality control means that our products are thoroughly tested and ultra-reliable by industry standards. All products are warranted to work as

described on arrival and for the warranty period. If there is a warranty claim, it will be assessed by Wattwheels and new parts will be delivered upon claim's approval. Wattwheels will accept the return of warranted components. If there is a major fault with the product, contact Wattwheels immediately. Wattwheels will not accept returns for change of mind.

Questions

Please contact us at admin@Wattwheels.co.nz

wattwheels



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Preface

Dear Users, to ensure better performance of your e-bike, please read through the D16 product introduction carefully before using it. We will use the brief words to inform you of all the details (including hardware installation, setting and normal use of the display) when using our display. Meanwhile, the introduction will also help you solve possible confusion and barriers.

1. Appearance, Size and material

1.1 Main materials and colors

The product adopts the combination of black PC + ABS plastic housing. No sharp angle in appearance. The appearance effect is black leather texture treatment. The Working temperature scope of housing material is -20°C-- 60 °C, and can ensure normal use and good mechanical performance of the products.

The screen is 2.4 "TFT color dot matrix LCD.

The buttons are separated from the display independently.

The protection grade is IP66. The strength is in accordance with the thrust > 250N. The vibration grade is in accordance with IEC regulation. The material of the parts complies with the RoHS, Reach certification requirements. **The display complies with CE certification requirements. The tightening torque of the locking screws is 1N.m.**

Physical drawing and dimensions: (Unit: mm)



2. Function Summary & Button definition

2.1 Function Summary

D16 provides you with a variety of functions and displays to meet your riding needs.

Display content list as follows:

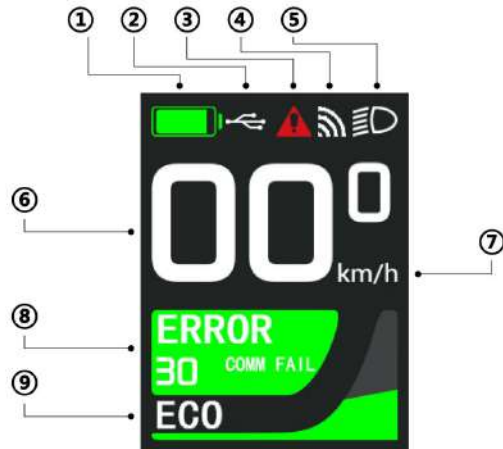
- Capacity of the battery
- Real-time Speed

-
- Mileage data (ODO, single trip, single trip time, max speed, average speed, average power, Instantaneous power consumption, motor power, riding power, remaining distance and riding frequency)
 - PAS level
 - 6km/h walk assist
 - Turn on/off headlight, brightness control automatically (According to the light intensity of the external environment)
 - USB charging function, output voltage/max output current: 5V/1A
 - Setting functions: Single trip distance Clearance, Backlight Setting, Speed unit, Power Unit; Factory reset, wireless status and name(Optional), Automatic shutdown time and customized data showing setting function.
 - Read only information:
Motor firmware version number, motor hardware version number, motor serial number, wheel diameter, odometer;
Battery firmware version number, battery hardware version number, battery serial number, battery voltage, battery cycle times, battery SOH;
Display firmware version number, display hardware version number and display serial number;
 - Automatic control of backlight brightness (According to the light intensity of the external environment)
 - Error code
 - Multi set up parameters





Standard parameters of D16 Display:

- ◆ According to EN 15194:2017 Standard
- ◆ Display Supports ADST function (For details, please refer to ADST programming tool full function (Standard Version) operation manual)
- ◆ Communication protocol: 'Ananda new European standard display controller v11.0 protocol_Version 1.3.4" and above, (The latest version from Hikobike shall prevail and be compatible with previous versions)
- ◆ Match with wide voltage battery including 24V/36V/48V
- ◆ The maximum working current is 50mA

2.2 Normal Display Figures






D16 Normal display interface

- ① This area shows the current battery remaining power, including the power progress bar mode  and grid mode , and the figure shows the progress bar mode.
- ② This area shows USB status indication
- ③ This area shows fault status indication
- ④ This area shows wireless status indication (Not Used)
- ⑤ This area shows headlight status indication; Including automatic headlight mode  and manual headlight mode 
- ⑥ This area shows real-time speed
- ⑦ This area shows speed unit
- ⑧ This area shows trip mileage
- ⑨ This area shows PAS level

2.3 Button definition

Button unit is connected to the bottom of display via lead cable

Button description:

- ◆ On/Off button:  button, Replace with word "Switch"
- ◆ Plus button: + button, Replace with word "Plus";
- ◆ Minus button: - button, Replace with word "Minus";
- ◆ Headlight button:  button, Replace with word "Headlight";
- ◆ Walk button:  button, Replace with word "Walk";

Please note: the "on/off" button is used as the "Mode" button, which is replaced by the word "Mode"; the "on/off" button is also used as the "Confirm" button, which is replaced by the word "Confirm".

