

# Principia E Gravel USER MANUAL

**PRINCPIA**

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# SAFETY INSTRUCTIONS

## IMPORTANT

Always read the safety instructions before use. If the precautionary measures described are NOT followed, the warranty is void. Store the invoice for a minimum of 5 years as it contains important information.

## WARNINGS

- To ensure that the charger and battery are handled in a safe way and that users involved understand the danger, charging the battery must only be handled by persons aged 8 and up.
- Persons with reduced physical, sensory or mental abilities and a lack of experience or knowledge must be supervised or trained in using the battery and charger.
- Do not let children play with the battery and/or charger. Children must be supervised if they perform any cleaning and/or maintenance.
- DO NOT attempt to recharge non-rechargeable batteries with the battery charger. For safety reasons, if charging the battery indoors, then the battery should be recharged in a room with a smoke detector alarm installed.
- Do not place the charger or the battery near flammable materials. Ensure the battery and charger are placed on a fireproof surface before charging.
- Only charge the battery with the included charger.
- Do not dismantle or damage the battery.
- Only use the battery included.
- Do not throw the battery into a fire.
- Do not immerse the battery in water or any other liquid.
- Never charge the battery at temperatures below 10°C or above 40°C.
- Do not heat, short circuit, puncture or otherwise mistreat the battery.
- Do NOT change/manipulate the electrical system.
- You must submit your used batteries to the collections systems established within your country/region.



# INTRODUCTION

Congratulations on your new E-Bike.

This is a whole new generation of E-bikes, designed and developed based on our many years of experience in the field of E-Bikes.

Before using the E-Bike, please read this instruction manual, as it contains several important information regarding the use and maintenance of the E-Bike.

Your E-Bike is manufactured according to the most advanced production technology. Through testing, a high-quality standard is ensured. The E-Bike has a strong frame and great performance. You will achieve a more accessible and more enjoyable way of transporting yourself.

If you have any further questions, you are welcome to contact your local dealer.

## PRODUCT DESCRIPTION

Principia E Gravel is a high-performance E-gravel bike with superior handling. With a weight of just 14.5kg, the E Gravel feels and looks like an ordinary gravel bike. The design is minimalistic and clean with a well-integrated E-Bike system from MAHLE that is built to perform. Expect lots of power, high maneuverability and stability. E Gravel is perfect for commuting as well as a ride on forest tracks on the weekends.

On the bike you will find a frame-integrated MAHLE i250 downtube battery with a capacity of 250 WH, which is combined with a powerful X35+ rear wheel motor.

## GETTING STARTED

Install the battery in the E-bike and press the ON/OFF button to start the system. Start pedalling, and the motor will assist according to the selected assist level. It is recommended to start in assist level 1.

The motor works as follows:

- A sensor measures pedal activity, and the controller sends a signal to the motor to start
- The motor is regulated with the assist function. When you ride uphill, you can choose full power or low power when going downhill.

The assist function will cut off when:

- The user stops pedaling.
- When the bike exceeds 25 km/h.

# MAHLE X35 SYSTEM OPERATION

## CHARGING THE BATTERY

To charge the battery, connect the X35 charger to a power outlet and check that the LED on the charger turns green.

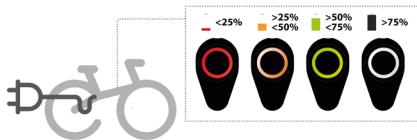
Connect the X35 charger to the ebike's charging port, aligning the arrows and securing the connection by turning the safety ring clockwise. The LED on the charger will turn red. It will turn green once the battery is fully charged.

While the battery is charging, the Iwoc One light will fade in and out, showing the color code for the current battery level. Once the battery is fully charged, the Iwoc One charging indicator will turn white. Turn the safety ring counterclockwise and detach the charger from the charging port.

<15% battery charge: The system will automatically switch to Level 1 power assist/Eco Mode to save battery.

You can adjust the level of power assist, if you prefer.

<10% battery charge: The system will turn off the power assist. The ebike lights will stay on for safety reasons (if in use), and the system will keep recording its location to allow the user to stop the activity.



