# HYBRID/FAT BIKE USER MANUAL

Contents

**Edge.bike or its parent company will accept no liability for any damage or injury/death caused whilst using their bikes or equipment. Edge.bike also makes no claims implied or otherwise about their products meeting the legal requirements. It is up to you to establish whether the bike meets the legal requirements in your country of residence.**

## Introduction

Thank you for purchasing your new edge.bike electric bike! We know you'll enjoy using it, and with proper care, it should give you years of pleasure and enjoyment.

This manual describes how to do the final assembly safely and includes tips for use and maintenance.

Please read this manual carefully before starting with the final assembly.

## About edge.bike and its design

The edge.bike electric bicycle range has been designed for commuting, long distance cycling, or short trips around the town. The edge.bike is therefore suitable for use on public roads as well as off road pathways.

For the hybrid model the edge.bike's unique frame geometry, combines three riding positions in one frame allowing the cyclist to choose the most optimal and ergonomic position for their needs. This will depend on the cyclist's size, performance, power and health. This means that the edge.bike is very comfortable and efficient for long distances.

Please note that the bike is NOT suitable to be used in extreme conditions such as extreme downhill tracks, or jumping.

The maximum allowable payload for the bicycle is:

- Cyclist: 120kg

## Safety

**Mechanical Safety Checks**

Routinely check the condition of your bike:

- Make sure no fasteners have come loose.
- Perform a visual inspection of the whole bicycle before every ride.
- Make sure tyres are correctly inflated within the range given on the tyre sidewall.
- Check your brakes for proper operation.
- Check all spokes and nuts for correct tightness.

**Your First Ride**

To familiarise yourself with the features, controls and performance of your new electric bike. We would strongly recommend that you select and area away from other cyclists, cars, obstacles and busy road for your first test ride.

## Carrying luggage on your bike

It's important to ensure that luggage carried on the rear carrier is attached securely and that it doesn't exceed the maximum weight limit. Please ensure you only use appropriate pannier sets for your luggage needs. Any panniers should be attached to the carrier securely.

**Maximum allowable luggage**

Total luggage weight should not exceed 15kgs, including pannier sets. The weight of the luggage should be distributed evenly, with a maximum of 7.5kgs on each side of the carrier.

**Warnings regarding carrying luggage**

- Do not overload the rear carrier with more than the maximum allowable weight.
- Do not attach a child seat to the standard rear rack supplied.
- Use a carrier designed specifically for this purpose.
  - Fasteners on the rear carrier should be properly fitted and regularly checked.
  - The carrier bolts should be tightened with 2.5nm torque.
  - Carrying the maximum luggage allowed may influence the bike's handling and braking performance.
- Make sure there are no loose items or straps hanging from the panniers or rack, as these could damage wheel spokes.
- Ensure that luggage fitted on the carrier does not obstruct the visibility of any lights fitted to the carrier or bicycle.

## Item Checklist

Each electric bike is assembled under the strictest quality control standards. Upon completion, each electric bike is test ridden by a technician inside the assembly factory to check that every function and adjustment on the bike is perfect.

**Item Checklist**

- Electric bike with front wheel and handlebars.
- Charger box (this may contain other important parts).
- Pedals (left and right). Note that the left and right pedals are different.
- Any loose boxes may container other parts, so please check all packaging thoroughly before discarding.
- Rear mudguard should already be fixed in place as will the front light, and stand.

## Summary for setup

Your edge.bike bike is fully assembled in our factory and tested to high standards. To fit into an appropriately sized shipping carton and to comply with the various courier requirements, some basic parts of the bike are temporarily removed. This is to fit the bike into the shipping carton safely, and allow us to package each part of the bike so that it is delivered in perfect condition.

The instructions below will guide you through the final setup. Your bike may arrive in a more assembled state than what is shown here. These steps are required for most customers (packaging and final assembly can vary by country).

The main steps are:

Step 1 - Unpacking/ Unboxing.
Step 2 - Identify the pieces for final assembly.
Step 3 – Fastening the front wheel.
Step 4 – Aligning & fastening the handlebars.
Step 5 - Left and right side pedals.
Step 6 – Seat.

**Tools required:**

Allen keys (4/5/6mm).
Spanner (15mm).

