



ATOMX USER MANUAL 2019



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INTRODUCTION

Congratulations on your purchase of this BH ATOMX. Enjoy your BH bike!

For over a century, BH has been synonymous with bicycles, cycling, sportsmanship and the will to improve. Many children have given their first, hesitant turns of the pedals with BH and many legendary cyclists built their reputations on our bicycles. The industrial activity of BH (Beistegui Hermanos) began in 1909, in the arms manufacturing town of Eibar (Guipúzcoa, Spain) thanks to the talent and entrepreneurial spirit of three brothers: Cosme, Domingo and Juan Beistegui Albistegui. The company, which initially manufactured weapons, took a radical change of direction after the First World War and set out to provide a fast, comfortable and affordable means of transport for the residents of Eibar. The result was some very lightweight, agile and reliable bicycles. This was the birth of one of the current cycling icons and one of the strongest and most successful brands. From that point onwards, thanks to technological advances and its commitment to sport, BH has brought sporting triumphs and numerous innovations to the world of cycling.

This manual is designed to help you with the functions and maintenance of your BH ATOM X pedal-assist bicycle.

FAILURE TO OBSERVE THE WARNINGS INCLUDED IN THIS MANUAL MAY LEAD TO SERIOUS INJURY OR DEATH.

Especially important information in this manual is highlighted by the following notations:

 WARNING	WARNING indicates a dangerous situation which, if not avoided, could lead to a fatal accident or serious injury. Follow the safety instructions that follow this symbol to avoid any injuries or fatal accidents.
ATTENTION	ATTENTION indicates special precautions that should be taken to prevent the vehicle and other property from being damaged.
NOTE	NOTE provides essential information to facilitate or explain the procedures.

* The product and specifications are subject to change without notice.

SEE THE LOCAL HIGHWAY CODE AND ROAD SAFETY REGULATIONS BEFORE OPERATING THIS PEDAL-ASSIST BICYCLE.

1. SAFETY INFORMATION

1.1 RIDING

- Do not pedal or move the bicycle while the battery charger is connected. If you do, it may cause the power cable to become entangled in the pedals, which may damage the battery charger, the power cable and/or the charging port.
- Do not ride the bicycle if there is a fault with the battery or any component of the pedal assistance system. Otherwise you may lose control and suffer serious injury.
- Do not start moving with one foot on a pedal and the other on the ground and then start riding the bicycle when you have reached a certain speed. Otherwise you may lose control and suffer serious injury. You should only start moving when you are properly seated on the bicycle seat.
- Do not activate the throttle function if the back wheel is not touching the ground. Otherwise, the wheel will rotate in the air at high speed and may cause injury.
- Be sure to check the remaining battery capacity before riding at night. The light powered by the battery pack will go off soon after the remaining battery capacity decreases to the point where riding with assisted power is no longer possible. Riding without a light may increase the risk of injury.
- Do not modify or remove any parts of the pedal assistance system. Do not install non-original parts or accessories. If you do, they may damage the product, cause a fault or increase the risk of being injured.
- When you stop, make sure that you apply the front and rear brakes and keep your feet on the ground. Leaving one foot on a pedal when stationary could accidentally activate the assisted power function, which could cause you to lose control and suffer serious injury.

1.2 CHARGER

- Never use this battery charger to charge other electrical devices.
- Do not use any other charger or charging method to recharge the batteries of the electric bicycle. Using any other charger may lead to a fire, explosion or damage to the batteries.
- This battery charger may be used by children aged 8 or over and by persons with physical, sensory or mental impairments, or who lack the necessary experience and knowledge, provided that they are supervised and instructed on how to use the battery charger safely and they understand the dangers involved. Do not allow children to play with the battery charger. Cleaning and maintenance should not be performed by unsupervised children.
- Although the battery charger is water resistant, do not allow it to be submerged in water or other liquids. Furthermore, never use the battery charger if the terminals are wet.
- Never touch the charger's power plug, charging port or contacts with wet hands. You may suffer an electric shock.
- Do not touch the charger's contacts with metal objects. Do not allow any foreign matter to enter, it may cause short circuits in the contacts, which may cause electric shock, a fire or damage to the battery charger.
- Regularly clean any dust off the power plug. Moisture or other problems could reduce the effectiveness of the insulation and cause a fire.
- Never dismantle or modify the battery charger. You may cause a fire or suffer an electric shock.
- Do not use multi-socket adaptors or extension cables. Using a multi-socket adaptor or similar may exceed the rated current and cause a fire.
- Do not use with the cable tied up or coiled and do not store with the cable coiled around the body of the main charger. If the cable is damaged it may cause a fire or you may suffer an electric shock.
- Firmly insert the power plug and charging plug in the socket. If the power plug and charging plug are not fully inserted, this may cause a fire due to an electric discharge or overheating.
- Do not use the battery charger near to flammable materials or gases. This may cause a fire or explosion.
- Never cover the battery charger or place objects on it while it is charging. This may lead to internal overheating and cause a fire.
- Do not drop the battery charger or expose it to strong impacts. Otherwise, it may cause a fire or electric shock.
- If the power cable is damaged, stop using the battery charger and take it to an authorised dealer.
- Handle the power cable with care. Plugging in the battery charger indoors while the bicycle is outdoors may lead to the power cable being caught on or damaged by doors or windows.
- Do not pass the wheels of the bicycle over the power cable or plug. Otherwise you may damage the power cable or port.