3. Note for users



Be care of the safety use. Don't attempt to release the connector when battery is on power.



Try to avoid hitting.



Don't split the waterproof sticker to avoid affecting the waterproof performance



Don't modify system parameters to avoid parameters disorder.



Make the display repaired when error code appears.

4. Installation Instruction

Fix the display onto the handlebar and adjust to an appropriate visual angle. Power off the E-bike, plug the connector of the display with the connector corresponding to the controller to complete the installation.

5. Normal Operation

5.1 On/Off

- When the battery has output current, the display turned on. If long press the battery Switch button, the battery will be turned off, and the display will automatically shut down at the same time, and the system will be shut down.
- When the battery has output current, the display turned on. If the display is turned off first and then the battery is turned off, and the system is turned off.
- When the battery has output current, if the display has been turned on, press and hold the display switch button for 2 seconds, and the display will be closed. If the display is not turned on, press and hold the display switch button for 1 second to turn on the display.
- If the system is not used for several minutes (the specific time can be set in the instrument parameter setting / automatic shutdown time setting item), the display will sleep automatically, and the display dormant current is less than 6 mA.
- If the system has not been used for 30 minutes, the battery and the whole system will turn off automatically
- After the display is powered on, the Hikobike start-up interface is displayed first, and then the main interface is entered. In the main interface, the display can enter the locking interface through wireless control. When shutting down, the Hikobike shutdown interface will be displayed first, and then the system will be shut down.



Start-up interface



Main interface



Shut down interface



Locking interface

5.2 Real-time speed/Trip mileage display interface

After the display is turned on, the current speed can be refreshed in real time on the main interface, and the mileage related data can be viewed at the same time.

Short press "MODE" button to switch and display mileage data content in the following order:

Odometer → Single trip distance → Single trip time → Single trip max speed → Single trip average speed → Single trip average power → Instantaneous power → Motor power → Riding power → remaining distance → Riding frequency.



Real-time speed and Odometer display

5.3 6km/h Walk assist mode

You can enter the 6km/h walk assist mode in the main interface.

Press and hold the "WALK" button to activate the walk mode and light up the walk mode sign. After pressing the "WALK" button, you can perform 6km/h assistant function; if you release the "WALK" button, the function will be invalid and exit the walk mode




Walk assist interface


The walk assist mode can only be used when the user is pushing the E-bike. Do not use it when riding.

5.4 Headlight On/Off

You can turn on or off the headlight in the main interface

Automatic mode  (default mode): In manual mode, press and hold "HEADLIGHT" button to switch to automatic mode

The display automatically controls the headlight on and off by sensing external light. The light will turn on when the exterior light is dark, and turn off when the exterior light is bright.

Manual mode : In automatic mode, long press the "HEADLIGHT" button to switch to manual mode. In this mode, when the headlamp is off, press the "HEADLIGHT" button to turn on the headlight; when the headlight is on, press the "HEADLIGHT" button to turn off the headlight.



Manual mode



Automatic mode

5.5 PAS Level

You can switch the PAS levels in the main interface. Short press the "PLUS" button to increase the PAS level, and short press the "MINUS" button to decrease the PAS level. The motor output power can be changed by increasing or decreasing the PAS level of E-bike.

The range of PAS level is 0-5 levels. The 0 level is no output power, and the 5 level is the highest output power level of the motor. The default start up level is level 1. When 0-5 level is selected, "OFF", "ECO", "TOUR", "SPORT", "TURBO" and "BOOST" are displayed respectively. "WALK" is displayed in walk assist mode.



OFF level



ECO level



TOUR level



SPORT level



TURBO level



BOOST level



WALK assist mode

5.6 Battery Power display

In the main interface, the battery power display is refreshed in real time.

The battery content supports two display modes: progress battery power bar mode (in case of successful communication between battery and display) and battery power grid mode (in case of communication failure or no communication between battery and display). The display mode of power progress bar is prior to the grid mode, and can be automatically switched according to the communication status between battery and display. The power progress bar display mode shows the real-time proportion of battery SOC content, and the grid mode displays the real-time power content of current battery (0 ~ 5 grids). When the remaining power of the battery is less than 20%, it is shows in red, and flashes when it is less than 10%.

When the battery is sufficiently charged, the current power status will be displayed in the green grid or the percentage of green progress bar. When the battery is low power, the current state of battery will be displayed in the red grid or the percentage of red progress bar, indicating that the battery is under voltage and needs to be charged immediately.