## BATTERY LEVEL VISUALIZATION (DURING USE)

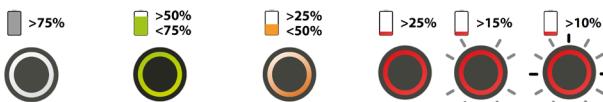
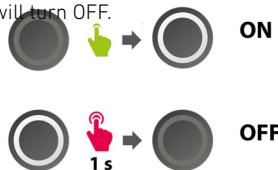
While the bike is on, the Iwoc One and Trio will display the current battery level with the following color codes:

- SOLID WHITE: >75% battery charge.
- SOLID GREEN: 75%-50% battery charge.
- SOLID ORANGE: 50%-25% battery charge.
- SOLID RED: <25% battery charge.

## TURNING THE SYSTEM ON/OFF AND CHANGING THE ASSIST LEVEL

To turn the bicycle ON, press the Iwoc One once. The system will turn ON and the Iwoc One will show the current battery level in the corresponding color code.

To turn the bicycle OFF, press and hold the Iwoc One. The Iwoc One will show a white light and the system will turn OFF.



To adjust the power assist level, press the Iwoc One one time. The current power assist level will then blink on screen in the corresponding color code. While still blinking, press the Iwoc One again to adjust the power assist level. The corresponding color codes for the power assist levels are:



- WHITE: No power assist
- GREEN: Level 1
- ORANGE: Level 2
- RED: Level 3

## TURNING THE LIGHT ON/OFF

If lights are connected to the X35 system using the MySmartBike® specific cable and compatible lights, they can be turned on and off as follows:

Press the Iwoc One button once. While it's blinking, press the Iwoc One button again and hold until the LED turns solid yellow. The lights will turn on. Repeat the same procedure to turn the lights off.



### NOTICE

The lights on E GRAVEL, both front and rear, are programmed as running lights, so they will turn on automatically when the bicycle is switched on and will turn off when the bicycle is switched off.

Once the bicycle has been turned on, the lights can be switched off using the Iwoc One following the method described above.

However, if the user prefers that the lights do not turn on upon turning on the bicycle, this behaviour can be modified by a Principia dealer using the Mahle Ebikemotion Dealer App.

## SYSTEM ERRORS

The Iwoc One and Iwoc Trio will indicate an error in the system by displaying a pink light.

**SOLID PINK:** The system has gone into SAFE mode. Take the ebike to a Principia dealer to diagnose the problem.

**BLINKING PINK:** There is an error in the system. Check the User App, which will display the error code, and refer to the User App troubleshooting guide in this manual to fix the error. If the error is not fixed or there is no solution a user can apply, take the ebike to an Principia dealer to diagnose the problem.



# MAHLE MYSMARTBIKE MOBILE USER APP

The MAHLE MySmartBike® User App is a smartphone app that provides an enhanced bike riding experience that is connected to your bicycle. It can be used with conventional bicycles, but when combined with any MySmartBike® bicycle, you will get access to additional information on your ebike and in the User App (when connected to Bluetooth®). This manual describes the account activation process and main features of the Mahle MySmartBike user app and its use when connected to an X35 equipped Principia bicycle. You can access a description of all the app features and functionalities when downloading the complete app user manual from the Mahle Ebikemotion website download center.

<https://ebikemotion.com/web/download-center/>

## APP INSTALLATION AND REGISTRATION

To install the app, find the MySmartBike® app in the Apple App Store or in iTunes on your iPhone. If you are using an Android phone, the MySmartBike® app can be found in Google Play.

The User App is identified by a GREEN icon with the letter "e" in white. The user App is free of charge and you can use it for any activity, not necessarily for connecting bikes to the X35 system. It can be used with a non-electric bike, although in order to use all its features, it needs to be linked to an MySmartBike®- compatible ebike. To successfully complete this installation, you will need a reliable Internet connection.



### SMARTPHONE MINIMUM SPECIFICATIONS

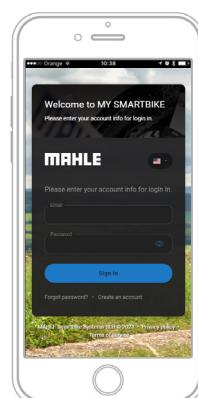
- Minimum 512MB RAM (recommended 1 GB).
- 80 MB free space in ROM.
- 1 GHz processor or better (recommended).
- Android 8 or higher - Bluetooth® BLE 4.0.
- Apple iPhone 4S or higher - iOS 7.1.2 / 8 or higher.
- iPhone 5 or 6 updated to the last iOS version (recommended)
- Android phones with 1G of RAM (recommended).
- 3G connection recommended, but it can also operate offline (some features will be not available).

\*Most features operate via Bluetooth®.