**Other equipment not provided:**

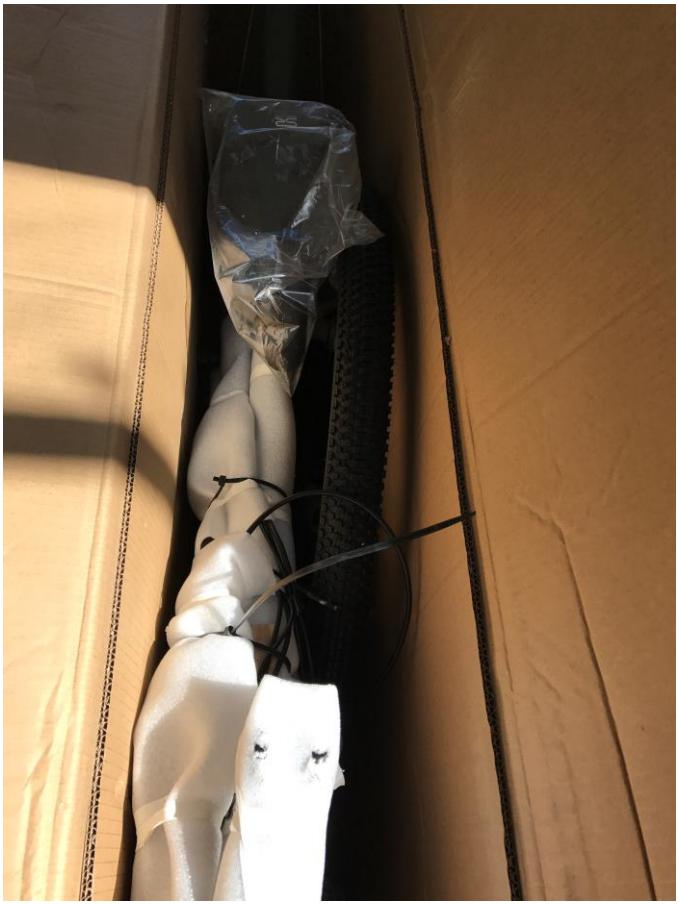
Bike, or service station car tyre pump (use this with caution) and never over inflate.

## Unpacking

Unpacking your edge.bike is very exciting, but it's important to *take care* when unpacking the bike, as it's possible to accidentally damage the bike or misplace crucial parts. We would recommend that you ask someone to give you a helping hand unpacking and assembling your bike.

Remove the protective packaging from the bike carefully with a box cutter, or a pair of scissors. Be very careful that you don't cut any cables or wires. Accidents cannot be claimed under warranty. Be careful that no components are misplaced in the loose packaging (a lot of protective packaging is used).

**Note**: We would recommend lying the box on its side and slowly pulling out the bike. It might help if you ask someone to help. DO NOT PULL EXCESSIVELY and ensure that the chain or derailleur is not being dragged or caught up in the carton.



**Note:** The keys will be fastened to the frame or handlebars of your bike. Make sure you do not lose these as they are coded and a replacement set will not be readily available.

## Main Components

After you've taken your edge.bike out of its shipping carton, you should have the following components:

**The Bike Frame complete with Back Wheel and Mudguard.**

## Front Forks & Light

## Handlebar fixing

**Seat**


**Note**: This might be fastened to the bike separately, or in the shipping carton.

**Pedals**

**Note**: These might be fastened to the bike separately, or in the same box as the charger.

**Charger**

**Front Wheel**

Insert the front wheel into the front forks, making sure the brake disk is lined up to fit into the brake callipers.

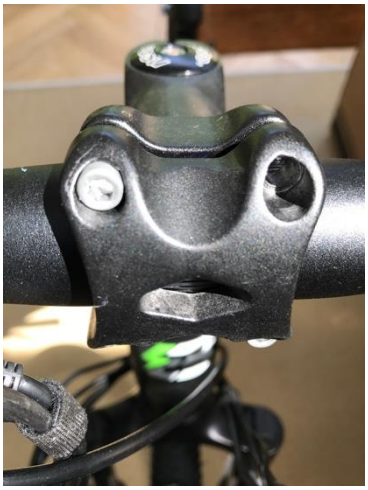
**Note**: It may be easier to do this step with the bike upside down on its seat and handlebars. Be careful not to damage the display when doing this.

Next, insert the quick release skewer. WARNING failure to do this properly will cause serious damage to your bike and you !

Push the skewer through the axle and ensure the forks are resting in the correct place. Hand tighten the nut and then press down the level this should be quite firm.

**Handlebars**

The handlebars will be already be connected to cables and wires. All that's required for final setup is to insert the handlebars into the head tube clamp and bolt into place using



all 4 bolts.

Tighten the bolts as shown above, making sure the handlebars are aligned to the front wheel.

**Pedals**

All bicycles (electric bikes included) have left and right side pedals. Make sure you identify each one. The image below shows you how to identify the right pedal. Note the 'R' written on the pedal, indicating that this is the right pedal, to be used on the right hand side of the bike (if you were sitting on the bike).

The right pedal should be fitted to the right side crank (if you were sitting on the bike), while the left pedal goes on the left crank. The right pedal has a right hand thread, which means it should be tightened by turning clockwise (normal). The left pedal has a left hand thread and it will tighten when turned anticlockwise (opposite to normal). **Don't** confuse the pedals and accidentally cross thread them. If a pedal goes on too tight, double-check that you haven't made a mistake.

The pedals are designed this way so that pedalling while riding does not loosen them.

Screw in the pedals as described above. Tighten with a spanner between the pedal and the crank.

**Seat**

Insert the seat to the desired height (about hip height) as shown below:

Align the seat clamp with the groove and loosely tighten it using the thumbscrew.

Place the seat is into the hole and adjust to the desired height, then close the clamp to lock the seat in position.

**Adjusting the light**

To adjust the light loosen the Allen bolt and re-tighten as required.

## Battery Operation

The battery for your edge.bike is the most expensive component and the most crucial.

If you press the rubber button on the top of the battery the led indicator will tell you how much power you have left.

To remove the battery by following these steps. Use the key provided to unlock the battery:


Turn the key from the locked to the unlocked position and pull the battery handle to remove the battery. This can sometimes feel a bit tight so a slight wiggle might help.