1.3 BATTERY

- Keep the battery and battery charger out of the reach of children.
- Do not touch the battery or battery charger during charging. As the battery pack and battery charger reach temperatures of 40–70°C during charging, touching them may lead to first degree burns.
- If the battery case is damaged, cracked or you notice unusual smells, do not use it. The leakage of fluid from the battery may cause serious injury.
- Do not short the contacts of the battery's charging port. If you do, it may cause the battery to heat up or catch fire, causing serious injury or damage to property.
- Do not dismantle or modify the battery. If you do, it may cause the battery to heat up or catch fire, causing serious injury or damage to property.
- Do not drop the battery or subject it to impacts. If you do, it may cause the battery to heat up or catch fire, causing serious injury or damage to property.
- Do not dispose of the battery in a fire or expose it to heat sources. Otherwise, this may cause a fire or explosion, resulting in serious injury or damage to property.

1.4 BLUETOOTH (ONLY COMPATIBLE MODELS)

- Do not use the wireless Bluetooth function in areas such as hospitals or medical institutions where it is forbidden to use electronic or wireless equipment. Otherwise, this may affect the medical equipment and cause an accident.
- When using the wireless Bluetooth function, keep the screen at a safe distance from any pacemakers in use. Otherwise, the radio waves may interfere with the operation of the pacemaker.
- Do not use the wireless Bluetooth function near to automatically controlled equipment, such as automatic doors, fire alarms, etc. Otherwise, the radio waves may interfere with the equipment and cause an accident due to a malfunction or unintended operation.

1.5 DISPOSAL

- The drive unit, battery, charger, display panel, torque sensor and accessories and packaging must be disposed of and recycled in an environmentally friendly way.
- Do not dispose of the bicycle or its components together with household waste.
- For EU countries:



Pursuant to Directive 2012/19/EU and Directive 2006/66/EC, electrical devices/tools that can no longer be used and defective or used battery packs/batteries must be disposed of and recycled separately and in an environmentally friendly way. Hand over any batteries that can no longer be used to an authorised bicycle supplier.

2. OVERVIEW OF THE PEDAL-ASSIST BIKE



3. PEDAL ASSISTANCE SYSTEM OPERATION

3.1 Components of the Pedal Assistance System

The BH EMOTION pedal assistance system consists of the following components:

A. A motor, which drives the bicycle. The location of the motor identifies the type of system used

a. Central Motor System. Motor located on the bottom bracket axle.

b. Rear Motor System. Motor located on the rear hub.

c. AWD System (All Wheel Drive System). Two motors located on the front and rear hubs.



Central Motor System



Rear Motor System



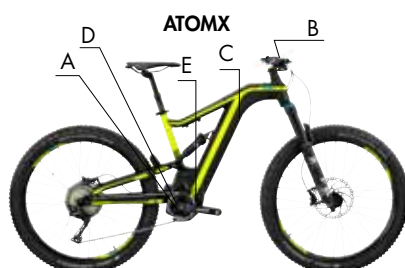
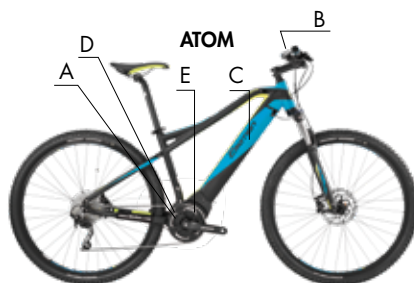
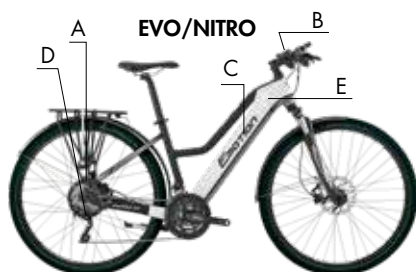
AWD System

B. A **display panel** which, among other things, allows you to select the assistance mode.

C. A **battery** that powers the operation of the motor and can be located in different places.

D. A **torque sensor** that reads the force applied on the pedal by the user.

E. A **control system** that acts as the brain of the system, receiving and sending signals to the other components.



3.2 The Pedal Assistance System

The pedal assistance system is designed to provide the optimal amount of assisted power.

It provides assistance within a standard range, based on factors such as the pedalling force, the speed of the bicycle and the drivetrain. The system does not provide assistance in the following situations:

- If the display panel is switched off.
- When travelling at 25 km/h or faster.
- If you are not pedalling and the throttle function is released at 6 km/h.
- If there is no remaining battery life.
- If the assistance mode selected is 0% assistance.

3.3 Assistance Modes of the Pedal Assistance System

There are multiple power assistance modes available.

Select the 100% AUTO power mode (or BOOST), the 70% mode (or SPORT), the 50% mode (or ECO+), the 30% mode (or ECO) or the 0% mode (or NO ASSIST), depending on what best suits your cycling conditions.

See the "DISPLAY PANEL" section to find out how to switch between assistance modes.