Once you have downloaded the app, you will need to register to start using it.

*\* NOTE: If trying to install, pair, or use the User or Dealer App on an Android phone, the phone's location feature must be turned on. (This is an Android requirement.)*

## CREATING A NEW ACCOUNT



1. Click on REGISTER. The app will take you to a registration form. Complete and submit the form. To help Principia dealers access your account in the event of future queries about your bike, select the option "I agree to share my account with the bike manufacturers".
2. You will receive a confirmation email from MAHLE with a link. Click the link to activate your account.
3. MAHLE will confirm that the registration process has been completed.
4. Login to the app with your username and password and begin using the app.

\*NOTE: If you do not receive a confirmation email, it means there was a problem. Please register again or contact MAHLE.

<https://mahle-smartbike.com/contact/>

## REGISTER AND LOGIN WITH MSB

If you have an active MySmartBike® account you will be able to access the app. Enter your username and password and press the green login button. The app will confirm your data and allow access to the app.

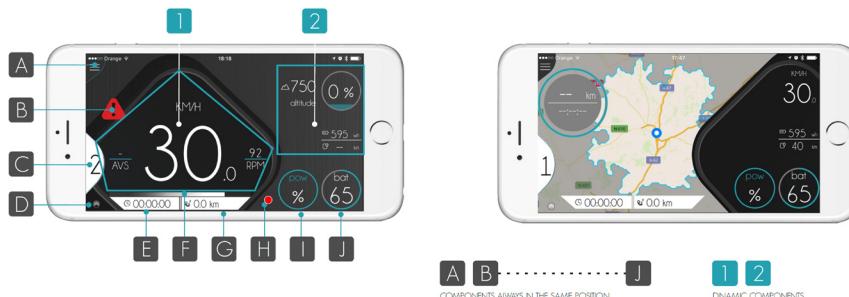
## APP DIAGRAM

### STATIC COMPONENTS

- A Main menu.
- B Warning.
- C Power assist level.
- D Bluetooth® connection.
- E Time of the active workout.
- F Ebike torque (function not active).
- G Distance of the active workout.
- H Recording status (stop, play, pause).
- I Motor power (total power percentage).
- J Battery level.

### DYNAMIC COMPONENTS

1. Main information component
  - Speed monitor.
  - Map monitor.
  - Range monitor.
2. Auxiliary information component
  - Bike information.
  - Health information (if heart rate detected).
  - Weather information.
  - Music information (if playing).





### THE APP SCREEN IS DIVIDED INTO FOUR PARTS

1. Main monitor.
2. Auxiliary components.
3. Alerts.
4. Ebike power and battery status.

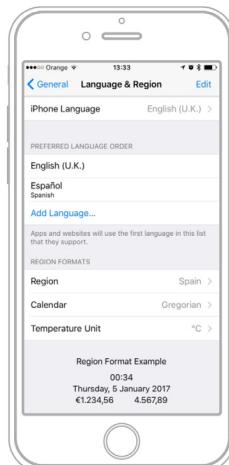
The power is shown as the current percentage used of the maximum available power (250W).

## LANGUAGE

The User App will automatically detect what language your smartphone is set to and display the information accordingly as long as the language on your smartphone is supported by the User App. The supported languages are:

- Spanish.
- German.
- French
- English (Default language. If the app doesn't support the configured language of your smartphone, it will automatically be set to English.)

The language cannot be changed in-app.

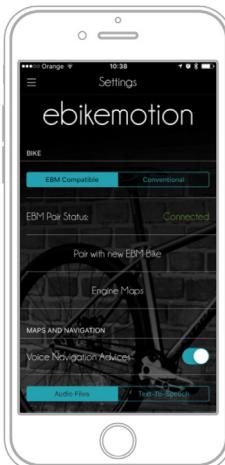


iOS Example: Language Selection

## UNITS

The units of measurement (metric or imperial) can be changed from the SETTINGS section of the app menu.

Go to MAPS AND NAVIGATION and select your preferred measuring units from the two options available in MEASURING SYSTEM.



Force the Bluetooth® pairing

## PAIRING A BIKE

For a bike to be paired with a smartphone, the User App must be installed and registered:

1. Turn the E-bike power on.
2. Run the User App on your smartphone.

- a. iOS: When the app detects an unpaired MySmartBike®-compatible E-bike, it will automatically pair, and the message "pairing with MySmartBike® bike" will be displayed.
- b. Android: Go to SETTINGS in the app menu, then select CONNECT TO MSB to pair with an MSB bike.