Remove the battery before charging it. If the bike is to be transported by car, we recommend removing the battery and storing it in a safe place inside the car. When mounting the battery, insert it in the same manner in which it was removed. The base of the battery should be inserted first and should be positioned firmly against the bottom of the cavity.

Rotate the top of the battery into the battery cavity. As it is a tight fit, this may take a couple of attempts to get it right.

It is important that the battery be locked into place before using the bike. Pull on the battery handle gently to make sure it is definitely locked.

Remove the battery before transporting or charging.

Place the battery back into the chassis and check that it is secure by pulling the handle gently.

Your battery also has a handy USB charger which can be used to charge devices such as your mobile phone.

## LCD Operation

### Product name and model

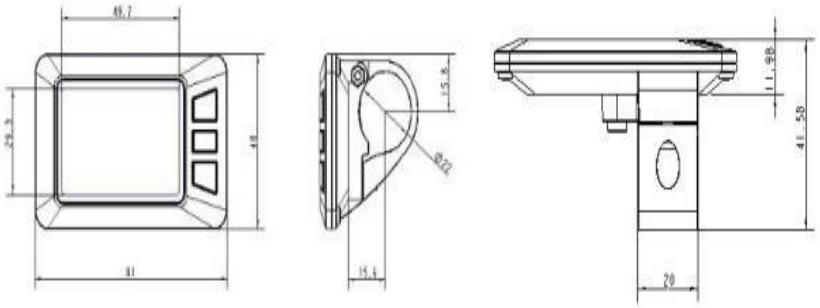
Intelligent E-bike LCD display, model KD21C.

### Specifications

- 24V/36V/48V Power Supply
- Rated working current: 10mA
- The maximum working current: 30mA
- Off leakage current: <1uA
- The supply controller working current: 50mA
- Working temperature:-20℃~ 60℃
- Storage temperature: -30℃~ 70℃

### Appearance and Size

Display appearance and dimensions (unit: mm)

## Function Summary and Button Definition

### Function Summary

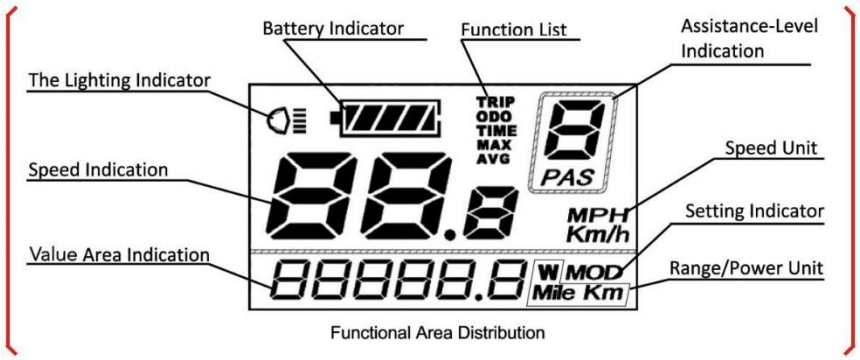
The KD21C provides many functions to meet users' needs.

- Battery level indicator
- Motor output indication
- Assistance level indication
- Speed indication (incl. current speed, Max. speed and Avg. speed)
- Trip distance and total distance
- Push-assistance function
- Trip time
- Lighting On/Off
- Error code indication
- Various Parameters Settings (e.g. wheel diameter, speed limit, battery level bar, assistance level, current limit, maximum speed, password enable, etc.)
- Recover Default Settings

### Assembly

The KD21C display should be mounted on the left handlebar of the edge.bike at a comfortable angle. Switch off the power before connecting the display to the controller.

### Functional Area Distribution




### Button Definition

There are three buttons (M, +, −) on the KD21C display that represent the following functions respectively: MODE, UP and DOWN.

## General Operation

### Switching the E-bike System On/Off

To switch the E-bike system on, hold the **MODE** button for 2 seconds.

Hold the **MODE** button for 2 seconds again to switch the E-bike off.

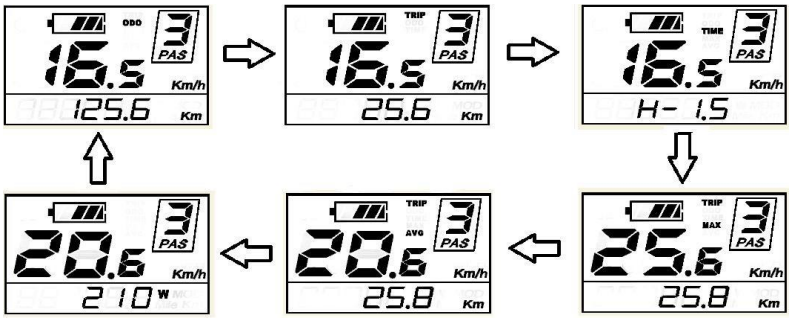
When switching off the E-bike system, the leakage current is less than 1 μA.

**When parking the E-bike for more than 10 minutes, the E-bike system switches off automatically.**

### Display Interface

After switching on the E-bike system, the display shows current speed and total distance, as well as the battery indicator and assistance level.

To change the indicated information, press the MODE button to show the following information in order: Current Speed (Km/h) → Trip Distance (Km) →Trip Time (Hour) → Maximum Speed (Km/h) → Average Speed (Km/h) → Motor-output (W) →Current Speed (Km/h).