AUTO	Use when you want to obtain gradual power.
100% or BOOST	Use when you want to get maximum power from the system.
70% or SPORT	Use when climbing difficult terrains.
50% or ECO +	Use when you want a more comfortable ride, e.g. when climbing a steep hill.
30% or ECO	Use when you want to travel as far as possible.
0% or NO ASSIST	Use when you want to travel without assisted power. You can continue to use the other functions of the display panel.

3.4 Range of the Pedal Assistance System

The range of the system will vary, depending on the following riding conditions, among others:

- Frequent starts and stops.
- Gear ratio of the drivetrain.
- Numerous steep slopes.
- Poor road conditions.
- Transporting heavy loads.
- Cycling into a strong headwind.
- Low ambient temperature.
- Deteriorated battery.
- When using the light (only applicable to models equipped with battery-powered lights).
- If the bicycle is not in a suitable condition, e.g. low pressure in the tyres, insufficient lubrication of the chain or a brake not fitted correctly.

3.5 Starting Pedalling

Before resting your feet on the pedals, you must sit on the seat and hold the handlebar firmly. Special care should be taken if you start pedalling when using a high assistance mode (100%/BOOST mode, or 70%/SPORT mode), as the motor will respond with maximum thrust and you may lose control. To facilitate acceleration, the motor provides an additional initial thrust as soon as you start pedalling. So minimal force is necessary to put the bicycle in motion, helping you to join the traffic quickly and safely.

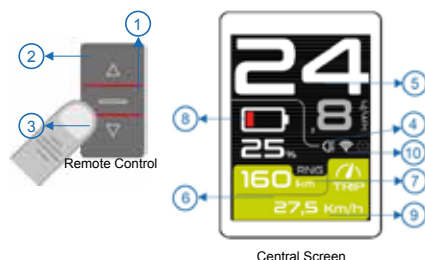
 WARNING	Start pedalling with a short gear ratio (higher gears) and low assistance mode (30% or ECO mode). As well as providing greater control and safety on the bicycle, it requires less energy consumption and, therefore, ensures a longer range. Please note that starting with a higher assistance mode (50%/ECO+, 70%/SPORT, or 100%/BOOST modes), may put the user's safety at risk.
 WARNING	When the user pushes the bike while walking alongside it, they must make sure that the system is disconnected.

4. DISPLAY PANEL

4.1 Overview of the Display Panel

Central Display Panel with a screen located in the centre of the handlebar, with a remote control located on the left side of the handlebar:

1. POWER button.
2. (+) button.
3. (-) button.
4. Lights indicator.
5. Bicycle instant speed indicator.
6. Pedal assistance mode colour indicator.
7. Range indicator.
8. Battery level indicator.
9. Bicycle secondary information indicator.
10. Bluetooth indicator.



Central Screen

NOTE

The range is calculated based on the riding conditions during the last kilometre and the remaining capacity of the battery.

4.2 Display Panel Operation

4.2.1. Switching the Pedal Assistance System On and Off

The pedal assistance system is turned on by holding down the POWER button for 3 seconds.
The pedal assistance system is turned off by holding down the POWER button again for 3 seconds.
The bicycle can be used normally without any type of assistance.



 WARNING	After turning the system on, make sure that you do not start riding without checking the assistance mode. By default, it starts with the assistance mode selected before it was last switched off.
NOTE	Wait for 3 seconds after turning on the system before you start applying pressure on the pedals. During this 3-second period, the assistance system is starting up and calibrating the torque sensor. Otherwise, if you press the pedal beforehand, this may weaken assistance and error 14 may even be displayed on the screen (see Troubleshooting section). To fix this, you should reboot the system without applying pressure on the pedals for a period of 3 seconds.

4.2.2 Pedal Assistance Mode Selection

The system has 5 pedal assistance modes:

AUTO	Identified by the Maroon Colour . Use when you want to obtain gradual power, according to the user's torque.
100% or BOOST	Identified by the Red Colour . Use when you want to get maximum power from the system.
70% or SPORT	Identified by the Orange Colour . Use when climbing difficult terrains.
50% or ECO +	Identified by the Blue Colour . Use when you want a more comfortable ride, e.g. when climbing a steep hill.
30% or ECO	Identified by the Green Colour . Use when you want to travel as far as possible.
0% or NO ASSIST	Identified by the Black Colour . Use when you want to travel without assisted power. You can continue to use the other functions of the display panel.

To toggle through the assistance modes, the user must press the (+) button to increase the level of assistance and the (-) button to reduce the level of assistance.

Instant Power Options



NOTE	During a journey, selecting suitable assistance modes for the terrain and pedalling conditions that you encounter will ensure the best balance between battery economy and pedalling comfort.
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4.2.3 Turning the Bicycle Lights On and Off.

Holding down the (-) button for 3 seconds will turn the backlighting of the display panel on and off. The lights will also be switched on and off in those models equipped with a battery-powered light system. At this moment, the lights on indicator will appear on the screen:



4.2.4 Viewing Secondary Information on the Screen.

The display panel's screen allows the user to view various useful information. The information on the screen changes when you press the POWER button according to the previous selection made in the "Settings" menu:



4.2.5 Battery Level Indicator.

The battery level indicator shows the estimated remaining battery capacity.