With battery communication, the delay time from power on to normal showing of the display is 1 second; without battery communication, the delay time from power on to normal showing of the display is 3 seconds; the display and battery communication interruption delay 5 seconds to switch to the controller power , Switch to battery power immediately after communication resumes.



Battery grid mode



Battery progress bar mode

5.8 USB Charging

Plug in the device that needs charging when display is off. After turn on the display, the battery will charge the device through the display, and the USB charging logo on the interface will be light up.

After the device that needs USB charging is plugged in at the power on state, long press the "PLUS" button in the main interface to activate the USB charging function. If charging is in progress, the USB charging logo on the display interface will light up.



USB Charging indicator

5.9 Error Code

In the main interface, if there is an electrical fault in the E-bike electronic control system, the latest fault code will be displayed in real time, and the red "A" mark will be displayed in the upper column.

When the E-bike finds fault in electric control system, the display will shows error code automatically. Only after the fault is eliminated, the fault code can be cleared. At the same time, the "A" logo showed in the upper column will disappear synchronously.

Please check the attached table 1 for detailed definition of error code



Error code display interface

6. User Settings

In the information interface, press and hold the "PLUS" and "MINUS" button at the same time to enter the setting interface. Short press the "CONFIRM" button in the setting menu to enter the sub option. In the final option menu, short press the "confirm" key to confirm the current option. After selecting the "Return" option, press the "CONFIRM" key to return to the previous menu. Long press the "CONFIRM" button in any setting menu to directly return to the main interface.

The setting interface is divided into four levels of sub options. For details of setting menu contents, please refer to attached table 2:

6.1 Single trip distance clearance

Short press the "MINUS" or "PLUS" button to switch to the "Reset trip" option. Select the "Yes" option, and then short press the "CONFIRM" button to clear the relevant data of single trip.

Short press "CONFIRM" button on the "Return" option to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

The default value is "No".



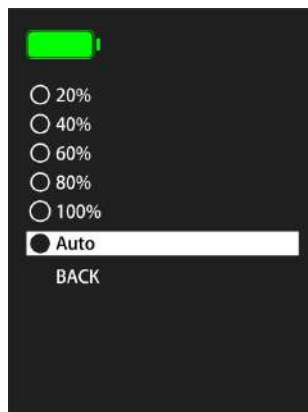
Single trip clearance interface

6.2 Brightness

Short press the "MINUS" or "PLUS" button to switch and select the backlight level. Short press the "CONFIRM" button to confirm the currently selected backlight level.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is "Auto".



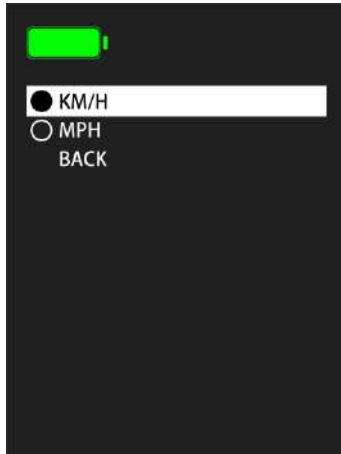
Backlight setting interface

6.3 Speed unit setting (Metric / Imperial)

Short press the "MINUS" or "PLUS" button to select the speed unit option. Short press the "CONFIRM" button to confirm the currently selected speed unit.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is "KM/H".



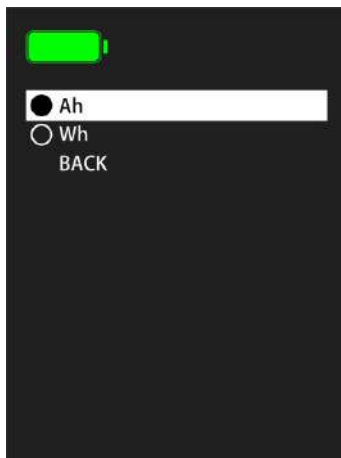
Speed unit setting interface

6.4 Consumption Unit

Short press the "MINUS" or "PLUS" button to select the power unit option. Short press the "CONFIRM" button to confirm the currently selected power unit.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is "Ah".



Power unit setting interface

6.5 Factory reset setting

Short press the "MINUS" or "PLUS" button to select the reset option. Select "Yes" option, and then short press the "CONFIRM" button to reset and clear all data back to the factory settings.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is "No".