### Switching Push-assistance mode On/Off

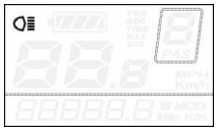
To access the push-assistance mode, press and hold the DOWN button. The E-bike will move at a constant speed of 6 Km/h and “P” is shown on the screen at the same time. The push-assistance function switches off as soon as you release the DOWN button.


Push-assistance Mode

**The push-assistance function may only be used when pushing the E- bike. Danger of injury when the wheels of the E-bike do not have ground contact while using the push-assistance function.**

**Switching the Lighting On/Off**

To switch on the display backlight and headlight of the E-bike, hold the UP button for 2 seconds. Hold the button for 2 seconds again to switch the backlight and the headlight off.



Switch On/Off the Lighting

**Assistance Level Selection**

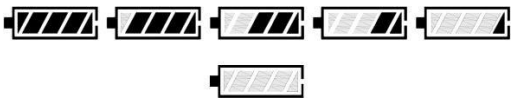
Assistance levels indicate the output power of the motor. The default value is level “1”. The default power ranges from level “0” to level “5”.The output power is zero on Level “0”. Level “1” is the minimum power and level “5” is the maximum power. If level “5” is selected and the UP button is pressed, the “5” will flash to indicate you are already in top gear. If level “0” is selected and the DOWN button is pressed, the “0” will flash to indicate you are already in the lowest gear.

To change the assistance level, press the UP/DOWN to increase or decrease until the desired assistance level is displayed.


Assistance Level “3”

**Battery Indicator**

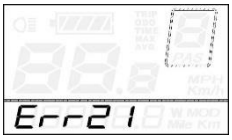
The five battery bars represent the capacity of the battery. When the battery is low, the battery frame will flash to indicate that the battery needs to be recharged immediately.



Low Voltage Flash Battery Indicator

**Error code Identification**

If there are errors in the electronic control system, the error code will appear automatically.




Error Code Indication

**When an error code appears, please refer to an authorized E-bike dealer.**

**General Settings**

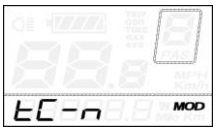
After the E-bike system is switched on, access the general settings menu by holding both the **UP** and **DOWN** buttons for 2 seconds.

**Trip Distance Clearance**

TC represents trip distance clearance setting.

To clear trip distance, press the **UP**/**DOWN** button to choose Y or N. The default value is N.

To store a changed setting, press the **MODE** button and then access the backlight contrast settings.



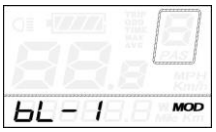

Trip Distance Clearance Settings

**Backlight Contrast**

bL represents backlight contrast settings. Level “1” is the lowest brightness, level “2” is the middle brightness and level “3” is the highest brightness. The default value is “1”.

To change the backlight brightness, press the UP/DOWN button to increase or decrease until the desired setting is displayed.

To store a changed setting, press the MODE button and then access the unit conversion settings.



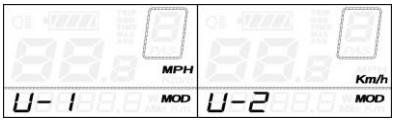

Backlight Brightness Settings

**Unit km/mile Conversion**

U represents unit settings, “1” is mile and “2” is kilometre. The default value is “2”.

To change the unit, press the UP/DOWN button to increase or decrease until the desired setting is displayed.

Briefly press the MODE button, and then circularly access trip distance clearance settings again, or hold the MODE button for 2 seconds and then exit general settings.




Mile and Kilometre Conversion Settings

**General Parameters**

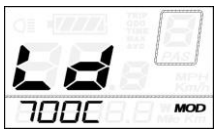
To access the general parameter settings interface, hold both the UP and the DOWN button for 2 seconds, then hold both the DOWN and MODE button for 2 seconds again.

**Wheel Diameter**

Ld represents wheel diameter settings. Available values are 16, 18, 20, 22, 24, 26, 700C and 28. The default value is 20 inch.

To change the wheel diameter settings, press the UP/DOWN button to increase or decrease until the desired value is displayed.

To store a changed setting, press the MODE button.




Wheel Diameter

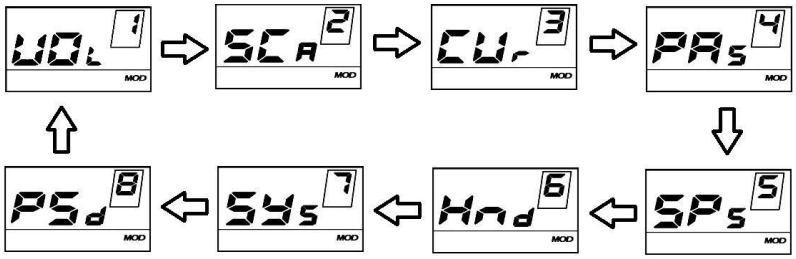
**Personalized Parameters**

Personalized Parameter Settings can meet a variety of requirements. There are 8 setting

items - Battery Power Bar, Power assistant level, Over-current Cut, Power Assistant Sensor, Speed Sensor, Throttle Function, System and Power-on Password.