NOTE

In order to increase the life of the battery and prevent a full discharge which may damage it, the assistance modes are limited based on the state of charge of the battery:

- Battery with charge above 20%: All assistance modes are available.
- Battery with charge of 10-20%: 100%/BOOST assistance mode is not available.
- Battery with charge of 5-10%: Only 30% (ECO) and 0% (NO ASSIST) assistance modes are available.
- Battery with charge of 1-5%: No pedal assistance mode is available (0%/NO ASSIST). Only the lights can be turned on.



4.2.6. Settings Menu

The user can access the settings menu by holding down the (+) and (-) buttons for 3 seconds.
Press the (+) and (-) buttons to scroll through the different settings options. When you press the POWER button, you will enter the selected menu. Additionally, the system will exit the settings menu when the user holds down the POWER button for 3 seconds.



WARNING

When making any adjustments, make sure that you stop the bicycle and perform them in a safe place. Otherwise, the lack of attention to the surrounding traffic could cause an accident.



A) Resetting the trip information.

The user can view and reset the trip information at any time.

B) Selecting secondary information on the screen.

The user can select the information that will be shown on the screen's secondary information indicator.



C) Start-up profile.

The user can select the system start-up settings. Every time that the user turns the display panel on and off, the system will change the settings to those selected on this menu:



Secondary information



Assistance mode.



Lighting system.

This operates according to the display panel's brightness sensor.



Resetting of trip information .

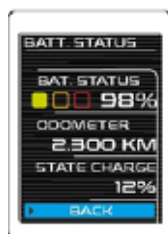


D) Screen brightness selection.

The user can alter the brightness of the screen so that they can view it correctly.

E) Metric and imperial systems.

The user can switch between the metric system (kilometres) and imperial system (miles).



F) Battery status.

On this menu, the user can view the state of deterioration of the battery and manage the bike's assistance modes.

The battery is a consumable that degrades over time and with use, gradually losing its energy storage capacity.

The state of deterioration of the battery (State of Health) offers information about the speed of the battery's degradation based on the following colour criteria:

- Green.** The deterioration is less than expected.
- Orange.** The deterioration is as expected.
- Red.** The deterioration is more than expected.
In this case, the user should take the battery to a BH store for analysis.



G) Motor settings.

On this menu, the user can manage the motor's performance for each assistance mode.



Assistance level by mode.

This is the minimum (1%) and maximum (100%) percentage level of assistance offered by the motor.



Acceleration

There are 3 levels (Low, Medium, High) that represent the level of acceleration when starting up the motor.

H) Wheel size selection.



The user can change the size of the wheel at any time.

I) Language selection.



The user can change the screen language.

4.2.7 Bluetooth

The user can manage the display panel's Bluetooth connection with the smartphone for additional functions.



4.2.8 Vibration Settings

On this menu the user can manage the remote control's vibration settings for the notifications it receives.

- **Assistance mode.** Vibration when the mode is changed.
- **Assistance limit.** Vibration when the user reaches the assistance mode's upper or lower threshold.
- **On | Off**
- **Calls.**
- **Mobile notifications.**



- **Distance.** Vibration upon completion of each distance selected by the user.



- **Battery level.** Vibration when a given battery level is reached.



- **Battery consumption.** Vibration every time a certain percentage of battery is consumed.



WARNING

A different type of vibration for each notification is recommended, for ease of identification

4.2.9 Throttle Function up to 6 km/h.

The pedal assistance system has a throttle function integrated into the display panel, limited to a maximum speed of 6 km/h, compliant with standard EN 15194.

To activate the system's throttle, the user must hold down the (+) button for 3 seconds.

To cancel the throttle function, the user simply releases the (+) button.

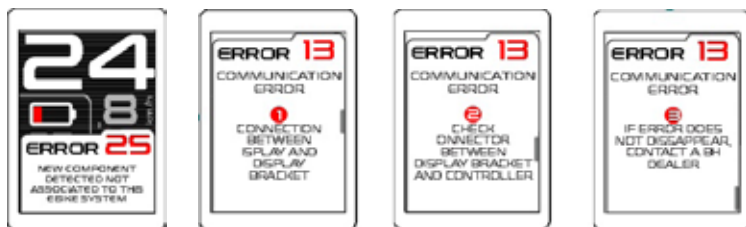
OFF - AUTOMATIC



4.2.10 System Error Indicator.

The pedal assistance system continuously checks its status. This is an intelligent system that continuously checks the status of its different components.

The screen will automatically display the system error with the instructions that the user should follow:



If the problem persists, turn off the motor and contact a BH store. The possible operating errors are described in the Troubleshooting section of this manual.



WARNING

If the problem cannot be fixed, contact a BH store to inspect the bicycle as soon as possible.

4.2.11 Functions, Mobile Notifications and Navigation.

Connecting with a smartphone via Bluetooth offers additional functions, detailed in the “AtomX” manual. [Available at bhbikes.com/manuals -Atom X APP - User Manual]



Navigation functions.



Pulsometer connection.



Heart rate monitoring.



Notification of calls and messages.



Weather forecast on the route.



Altitude notification.



Slope notification.



Hydration/nutrition notification.



Calorie notification.

4.2.12 USB.

The display panel has a USB port below the screen, to charge devices.