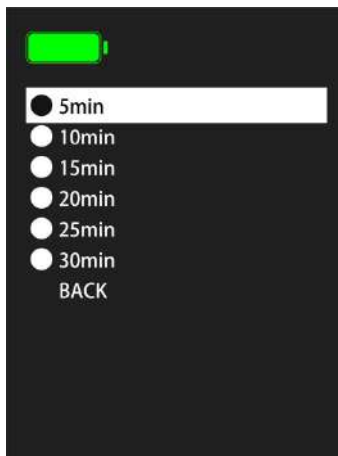
Factory reset setting interface

6.6 Auto Off

Short press the "MINUS" or "PLUS" button to select the automatic shutdown time option. Short press the "CONFIRM" button to confirm the currently selected automatic shutdown time.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is "5min".



Automatic shutdown time setting interface

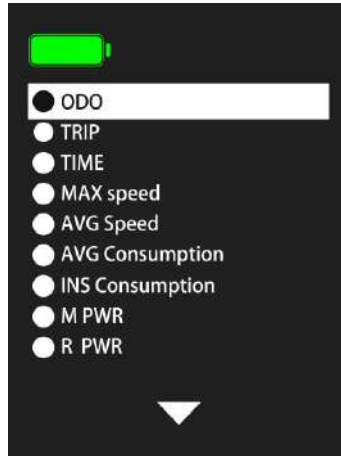
6.7 Available Function

Short press the "MINUS" or "PLUS" button to select the customized data showing setting function.

After selecting the option to be shown, press the "CONFIRM" button to determine whether the current option is selected. The symbol "○" in the front means not showing this option, and the symbol "●" indicates to show this option.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long

press "CONFIRM" button to return to the main interface.
Default setting is shows all the options.



Customized data showing setting interface

7. Read-only information

In order to make users know more about our walk assist E-bike system, the display supports to view the parameters of the walk assist E-bike system.

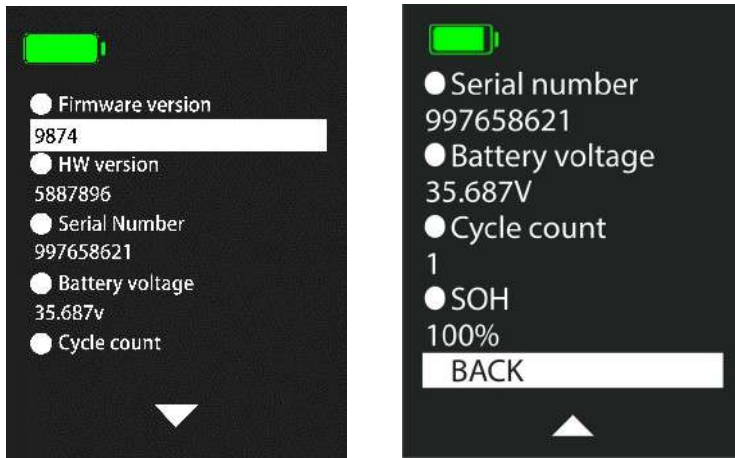
7.1 Motor read-only information

Short press the "MINUS" or "PLUS" button to select the read-only information option of the motor to be viewed.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.



Motor read-only information interface

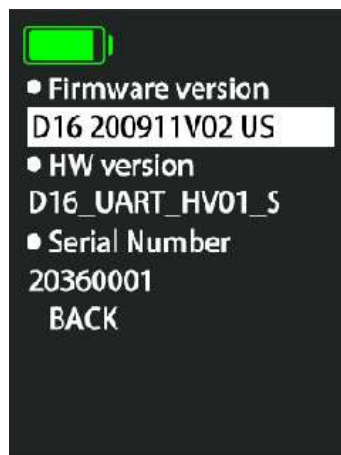


Battery read-only information interface

7.3 Display read-only information

Short press the "MINUS" or "PLUS" button to select the read-only information option of the display to be viewed.

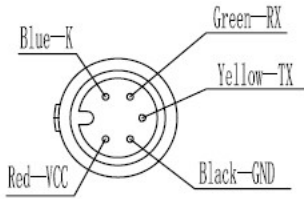
Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.



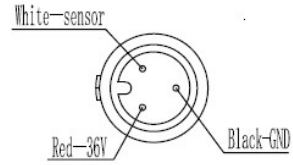
Display read-only information interface

11. Circuit Diagram and wire sequence

Standard connector wire sequence:



Connecting end with controller



Connecting end with buttons

Standard connector wire sequence table

Standard Wire	Color of standard Wire	Function
1	Red (VCC)	Display power wire
2	Blue(K)	Power control wire of controller
3	Black(GND)	Instrument Ground wire
4	Green(RX)	Data receiving wire of display
5	Yellow(TX)	Data transmission wire of display

Note: waterproof connector is used for the lead wire of some products, so the user can't see the color of the lead wire in the harness.