To access the Personalized Parameter Settings items option page, hold both the UP and DOWN button for 2 seconds, then hold both the UP and DOWN button again.

To access the corresponding settings page, press the UP/DOWN button to increase or decrease until the desired item is displayed, and press the MODE button again.



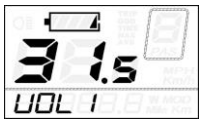

Option Selection

**Battery Power Bar**

VOL represents voltage settings. Each bar represents a voltage value. 5 bars voltage values must be entered one by one. For example, VOL 1 is first bar voltage value and the default value is 31.5.

To set a battery power bar, press the UP/DOWN button to increase or decrease the number.

Briefly press the MODE button and access the second bar. Once 5 bars voltage values have been entered, hold the MODE button to confirm and then return to the previous menu.




Battery Power Bar

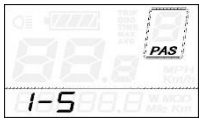
**Assistance Level**

**Assistance Level options**

In assistance level settings, there are 8 modes to select: 0-3, 1-3, 0-5, 1-5, 0-7, 1-7, 0-9, 1-9. The default value is 0-5.

To select the assistance level mode, press the UP/DOWN button to increase or decrease until the desired setting is displayed.

Briefly press the MODE button and access the PAS ratio settings page.




1-5 flash PAS Mode Option

**PAS Ratio**

The value of PAS ratio can be modify to match different requirements.

For example, the range is “45-55 percent” of “1” level, bottom value can be modified, and the default value is 50 percent.

Briefly press the MODE button and turn to the next PAS ratio settings.

After all the PAS ratios have been set, hold the MODE button for 2 seconds to confirm and then return to previous menu.


PAS Ratio

**Controller Over-Current Cut**

CUR represents controller over-current cut settings. The CUR value can be changed from 7.0A to 22.0A. The default value is 15A.

To change basic settings, press the UP/DOWN button to increase or decrease the value of the current.

Hold the MODE button for 2 seconds and then return to previous menu.


CUR Settings

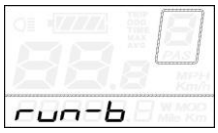
**Power Assistant Sensor**

**Power Assistant Sensor Direction**

PAS represents power assistant sensor settings. “run-F” means forward direction, while “run-b” means back direction. The default value is “run-F”.

To change The Direction of Power Assistant Sensor Settings, press the UP/DOWN button to select F or b.

Briefly press the MODE button and then access settings mode of PAS sensitivity.



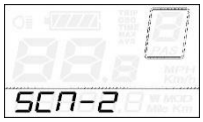

Direction of PAS Sensor

**PAS Sensitivity**

SCN represents the sensitivity of the PAS settings. The sensitivity value ranges from “2” to “9”. “2” is the most sensitive and “9” is the least sensitive. The default value is “2”.

To change the sensitivity of PAS settings, press the UP/DOWN button to select sensitivity value.

Briefly press the MODE button and then access magnet disk settings mode.



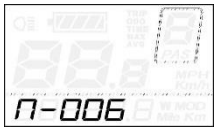

The Sensitivity of PAS

**Magnet quantity**

N represents the number of magnets on the PAS disk. The default value is 6.

To change the number of magnets on the PAS disk, press the UP/DOWN button to select quantity corresponding to the PAS disk.

Hold the MODE button for 2 seconds to confirm and then return to previous menu.



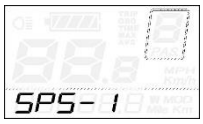

PAS Magnet Disk

**Speed Sensor**

SPS represents speed sensor settings. The default value is 1.

To change speed sensor settings, press the UP/DOWN button to select the required speed sensor setting in the range from 1 to 9.

Hold the MODE button for 2 seconds to confirm and then return to previous menu.



Speed Sensor Selection

**Throttle Definition**

**Throttle Push-assistance Enable/Disable**

HL represents throttle push-assistance function. HL-N represents throttle assistance push function is disabled. HL-y represents throttle assistance push function is enabled. The default value is N.

To change throttle push-assistance function, press the UP/DOWN button to select Y or N.

Briefly press the MODE button.

Otherwise, select N and then access Throttle Level Enable Settings.

Throttle Enable/Disable

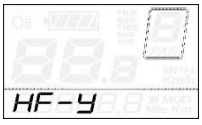
**Throttle Level Enable/Disable**

HF-y represents throttle level is enabled. HF-N represents throttle level is disabled. The default value is N.

To change throttle level function, press the UP/DOWN button to select Y or N.

Briefly press the MODE button and then access Throttle Enable Settings page.

Hold the MODE button for 2 seconds to confirm and then return to previous menu.



Throttle Level Enable or Disable

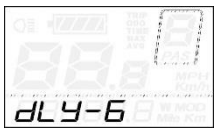
**System Settings**

**Delay time settings of battery power**

DLY represents delay time of battery power settings. The default value is 3 seconds.

To change delay time settings, press the UP/DOWN button to select delay time 3s, 6s, or 12s.

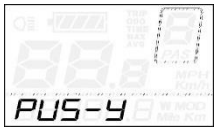
Briefly press the MODE button to confirm and then access the max speed limited.