To pair the bike with the user app, the option MSB COMPATIBLE must be selected in the SETTINGS menu.

Once the bike is paired, a message will be displayed at the top of the screen informing you that the connection has been established.

The light on the iWOC One remote will turn blue. Your smartphone and E-bike will be paired, and no further pairing will be needed.

Once the pairing is complete, the E-bike will not be visible to other smartphones.

If the app does not pair with the desired bike, make sure that it has not been paired with another nearby bike.

Turn off the bike being paired and repeat the pairing process.

## DISCONNECT THE BLUETOOTH® CONNECTION

You can choose to disconnect the Bluetooth connection without having to turn off the bike.

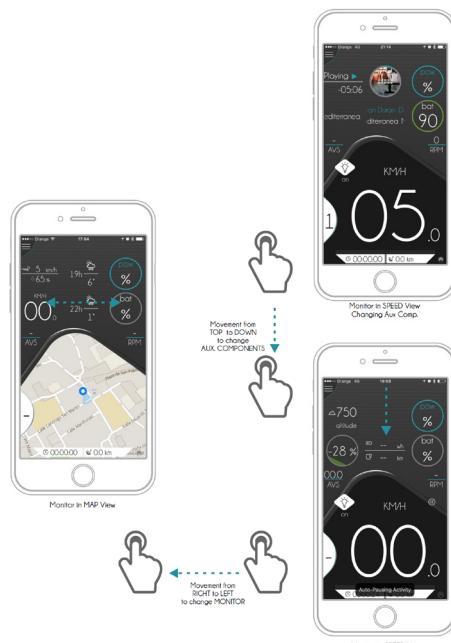
- **ANDROID:** Press CONNECT TO MSB in the SETTINGS menu. If the app was connected to a bike, the connection will be disconnected.
- **IPHONE:** Press PAIR WITH ANOTHER MSB BIKE in the SETTINGS menu. The current connection will be disconnected and the app will automatically search for another available bike.

If no other bike is found, the app will reconnect to the previous bike. If you do not wish for this to occur, turn off the bike.

## MAIN FEATURES

### APP CONTROL BY GESTURES

It is possible to change the information displayed in the MONITOR screen using your fingers to swipe on the screen. By doing so, you will be able to change the main monitor view (speed, map, and range) and the auxiliary components.



- Changing between speed, maps and range. To change between speed, maps, and range on the MONITOR screen, swipe your finger from right to left on the screen.
- Changing the auxiliary components. To change the auxiliary components on the MONITOR screen, swipe your finger from top to bottom on the screen.

### MAIN MONITOR CONTENT

This area of the MySmartBike® app will show you the general information on the main, active screen. There are three different types of information in the main monitor area:



- **SPEED INFORMATION:** This monitor shows information about current speed and battery level as a bar graph and a percentage. When the MySmartBike®-compatible ebike is paired, the battery level and power assist level will display a value. The battery bar will show the remaining capacity in green, blue, orange, or red.
- **NAVIGATION INFORMATION:** The navigation screen shows your position on the map. When you zoom in on the map, the app will remember your zoom level. If NAVIGATION is turned on and a route is planned, the recommended course will be highlighted in blue, your current position will be located in the middle of the screen, and the next route direction will appear at the top of the screen as an alert.

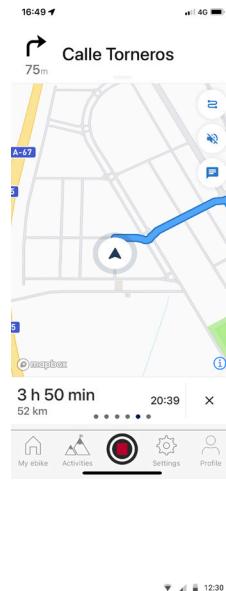
The view in the navigation mode appears in 3D. If you do not have a current route, the view will appear in 2D and your position will appear in the middle of the screen. The map will automatically move and orient to the navigated course.

It is possible to customize the type of map and how it moves in SETTINGS > MAPS AND NAVIGATION.

Options that can be modified are: voice navigation advices, show compass, map style, heading mode, and simulate navigation.

The User App does not allow GPX files to be uploaded for route tracking. Point-to-point navigation is permitted through the app.