ATTENTION	• Do not apply excessive force on the USB port or pull the USB cable. • Check that the USB plug is facing in the right direction and is not completely misaligned or at an angle with the USB port, and make sure that it is fully inserted. • Do not connect the USB port or plug if they are wet or damp. • Use a standard-compliant USB 2.0 OTG cable. • Do not insert foreign objects into the USB port.
NOTE	• Using the USB port to charge different devices may affect the bicycle's range, reducing the battery's capacity. • When an external device is connected to the USB cable, power is supplied automatically. • If the battery's remaining capacity is low, no power will be supplied.

5. BATTERY AND CHARGER

5.1 Technology

The battery that your BH bike is equipped with contains lithium-ion cells and is the most advanced technology available in terms of energy density (energy stored per kilogram of weight and per cm³ of volume).

The current range of BH ATOM X batteries have different capacities, depending on the version purchased.

Lithium-ion batteries have the following characteristics:

A) Their performance decreases in extremely hot or cold environments.

B) One additional characteristic of BH EMOTION lithium-ion batteries is that they have no “memory effect”, and are not affected by incomplete discharging.

C) They lose their charges naturally and gradually with use. The battery can be fully discharged (100%) approximately 500 times, with maximum battery deterioration of 20%. In the case of partial discharges, only the discharged part is counted. For example, if we charge the battery every time its charge level falls by 25%, we will be able to charge it to 100% of its initial capacity 2,000 times. In short, the guaranteed durability of the battery with maximum degradation of 20% is at least 20,000 km.

5.2 Smart Key Bracelet

To make it easier to open and remove the battery, a “Smart Key Bracelet” is supplied with it. This is a water-resistant bracelet that requires no battery. It is encrypted to only work with your battery.

To open the lock, the user places the bracelet at a short distance (approx. 1 cm) from the location marked on the battery and, after 1 second, the system carries out an ID check and beeps before starting the lever opening process.



WARNING

The bracelet will not work if the battery is fully discharged. Your battery must have more than 1% capacity for it to work.

When the lever is open, the user can remove the battery by pulling it out towards the down tube.



5.3 Energy Saving Modes

The battery has been designed to ensure a long service life. This is possible thanks to the energy saving modes

5.3.1 Transport Mode (only during the first use)

In order to minimise internal consumption while transporting the bicycle from the factory to the store, the battery is in Transport mode.

The user can finally exit this Transport mode by charging the battery to 100% before its first use.

ATTENTION

If the battery does not charge fully, the Transport mode will not deactivate, repeatedly entering this mode quickly for its protection. Remember to fully charge the battery to finally deactivate the Transport mode.

5.3.2 Stand By Mode

In order to minimise internal consumption, the battery automatically switches to Stand By mode. This happens automatically when the system detects no charging, no discharging and no communication with the battery for a period of 10 minutes. So, for example, this mode will automatically turn off the display panel after 10 minutes without use, if the user has left it on after parking.

The user can exit this Stand By mode by simply turning on the bicycle's display panel.

5.3.3 Deep Sleep Mode

In order to protect the battery during long periods of inactivity or storage (for example, during the winter), the battery automatically switches to Deep Sleep mode.

This happens automatically when any of the following situations occur:

- A)** If the charge level of the battery is below 1%, the battery goes into Deep Sleep mode when the battery has continuously been in Stand By mode for 10 minutes.
- B)** If the charge level of the battery is below 10%, the battery goes into Deep Sleep mode when the battery has continuously been in Stand By mode for 48 hours.
- C)** If the charge level of the battery is below 40%: Deep Sleep mode is activated when the battery has continuously been in Stand By mode for 14 days.
- D)** If the charge level of the battery is below 80%: Deep Sleep mode is activated when the battery has continuously been in Stand By mode for 30 days.

The user can exit this Deep Sleep mode by holding down the battery's SOC button (which checks the charge level) for 5 seconds or starting to charge the battery with the charger.

Pressing SOC button 5 sec	
2 flashes of all LEDs	Stand By Mode
1 flash of all LEDs	Deep Sleep Mode

5.4 Suitable Charging Environments

For safe and efficient charging, use the battery charger in a place that:

- | | |
|---|--|
| A) Is flat and stable (as it is on the bicycle). | D) Is free from rain and moisture. |
| B) Is out of direct sunlight. | E) Is well ventilated and dry. |
| C) Is not accessible to children or pets. | F) Has a temperature of between 15–25 °C. |

5.5 Unsuitable Charging and Discharging Environments and Solutions

The hot and cold environments described below may lead to charging entering stand by or sleep mode without fully charging the battery.

- Winter discharging stand by mode or DUT (Discharge Under Temperature)**
 Battery discharging will enter stand by mode if the temperature is below -20 °C, stopping the pedal assistance system from working and protecting the battery.

In such cases, stand by mode will automatically be disabled when the battery exceeds -20 °C.
- Winter charging stand by mode or CUT (Charge Under Temperature)**
 Battery charging will enter stand by mode if the temperature is below 0 °C. If charging starts and the temperature falls below this level due to night cooling or other factors, charging will be stopped and stand by mode will be activated to protect the battery.

In such cases, stand by mode will automatically be disabled when the battery exceeds 0 °C.
- Noise on televisions/radios/computers**
 Charging near to televisions, radios or similar devices may cause static, flickering images and other interference.

If this happens, recharge somewhere that is away from the television or radio (e.g. in another room).