Delay Time of Battery Power

**Button Push-assistance Enable/Disable**

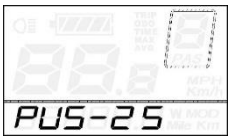
PUS represents button push-assistance settings. Y represents button push-assistance is enabled, N represents button push-assistance is disabled. The default value is Y.
To change button push-assistance settings, press the UP/DOWN button to choose Y or N.
Briefly press the MODE button to confirm and then access PAS speed settings.




Button Push-assistance

**PAS Speed**

To change PAS speed settings, press the UP/DOWN button to adjust from 20% to 35%,
Briefly press the MODE button to confirm and then access slow start up.
The default value is 25%.




PAS Speed

**Slow Start up**

SSP represents slow start up. The range is “1-4”, “4” is the slowest.

The default value is “1”.

To change slowly start up settings, press the UP/DOWN button to select the desired value.

Briefly press the MODE button and then circularly turn to Delay time settings of battery power page.

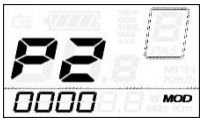
To return to previous menu, hold the MODE button for 2 seconds.


Slow Start Up

**Power-on Password**

P2, 0000 on the screen means power-on password settings. The default value is 1212.

To access the power-on password settings, press the UP/DOWN button to modify the value and then press the MODE button to confirm the digits one by one until the correct 4-digit password is completed. Press the MODE button to access power-on password enable settings interface, otherwise stay on the password input state.




Power-on Password

**Power-on Password Enable/Disable**

To change power-on password enable/disable settings, press the UP/DOWN button to select Y or N.

If it is Y, press the MODE button and then access power-on password modifying interface, otherwise exit the power-on password settings interface. The default value is N.

Y is power-on password enable N is power-on password disable


Power-on Password Disable

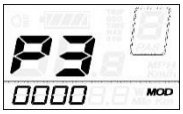
**Power-on Password Modifying**

When the display shows P3, 0000, to set new power-on password, press the UP/DOWN

button to modify the value and then press the MODE button to confirm the digits one by one until the new 4-digit password is completed.

To store the new power-on password, hold the MODE button for 2 seconds and then exit settings.

When switching the E-bike system on next time, the display will show P1, 0000, please input the new password to power on.




Power-on Password Modifying

**Exit settings**

In the settings state, briefly press the MODE button is to confirm the input. Holding the MODE button is to store the settings, and then exit the current settings. Holding the **DOWN** button is to cancel the operating but not storing settings data, and then return to previous menu.

**If there is not any operations in one minute, the display will exit the settings state.**

**Recover default settings**

dEF represents recover default settings. The default value is N.

To access recover default settings, hold both the UP and MODE button for 2 seconds and then access selecting interface, to press the UP/DOWN button to choose Y or N again. N means that do not recover default settings. Y means that recovers default settings.

When it is Y, hold the MODE button for 2 seconds to recover default settings, the display shows DEF-00 at the same time, and then return to general display state.


Recover Default Settings

## Quality assurance and warranty scope

### Warranty

The warranty is only valid for products used in normal usage and conditions.

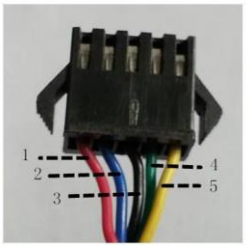
The warranty is valid for 12 months after shipment or delivery to the customer for the electrical components.

### Other items

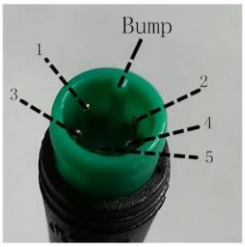
The following items are not covered by warranty:

- The display is broken/damaged
- The damage of the display is caused by wrong installation or operation.
- The shell of the display is broken after the display is out of the factory.
- The cable of the display is broken.
- Out of warranty period.
- The fault or damage of the display is caused by the force majeure (e.g., fire, earthquake, etc.).

## Connection layout




Display-side connector




Display-side adapter


Switch cable

## Line sequence table

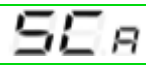
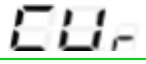
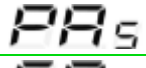
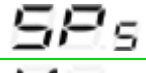
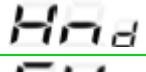
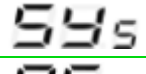
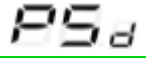
| Line sequence | Colour | Function |
|---|---|---|
| **1** | Red(VCC) | + |
| **2** | Blue(K) | Lock |
| **3** | Black(GND) | - |
| **4** | Green(RX) | RX |
| **5** | Yellow(TX) | TX |

Some cable use waterproof connectors and the colours can’t be seen.