- **RANGE INFORMATION:** The range diagram is a special map view that will appear within an area outlined with a blue circular line representing the estimated destination that you will be able to reach based on average battery usage from the start of activity, the course and the distance that you rode. This area is dynamic and will change automatically. At the same time, you will see the range ring. This ring shows the distance, the amount of time you have ridden, and how much you are able to ride with your average battery use as it relates to your current battery capacity.



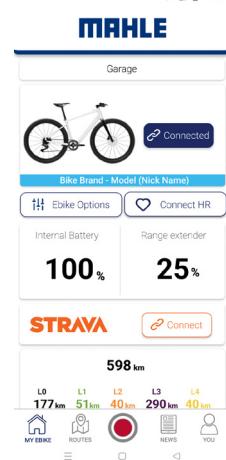
The map with the range information will only appear if you have a MySmartBike®-compatible ebike. The range diagram and map area are displayed after the first kilometre is ridden.

## APP SETTINGS

Settings displays all the possible configurations and customizable options within the app. To enter this section select SETTINGS in the Main Menu.

## AUTOMATIC HR-BASED POWER ASSIST

This function controls the MySmartBike®-compatible ebike power assist using your heart rate, without the need to change the power assist level on the iWoc remote. It is possible to activate this function by selecting a maximum heart rate. The app will increase or decrease the power assist of the MySmartBike®-compatible ebike to keep you in your selected exercise zone. (If you activate this option, you will need to establish a desired maximum HR.)



Go to MAIN MENU > SETTINGS > HEALTH and select the option ENABLE AUTO-ASSIST. If your HR sensor is connected, the app will automatically change the power assist level, depending of your HR frequency.

**SENSIBILITY:** This bar lets you control the accuracy response of the power assist level changes based on your HR changes. Low sensibility will take longer to change the power assist level and high sensibility will change it quickly. The heart rate sensor you wish to connect must be compatible con Bluetooth® 4.0 or later. Heart rate sensors that transmit using the ANT+ protocol are not compatible with this function.

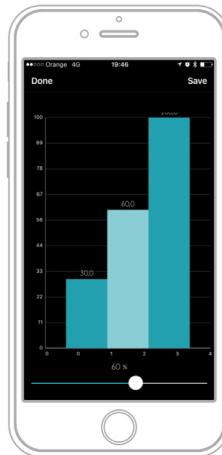
### MOTOR MAPS

The User App enables the rider to modify the motor output for each of the three power assist levels. By selecting a level's bar (the WRITE button has to be selected from the top of the screen to modify the levels assistance), the slider at the bottom of the screen can be used to decrease or increase the power assist for that level. The changes for a given level will always range from 0W to the level's fix maximum power output.

Save the changes after modifying the power assist levels by pressing the SAVE button at the top of the screen.

This is how the power output is distributed on each power assist level:

- LEVEL 3: from 0 to 250 W.
- LEVEL 2: from 0 to 175W.
- LEVEL 1: from 0 to 100W.



Power Supply Configuration (level by level)

## MAP LICENSES FOR MySmartBike® - COMPATIBLE BIKES

In order to enjoy the navigation functionalities of the User App, maps need to be downloaded from the MySmartBike® server.

Every MySmartBike® bike comes with a five-map subscription. When a new bike is first paired to an User App, the user will be able to download maps from the DOWNLOAD MAPS section of the app menu. Once the first map is downloaded, users have a maximum of three months to download the remaining four maps.

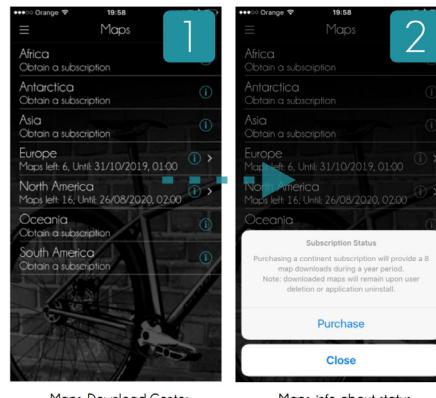
Once the first map has been downloaded, the other four maps will need to be downloaded for the same continent. If you wish to download maps from other continents, you'll need to make an in-app purchase.

Additional maps beyond the subscription can also be downloaded through an in-app purchase.

It is important to note that once a map has been downloaded, it is linked to that app installation. Therefore, if the app is uninstalled or deleted, any downloaded maps will be lost.

Any remaining maps from a subscription that have not been downloaded yet will be available after the app has been reinstalled.