5.6 Battery Charging Process

Due to its advanced lithium-ion technology, there is no need to wait for the battery to completely discharge before connecting it to the charger. Likewise, it is also not necessary to charge it to 100% before using it again. But bear in mind that, in order to achieve a maximum operating range, a full charge is recommended.

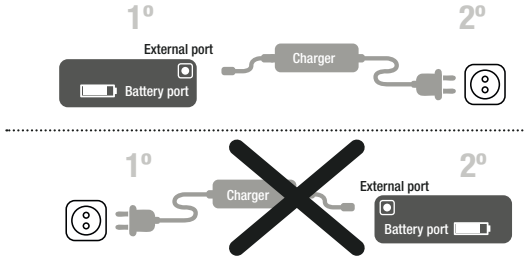
- To remove and charge the battery integrated into the frame, follow the instructions below:**
 - The user must open the lock that is on the frame, below the built-in battery.
 - The user should carefully slide the battery out by twisting it slightly.



WARNING

Turn off the pedal assistance system before removing the battery from the bicycle.
 Use both hands to remove the battery, taking special care not to drop it. Dropping the battery on your foot could cause injury and may damage the battery.

-  STANDBY
-  CHARGING
-  CHARGING PROBLEM
-  100% CHARGED



 WARNING	• Never charge or use a damaged battery. • Be careful not to touch the charger during the charging process. It may be hot, especially in high ambient temperatures. • If a fault occurs while the battery is being charged, remove the charger's power plug from the socket and wait for the battery to cool down. • Never touch the power plug, charging plug or contacts with wet hands. • Make sure that there is no foreign matter on the battery's contacts before placing it on the bicycle.
ATTENTION	• Do not connect the charger's power plug to the battery or bicycle's charging port if it is wet or damp. Make sure that you only connect the power plug when the battery or bicycle's charging port is completely dry. • Do not apply excessive force on the power plug or pull the cable with the power plug connected to the battery.
NOTE	• Stopping the battery charging process does not damage the battery. • The battery achieves its maximum service life in ambient conditions of 15-25 °C.

5.7 Checking the Charge Level of the Battery

The battery has an SOC battery with a scale with 5 LED lights indicating the state of charge. If you briefly press the SOC button, the LEDs that are lit will give you an accurate reading of the current charge level. This information supplements the reading obtained on the display panel.

- A) 5 LEDs lit | Charge is 91-100% of capacity
- B) 4 LEDs lit | Charge is 71-90% of capacity
- C) 3 LEDs lit | Charge is 51-70% of capacity
- D) 2 LEDs lit | Charge is 31-50% of capacity
- E) 1 LED lit | Charge is 11-30% of capacity
- F) 0 LEDs lit | Charge is 0-10% of capacity

6. MOTOR

The motor meets the strictest quality requirements, as demonstrated by years of reliability. It is a direct current motor that is built into the wheel hub, capable of producing power of 250 W and with energy efficiency shown to be higher than 80%. It is a highly compact and lightweight unit.

As with any other part of your bicycle, the service life of the motor depends on how it is used. Under normal conditions, the motor can last for 10 to 20 years, or up to 100,000 km.

In the case of ATOM models with a central motor, it is compulsory for the motor unit to be inspected by a Brose-certified service centre after 15,000 km.

7. WARRANTY PROGRAMME

7.1 Warranty

A) Under normal conditions of use and with adequate storage and maintenance, BH offers a 2-year warranty against defects in material and workmanship, for the entire bicycle and its electrical components.

B) For batteries, the warranty is valid for 2 years from delivery date.

C) This warranty only applies to the original owner and, in no case and under no circumstances are the rights granted by the Warranty Programme transferable..

D) View the Warranty Terms and Conditions on the warranty card that is supplied separately with your BH bike.

7.2 Exceptions

A) The warranty does not apply to wearing parts such as tyres, chains, brakes, cables, plates, steering parts, bottom bracket sets, pivot shafts, gears, unless they have any defects in material or workmanship.

B) The warranty will be invalidated in the following cases:

1. The bicycle has been damaged because it has been used in competitions, jumps, descents, events or because the bicycle has been exposed – or ridden – in extreme conditions or climates.
2. The bicycle has been involved in an accident.
3. The bike has been used in an unsuitable way or in a way that is not normal for the type of bicycle in question.
4. The bicycle has not been repaired in accordance with the instructions in the maintenance manual.
5. The bicycle has been repaired or maintenance has been carried out on it by a dealer that is not authorised by BH.
6. Non-original parts have been installed on the bicycle.
7. The original owner has transferred the bicycle to a third party.

7.3 Liability

A) BH assumes no liability for damage to (parts of) the bicycle caused by the incorrect fitting of the bicycle's moving parts, unsuitable use and/or maintenance of the bicycle (including the late replacement of wearing parts).

B) If BH accepts a warranty claim, this in no way implies acceptance of liability for any damages incurred. In the event of a dispute over (subsequent) damages suffered, BH disclaims all liability in that regard, as it is not legally bound to compensate them.

NOTE

Any unauthorised handling of the electrical system's components may be dangerous and will be grounds for invalidating the warranty.