## Error codes

| Error Code | Definition |
|---|---|
| **21** | Current Abnormality |
| **22** | Throttle Abnormality |
| **23** | Motor Abnormality |
| **24** | Motor Hall Signal Abnormality |
| **25** | Brake Abnormality |
| **30** | Communication Abnormality |

**Personality Parameter settings**

| No. | **Settings item** | **Screen display** |
|---|---|---|
| 1 | Battery Power Bar Settings |  |
| 2 | Power assistant level Settings |  |
| 3 | Over-current Cut Settings |  |
| 4 | Power Assistant Sensor Settings |  |
| 5 | Speed Sensor Settings |  |
| 6 | Throttle Function Settings |  |
| 7 | System Settings |  |
| 8 | Power-on Password Settings |  |

**Power assist table**

| Level / Level / Item | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 0-3/ 1-3 | 50% | 74% | 92% | — | — | — | — | — | — |
| 0-5/ 1-5 | 50% | 61% | 73% | 85% | 96% | — | — | — | — |
| 0-7/ 1-7 | 40% | 50% | 60% | 70% | 80% | 90% | 96% | — | — |
| 0-9/ 1-9 | 25% | 34% | 43% | 52% | 61% | 70% | 79% | 88% | 96% |

**Symbol definition**

| No. | Symbol | Definition |
|---|---|---|
| 1 | tC | Trip distance clearance |
| 2 | bL | Backlight |
| 3 | U | Unit |
| 4 | UOL | Voltage |
| 5 | Ld | Wheel diameter |
| 6 | LS | Speed limit |
| 7 | cur | Controller over-current cut |
| 8 | run-b | Backward |
| 9 | run-F | Forward |
| 10 | SCN | Sensitivity of PAS |
| 11 | SPS | Speed sensor |
| 12 | dLY | Power delayed time |
| 13 | HL | Throttle power assist walk |
| 14 | HF | Throttle-changing |
| 15 | PUS | Button push |
| 16 | SSP | Slowly start up |
| 17 | PSd | Password |
| 18 | dEF | Recover default |
| 19 | Y | Yes |
| 20 | n | No |

## Important Points for Best use

Please consider these important points for best use:

**Keys:**

The keys for your bike are zip tied to your handlebars. You will have 2 keys so please keep one as a spare separately. Replacing keys can only be done in the edge.bike Warehouse.

**Battery Indicator:**

The battery light indicator on the battery is not an indication of battery charge. The only approximation of battery charge level is on the LCD display. The only accurate way to know that the bike is 100% charged is by charging it until the charger light shows it is fully charged (next page). Conversely, the only way to know that the battery is flat is to use the bike until the LCD cuts out and does not turn back on. You do not risk damaging the electric system by running the bike flat. Just make sure you charge the bike after every ride.

**Maintenance:**

Make sure you routinely check the tightness of key fasteners (nuts and bolts) such as the front wheel, rear wheel, seat, handlebars, forks, pedals, brakes, etc.

**Battery Charge:**

Make sure you keep the battery topped up as often as practical. Charge the bike after every use, at least once a month if not being used and before each ride if you have not charged it in a week. It is not necessary to run the battery down at all. Leaving the battery flat runs the risk of completely depleting the cells, which could cause premature battery failure.

**Tyre Pressure:**

Make sure your tyres are pumped up to the correct PSI, which is indicated on the tyre sidewall.

**Power Switch:**

The battery has an on/off switch located near the handle. You must turn the switch on before powering up the bike, and turn it off after use. The LCD display turns the system on, once the battery is turned on.

## Charging

1. Plug the charger into the wall socket/ outlet, just like a laptop of mobile phone charger.

2. Check that one of the charger indicator lights glows green.

3. Plug the charger, (battery end) into the battery, making sure it is all the way in. Do not force it if there is an obstruction.

4. The charger indicator lights should glow red whilst charging.

5. Once one of the charger indicator lights changes from green to red, the battery is fully charged.

There is no way to over-charge the battery. When it is full, the charger will stop charging the battery automatically.

Charging time can vary from 1 to 5 hours if fully empty.

The battery should be charged once every month as a minimum to maintain healthy cells.

The best way to charge your battery is to plug it in after every use, and leave it on charge until the indicator light shows the battery is fully charged. It is not good practice to charge the battery partially.

## Maintenance

A little extra maintenance is required over and above a normal bicycle.

One of the main things you may come across is that your spokes need to be tightened more often than a non-electric wheel. Our wheels use 12G and 13G spokes, which handle the load and torque of these motors very well, but are more susceptible to coming loose.

A spoke-tightening tool such as the one shown above is a useful addition to your toolkit.

Check the tightness of each spoke ideally after the first 75miles and then every 300miles. As well as caring for your spoke tension, it's important to do a check on all your fasteners every few months. It never hurts to go over your bike with tools, tightening and checking everything that can be checked. This will ensure you have a safe and well-serviced bike.

Keep it clean !

This will ensure that all the electrical and mechanical items are kept in the best condition. Keep in mind you should still carry out the the usual bike maintenance like tyre pressures, brake pads, etc. The motor itself is a sealed unit and requires no maintenance during the design life.

Finally, it's important that you charge the battery at least once every month to ensure the battery maintains a safe storage level.

**Torque recommendations**

- Rear axle nuts 33N.m
- Seat pillar clamp nut/bolt 5-8N.m
- Brake cable anchor bolt 5N.m
- Brake centre bolt M6: 11N.m
- Gear shifter nuts 4N.m
- V brake calliper nuts 10N.m
- Rear carrier nuts 8N.m Mudguard bracket nuts 8N.m.
- Other torques depend on the size of the nut/bolt as follows:
  - M4 2.5-4N.m
  - M5 4-6N.m
  - M6 6-7.5N.m

**Warning**: All mechanical components on the bike will wear over time, depending on the type of the component and the material used. Any cracks, scratches or colour changes may indicate that the component is worn and it should be replaced.