If the maps disappear from your telephone as the result of an app update or for any other reason, contact MAHLE MySmartBike®.



## SYSTEM ALERTS

The app will automatically notify the user about the system's status by displaying alert messages. Normally these alerts refer to the Bluetooth® pairing process, system and operational errors detected on the MySmartBike®-compatible ebike, and general information. The alerts have four priority levels:

- High priority message with permanent alert: Messages will disappear, but the alert icon will be permanently displayed on screen. Press the icon to make the alert emerge again. (Bike error).
- High priority message without permanent alert: High priority message with non-permanent alert: There is no alert icon and the message will disappear (Ebike Bluetooth® pairing, battery low).
- Low priority message with permanent alert: Messages will disappear, but the alert icon will be permanently displayed on screen. (Lights on, walk mode).
- Low priority message without permanent alert: There is no alert icon and the message will disappear (Lights off, HR monitor connection)



High priority message with permanent alert



High priority message with non-permanent alert



Low priority message with permanent alert



Low priority message with non-permanent alert

## USER APP TROUBLESHOOTING AND ERROR CODES

If you experience an error code message, refer to this table for a troubleshooting guide and corresponding error codes for each problem. If a problem cannot be solved by following this guide, the bike will need to be taken to a dealer for further diagnosis using the Dealer App.

COD.	DESCRIPTION	CORRECTIVE MEASURE
0	NO ERROR	No action needed.
1	THROTTLE ALWAYS ON	Turn off the ebike system. Ensure that the throttle is released and try again.
2	THROTTLE FAULT	Throttle damaged or out of operation specifications. Contact your ebike dealer.
3	TORQUE FAULT	Torque damaged or out of operation specifications. Contact your ebike dealer.
4	LOW VOLTAGE PROTECTION	Battery pack voltage too low. Charge the battery pack.
5	OVER VOLTAGE PROTECTION	The battery pack voltage is incorrect for this system. Install the correct battery pack for your ebike system.
6	HALL SENSORS FAULT	Check the motor wire connection. Restart the ebike system. If the problem persists contact your ebike dealer.
7	OVER TEMPERATURE PROTECTION	The ebike is outside of the permitted temperature range. Turn off the ebike and allow the drive unit to either cool down or heat up to the allowed temperature. Restart the system. If the problem persists, contact your ebike dealer.
8	TEMPERATURE SENSOR FAULT	Temperature sensor damaged. Contact your ebike dealer.
9	CURRENT SENSOR FAULT	Current sensor damaged. Contact your ebike dealer.
10	BMS COMMUNICATION FAULT	Battery pack communication error. Check the battery pack connector. If the problem persists contact your ebike dealer.

COD.	DESCRIPTION	CORRECTIVE MEASURE
11	COMMUNICATION FAULT LOST FRAME JOB	Remote control communication error. Check the remote connector. If the problem persists, contact your ebike dealer.
12	DRIVER ERROR: VG UNDERVOLTAGE	Battery pack voltage too low. Charge the battery pack.
13	DRIVER ERROR OVER TEMPERATURE	The ebike is outside of the permissible temperature range. Turn off the ebike and allow the drive unit to either cool down or heat up to the permissible temperature. Restart the system. If the problem persists, contact your ebike dealer.
14	DRIVER ERROR OVER CURRENT	Current supplied by the battery pack is too high. Reduce the demand. If the system locks, restart the ebike system. If the problem persists, contact your ebike dealer.
15	DRIVER ERROR: VDD UNDERVOLTAGE	Battery pack voltage too low. Charge the battery pack.
16	PHASE I SCG	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
17	PHASE II SCG	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
18	PHASE III SCG	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
19	PHASE I SCS	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
20	PHASE II SCS	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
21	PHASE III SCS	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
22	PHASE I CONNECTION ERROR	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
23	PHASE II CONNECTION ERROR	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
24	PHASE III CONNECTION ERROR	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.
25	COMPONENT PROTECTOR	Check the motor wire connection and restart the ebike system. If the problem persists, contact your ebike dealer.