8. CLEANING, MAINTENANCE AND STORAGE

ATTENTION

Do not use high-pressure washers or jet stream cleaners, as they may cause water ingress, damaging the system, the motor, the display panel or the battery. If water enters one of these units, ask an authorised dealer to check your bicycle.

8.1 Battery Care

Keep the battery clean. Use a damp and properly wrung out cloth to clean dirt from the battery case. Do not pour water directly onto the battery, e.g. with a hose.

ATTENTION

Do not clean the contacts by polishing them with a file or using a wire, etc. Otherwise, it may cause failures.

8.2 Motor Maintenance

Because the motor is a precision machine, do not disassemble it or exert excessive force on it (e.g. do NOT hit this product with a hammer).

8.3 Storage

Keep the bicycle in a place that is:

- Flat and stable
- Well ventilated and dry
- Protected from the elements and direct sunlight

8.4 Prolonged Storage

If you are going to store the bicycle for a prolonged period (1 month or more), remove the battery and store it as follows.

- Make sure that the remaining battery capacity is above 50% and then store it indoors, in a cool (10 to 20°C) and dry place.
- Check the remaining battery capacity once a month, as the battery is slowly discharged while in storage. If the capacity is below 50%, charge it until it is above 50%.
- When using it again after a prolonged period of storage, be sure to charge the battery before use.

9. TECHNICAL SPECIFICATIONS

9.1 Motor

- Brose DC motor.
- 250 W power. | Maximum assistance speed 25 km/h.
- System voltage: 36 V.

9.2 Battery

- Lithium-ion battery.
- Battery voltage: 36 V.
- Capacity: 500 Wh or 700 Wh (depending on version).

9.3 Central Display Panel

- USB type: USB 2.0.
- Output current: max. 1,000 mA.

10. FAQ

What is this bicycle's maximum speed?

It depends on the user. There is no maximum speed. However, at speeds over 25 km/h, the pedal assistance provided by the motor is disabled. This restriction on assistance is a legal requirement for pedal-assist bicycles, according to European regulation EN 15194.

The NITRO and AWD models are an exception as they are not approved as pedal-assist bicycles. The maximum assistance speed is limited to 45 km/h in NITRO models, which are approved as motorcycles. In the case of AWD models, the maximum assistance speed is limited to 35 km/h and they are solely intended for off-road use.

Isn't a BH bicycle extremely heavy?

Not really, if you consider that the weight of BH EMOTION bicycles is between 15 kg and 30 kg, depending on the model, making them the lightest electric bicycles on the market. Pedal assistance means that a BH bike weighs 3-6 kg more than a standard bicycle with the same characteristics, because of the battery and the motor.

Should I take any additional precautions when riding a BH bike instead of a standard bicycle?

No, but we recommend paying special attention when starting the BH EMOTION, due to the additional thrust provided by the motor. So we recommend starting it in 30%/ECO mode, with a short gear ratio (higher gears).

Do I have to stop every time that I want to activate pedal assistance?

No, pedal assistance can be activated while riding the bicycle, although it is not advisable because it may cause a distraction. The only requirement to properly activate assistance is to stop pedalling for two seconds after pressing the ON/OFF button, thus enabling all of the electrical system's elements to be properly activated.

Can I stand over the bicycle when I stop at traffic lights?

Yes. The motor will remain inactive as long as no pressure is being applied on the pedal. The greater the force applied on the pedal, the greater the forward thrust on the bicycle. This is the result of the magnetic torque sensor continuously reading the force applied on the pedal.

How often should I take the bicycle to a BH store for maintenance?

The other components require similar maintenance to the components of a standard bicycle, depending on the frequency of use of the bicycle and how well it is looked after.

What should I do when I don't plan to use the bicycle for a long period of time?

We recommend charging it to 50% before storing it for a long time. We also recommend checking its charge level every three months and keeping it above 50%.

Why is the range reduced when it is frosty or very cold?

This is normal; below -5°C the battery's performance is reduced. This does not cause any problems or damage the battery, it simply means that it cannot be fully discharged, thus reducing the range of the bicycle.

Can I purchase additional batteries?

Yes, additional batteries are available at BH stores. If a longer range is required and it will not be possible to charge the battery between two journeys, we recommend purchasing a second battery that is suitable for the BH bicycle that you purchased.

Can I use the battery from my wife's electric bicycle?

Yes, provided that the battery is from a BH bicycle that is compatible with the model purchased by you. If the battery is from another, non-compatible electric bicycle, it should not be used in the BH bike. This could damage the assistance system beyond repair and would invalidate the warranty.

Should I use a helmet?

Whether or not a user has to wear a helmet depends on the law in each country, but we recommend using them for safety reasons.

Should I have third-party liability insurance?

No, insurance is not compulsory, except for NITRO models.

Is there a minimum age required for using a BH bike?

No, any user can ride a BH bike, except for NITRO models.