You should not try to fix any electrical components by yourself; any electrical problems should be investigated by an Authorised edge.bike Bicycles Technician.

**Lubrication of the bike components**

The table below shows how often, on average, you should lubricate the bike's components.
If you are not experienced in bike maintenance, you should always use a professional bike mechanic for any maintenance.

**Component Lubricant Frequency**

| Frequency | Component | Lubricant | How to Lubricate |
|---|---|---|---|
| **Weekly** | Chain | Chain Lube or light oil | Brush on or squirt |
| | Derailleur wheels | Chain Lube or light oil | Brush on or squirt |
| | Derailleur | Oil | 2 drops from oil can |
| | Brake levers | Oil | 2 drops from oil can |
| **Monthly** | Brake callipers | Oil | 2 drops from oil can |
| **Every six months** | Freewheel | Oil | 2 squirts from oil can |
| | Brake cables | Lithium grease | Disassemble |
| | Shift levers | Lithium grease | Disassemble |
| **Annually** | Pedals | Lithium grease | Disassemble |
| | Derailleur cables | Lithium grease | Disassemble |
| | Wheel bearings | Lithium grease | Disassemble |
| | Headset | Lithium grease | Disassemble |

## Troubleshooting

edge.bike's troubleshooting advice will take you through a logical way to diagnose any issues that may arise during installation and use.

Before commencing troubleshooting, disconnect all components. Do not short cut this process. Loose plugs cause problems often. By disconnecting all the plugs and then reconnecting just the crucial components, this will solve any loose plug issue.

Go through one by one plugging in the other components (such as the e-brake plugs or the motor cable) to see if any of these are the cause of the problem. In this basic state, you may discover the culprit quickly.

| Fault | Solution |
| --- | --- |
| Display turns on, but motor does not Activate | Check the motor plug from the controller. This is a stiff connection and it will not work unless the plug is all the way in to the indicator line. The twisting of the handlebars can sometimes cause the plug to pull out slightly if there is not enough slack in the motor cable. |
| A high pitched rattling noise can be heard when accelerating | The vibration of the motor is very small, but at this frequency, it can do some odd things to the other components on the bike if they are loose. For example, a loose spoke or even a bolt on your rear rack. If something is just a little bit loose, sometimes this can reverberate and make a harsh high pitch rattling sound.<br>Nothing is broken or wrong, you just must identify the loose part! |
| Rim has a buckle or spokes coming lose all the time | We would recommend a competent wheel builder to fix any major spoke tension issues. There are however some good YouTube tutorials on how to adjust spoke tension. |
| Spokes has snapped or missing | edge.bike stocks spare spokes for very reasonable prices, just check out our spares section online and you can find the right type and length for your product. |
| Display won't turn on, unless the battery charger is plugged in | Check all the connections and make sure the battery is charged. If the display turns on only when the battery charger is plugged in, you will have to submit a service ticked with this information. |

| Fault | Solution |
|---|---|
| Error message on the display | Please refer to display manual for error code definition and if needed, report the error code to edge.bike in a service ticket. |
| My kit loses power over bumps | Check all connections to make sure all the plugs are all the way connected. Check that the battery is locked to the cradle and not loose. A momentary discontinuity in power will turn the kit off. |
| My battery cuts out intermittently | If the battery is low on power, or you are going up a very steep hill with a load on the motor, you will likely experience a voltage cut-off if you have overloaded the controller, or dropped the voltage below the low voltage cut-off, which is more prevalent at low power. This isn't a problem with the kit, it's plain physics. |
| I would like my battery capacity tested | Please contact edge.bike by submitting a support ticket to arrange the return of your battery for testing. If the battery tests above 85% capacity within the first year (from purchase date), you will be liable for return freight. If it is tested and is under capacity within the warranty period, your battery will be replaced. |
| Error 21 | Your speed sensor magnet (on the rear wheel spoke) has been bumped out of alignment and needs to be moved and fastened back into position so the sensor (rear chain stay) can pick up the signal. |

**Range extension:**

If you're not getting the approximate quoted range out of your e-bike system, take the following steps:

**1. Battery indicator lights – full charge.**

The LED and LCD battery level displays are a basic indication of battery charge, but they are based on voltages that is variable and not a true indication of battery capacity. The only accurate indication of a full charge is having charged the battery and the battery charger lights glowing green to indicate that the battery is fully charged.

**2. LED/LCD indicator light – running low**

Some customers find that the LED/LCD charge indicator can lead them astray in terms of how far the bike will go on low power. You don't risk damaging the system by riding all

the way to the controller low voltage cut-off. Keep riding on pedal assist even after the last battery indicator bar starts blinking.

### 3. Hills/riding style/other factors

The ranges quoted are from real world testing, with some hills and some flat areas. If your commute involves many hills, that's going to impact on the range. High-powered e-bikes are especially susceptible to being drained a lot more on hills. If you need to purchase a second charger to charge the battery at half way, or this can be a cost effect way of doubling your range.

### 4. General tips

- Make sure the wheels are running free (rubbing brakes can halve your range quite easily)
- Keep the battery topped up between uses (this is very important)
- Make sure the tyre pressures are at optimum (ideal pressures are written on the tyre side wall)
- Select the right gear for assisting up hills (the steeper the rise, the lower the gear needed)

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