COD.	DESCRIPTION	CORRECTIVE MEASURE
26	NVM ERROR PARAMS TO DEALER	Take the ebike to your dealer to set to the default system parameters.
27	NVM I ERROR SAVED ERRORS LOST	Error in the error database system. Restart the ebike system. If the problem persists, contact your ebike dealer.
28	EMN ERROR IMPOSSIBLE SAVE ERRORS	Error database system full. Restart the ebike system. If the problem persists, contact your ebike dealer.
29	BATTERY VOLTAGE SENSOR FAULT	Battery pack sensor damaged. Restart the ebike system. If the problem persists, contact your ebike dealer.
30	OVER CURRENT PROTECTION	Current supplied by the battery pack is too high. Reduce the demand. If the system locks, restart the ebike system. If the problem persists, contact your ebike dealer.
31	PEAK OVER CURRENT PROTECTION	Current supplied by the battery pack is too high. Reduce the demand. If the system locks, restart the ebike system. If the problem persists, contact your ebike dealer.
32	COMM FATAL ERROR	Fatal error. Restart the ebike system. If the problem persists, contact your ebike dealer.
33	CURRENT NO SPEED	Locked motor. Check that WALK mode works fine. If the problem persists, contact your ebike dealer.
34	ACC VOLTAGE ERROR	Power supply problem in the HMI bus. Contact your ebike dealer.
35	SENSORS 4V3 ERROR	Power supply problem in sensors. Check the wires on the pedaling sensor (PAS sensor) and motor sensor. If the problem persists, contact your ebike dealer.
36	LIGHTS V ERROR	Power output failure in the lights line. Check the wiring and accessory connected to the light line. If the error persists, disconnect the accessory and check again. If the error is corrected, the accessory exceeds the output specifications. If the error persists, contact the accessory manufacturer.

### CONSULT THE USER APP MANUAL

Download the complete User App manual for a full guide on all features and functions of the MySmartBike® User App at:

<https://mahle-smartbike.com/>

# MAHLE MYSMARTBIKE WEB DASHBOARD

Once you have created a new account using the User App, you can use the same login details to access the Mahle MySmartBike® web dashboard, where you can access relevant information about your Principia bicycle, as well as seeing the profiles of your activities recorded using the User App and many other features.

<https://my-smartbike.com/user/login>



## REGISTER AS THE BICYCLE OWNER

To be able to access certain information about your bicycle using the Mahle MySmartBike® web dashboard, it is necessary to register as the bicycle's owner.

The registration process as the owner of an X35 equipped bicycle requires to be the first person that records an activity using the user app while connected to the bicycle.

1. Connect your bicycle to the User App.
2. Access the app menu and select "Start Activity".
3. Record an activity with your bicycle while connected to the app.
4. When you have finish the route, select "Finish Activity" from the app menu
5. You will receive a message in your linked email account informing you that you are now the owner of the bicycle.

# MAHLE MYSMARTBIKE DEALER MOBILE APP

If you are an authorized Principia dealer, you will need to download and install on your phone the MAHLE MySmartBike® dealer app to be fully able to diagnose and perform repairs on an X35 equipped Principia bicycle. Download and install the user app and create a new account following the method described on previous points. Once you have first logged onto the dealer app and connected to an Principia bicycle, contact Principia for us to check your dealer details and activate your access to the dealer app.



# USE WARNINGS. MAHLE EBIKEMOTION X35 SYSTEM

## BATTERY AND ELECTRIC COMPONENTS CARE



Do not wash your bike with a pressure washer or submerge it or the electric system components. All the pedelec system components have an IP54 water resistance rating that protects them against rain and splashes. However, the use of pressure washers may allow water to ingress into the components and damage them.



Avoid using your bicycle in extreme weather conditions. All the pedelec system components have an IP54 water resistance rating that protects them against rain and splashes. However, extreme weather conditions may damage the components.



Avoid transporting your bicycle outside your car when it is raining. All the pedelec system components have an IP54 water resistance rating that protects them against rain and splashes. However, the speed of your vehicle may increase the effects of the rain and damage the components.



Do not leave your bicycle exposed to high temperatures for long periods of time. It may damage the components on your bicycle.



Observe the recommended temperature ranges of use (discharge), charge and storage (internal battery). The use, charge and storage outside these recommended temperature ranges may affect the battery cells and reduce their life and available range.

### TEMPERATURE RANGES

Charge: 10°C - 40°C  
Discharge (use) -15°C - 50°C  
Storage: 0°C - 30°C

The following table shows the maximum and minimum ranges stated by the cell manufacturer.

Generally, **the use, charge and storage of batteries below 0°C will affect the available range for charge of a battery and overtime may reduce the battery life.**



Avoid storing your bicycle (internal battery) or Range Extender for long periods of time without monitoring the charge levels.