11. LIST OF ERRORS

DISPLAY BH ERROR	DISPLAY BH ERROR	DISPLAY BH PROCESS TROUBLESHOOTING
ERROR 1	REMOTE ABNORMAL SIGNAL (# 7)	1) RESTART THE SYSTEM.
ERROR 1	REMOTE ABNORMAL SIGNAL (# 6)	2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 2	REMOTE COMMUNICATION (# 20)	1) MAKE SURE THE DISPLAY CONNECTOR IS CORRECTLY PLUGGED. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 3	TORQUE SENSOR (# 24)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 3	TORQUE SENSOR (# 13)	
ERROR 3	TORQUE SENSOR (# 25)	
ERROR 3	TORQUE SENSOR (# 34)	
ERROR 3	TORQUE SENSOR (# 35)	
ERROR 3	TORQUE SENSOR (# 36)	
ERROR 4	BATTERY UNDERVOLTAGE (# 2)	1) RECHARGE FULLY THE BATTERY WITH ORIGINAL CHARGER.
ERROR 4	BATTERY UNDERVOLTAGE (# 21)	2) RESTART THE SYSTEM. 3) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 5	BATTERY OVERVOLTAGE (# 3)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 6	MOTOR HALL SENSOR (# 26)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 6	MOTOR HALL SENSOR (# 4)	
ERROR 6	MOTOR HALL SENSOR (# 5)	
ERROR 7	MOTOR OVERHEATED (# 19)	1) STOP RIDING AND WAIT UNTIL THE MOTOR IS COOLED. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 8	DRIVE UNIT SENSOR OVER TEMPERATURE (# 17)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 8	DRIVE UNIT SENSOR OVER TEMPERATURE (# 18)	
ERROR 9	DRIVE UNIT CURRENT OUT OF RANGE (LOW) (# 23)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.

ERROR 11	COMMUNICATION (# 27)	1) MAKE SURE THE DISPLAY CONNECTOR IS CORRECTLY PLUGGED. 2) RESTART THE SYSTEM. 3) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 11	COMMUNICATION (# SD1)	
ERROR 11	COMMUNICATION (# SD2)	
ERROR 12	BATTERY DISCHARGED (# 30)	1) RECHARGE FULLY THE BATTERY WITH ORIGINAL CHARGER. 2) RESTART THE SYSTEM. 3) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 12	BATTERY DISCHARGED (# FD)	
ERROR 12	BATTERY DISCHARGED (# NED)	
ERROR 14	DRIVE UNIT OVERCURRENT (# 0)	1) REDUCE THE LOAD ON THE MOTOR BY PEDALLING LESS OR BY REDUCING THE ASSISTANCE LEVEL. 2) RESTART THE SYSTEM. 3) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 14	DRIVE UNIT OVERCURRENT (# 1)	
ERROR 24	DRIVE UNIT POWER (# 37)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 24	DRIVE UNIT POWER (# 31)	
ERROR 24	DRIVE UNIT POWER (# 75%)	
ERROR 24	DRIVE UNIT POWER (# 50% or 25%)	
ERROR 25	DRIVE UNIT SERIAL NUMBER NOT DETECTED (# 28)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 26	DRIVE UNIT RESET CAUSE (# 29)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 30	DRIVE UNIT CURRENT OUT OF RANGE (HIGH) (# 22)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 32	DRIVE UNIT SOFTWARE (# 9)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 32	DRIVE UNIT SOFTWARE (# 10)	
ERROR 32	DRIVE UNIT SOFTWARE (# 12)	
ERROR 32	DRIVE UNIT SOFTWARE (# 32)	
ERROR 32	DRIVE UNIT SOFTWARE (# 33)	
ERROR 33	SPEED SENSOR (# 8)	1) CHECK SPEED SENSOR AND MAGNET POSITION IN THE WHEEL. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 34	DRIVE UNIT OVERVOLTAGE (# 16)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 35	CADENCE SENSOR (# 14)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 35	CADENCE SENSOR (# 15)	
ERROR 36	LIGHTS LOW VOLTAGE (# 11)	1) CHECK LIGHT CABLES AND POTENTIAL SHORTCUT. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.

ERROR 193	CELL OVER VOLTAGE (# COV)	1) DISCHARGE FULLY THE BATTERY. 2) RECHARGE FULLY THE BATTERY WITH ORIGINAL CHARGER. 3) AFTER FULLY CHARGE, KEEP CHARGER PLUGGED-IN FOR 2 HOURS TO BALANCE THE CELLS. 4) RESTART THE SYSTEM. 5) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 194	CELL UNDER VOLTAGE (# CUV)	1) DISCHARGE FULLY THE BATTERY. 2) RECHARGE FULLY THE BATTERY WITH ORIGINAL CHARGER. 3) AFTER FULLY CHARGE, KEEP CHARGER PLUGGED-IN FOR 2 HOURS TO BALANCE THE CELLS. 4) RESTART THE SYSTEM. 5) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 197	OVER CURRENT CHARGE (# OCC)	1) CHECK STATUS OF THE ORIGINAL CHARGER. 2) RESTART THE SYSTEM. 3) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 198	OVER CURRENT DISCHARGE (# OCD)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 199	SHORT CIRCUIT (# SCD)	1) CHECK CHARGER CABLE STATUS. 2) RESTART THE SYSTEM. 3) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 204	TEMPERATURE CHARGING (# TCA)	1) STOP CHARGING FOR 30 MINUTES. 2) RESTART THE SYSTEM. 3) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.
ERROR 205	TEMPERATURE DIISCHARGING (# TDA)	1) RESTART THE SYSTEM. 2) IF ERROR DOES NOT DISSAPPEAR, CONTACT A BH DEALER.