If planning to store the battery for a long period of time, completely charge the battery before putting it away and re-charge it every 2 months to avoid the battery levels falling below 10%.

**USE OF THE BATTERY BELOW 10% CHARGE:** Avoid discharging your battery regularly below 10% of charge. Charge levels below 10% may affect the life of the cells and the battery balance.



Avoid charging the bike continuously for more than 5 straight hours and always charge your bicycle or battery in a place where you have visual access to it so the charger can be disconnected if any anomaly is detected, such as smoke, strange smells or fire.



Avoid hitting or dropping your battery. If after a fall or an impact the external casing of the battery has been damaged, do not charge or use the battery and contact your authorized dealer for a full diagnosis.

## RANGE



The Mahle Ebikemotion X35 system has been designed to offer the maximum possible range for a system of its reduced size and weight. The system offers ranges of up to 125 Km using the internal battery (244.8Wh) and up to 220 Km using both the internal battery and the Range Extender. The final available range, will greatly depend on factor such us:

- Assist level: The use of the more powerful assist levels will decrease the available range.
- Temperature: Charging and using the battery in low temperatures will affect the available range.
- Total weight of cyclist/equipment/luggage.
- Pedal power provided by the cyclist.
- Terrain and climbing: The use on deteriorated roads and routes with considerable altitude gain will affect the available range per charge.
- City use: Frequent stops and accelerations may affect the available range.

## E-BIKE BATTERY TRANSPORT

The transport of the internal Mahle Ebikemotion battery and the external Range Extender battery should be in accordance with the transport rules and regulations of this type of article. The units must always be transported or sent using the original certified packaging and a certified shipping company. Please find information regarding these conditions of transport from your country authority.

Generally, it is your dealer who must ship your E-bike and components to Principia if it needs to be diagnosed and/or repaired.

## E-BIKE TRANSPORT

If the E-bike is to be transported, this must be done responsibly. It is recommended that the bicycle be transported on an approved bicycle carrier marked with TÜV and specifically for E-Bikes. E-bikes weigh more than traditional bicycles, so a bicycle carrier with a greater load capacity is required. If necessary, cover the bike from rain and other damp weather conditions.

If you intend to travel by air with your E-bike, research the transport conditions for batteries according to the airline you plan on using to transport your bicycle. The majority of commercial airlines do not permit transport of batteries with a capacity larger than 100 Wh.

## DISPOSAL OF PARTS

Over time, parts of the e-bike will wear out. It is recommended to sort and dispose of worn-out parts according to the guidelines at the local recycling centre. Sort and dispose of worn-out parts in the following manner:

- Hazardous waste: Batteries\*
- Electronics: Motor, display, cables, and lights
- Plastic: Grips, wheel covers, and chain guard
- Small combustible items: Bicycle tires
- Rest of the bike: Metal

By doing so, we support the efficient management of our shared natural resources and the proper disposal of toxic waste and pollutants.

Batteries are marked with a crossed-out trash bin. It symbolizes that used batteries should not be disposed of with unsorted household waste. Batteries should be collected separately as they contain substances that can be harmful to human health and the environment.

## TRAFFIC LAW

It is important to abide by local traffic laws and ride based on the conditions. We recommend using a helmet as well as lights.

## INSURANCE

We recommend talking to your insurance company to learn how your bicycle is covered.

## FRAME NUMBER

The E-Bike is equipped with a frame number. It is located below the bottom bracket.

## WARRANTY

If there are defects in the material that occur during delivery or manufacture within two years of delivery to the buyer, HF Christiansen A/S or a designated dealer will rectify the defect without any repair costs unless the defect is excluded from the warranty according to:

In the following, "HF Christiansen A/S" means "HF Christiansen A/S or someone for whom HF Christiansen A/S is responsible".

The duty to rectify errors as referred to in the above section without any cost, however, does not apply:

- Errors caused by external influences, including on the paint.
- Errors caused by the use of non-original spare parts that do not correspond in quality to original spare parts.
- Errors that have arisen or worsened due to lack of maintenance and non-compliance with the requirements for checking the delivered or poor work carried out by an unauthorized repairer.
- Errors or damages which the buyer has not notified HF Christiansen A/S within a reasonable time.
- Errors or damages that the buyer has been aware of but that the buyer has not chosen within a reasonable time to have HF Christiansen A/S remedied.
- If repairs are carried out within a reasonable time, the buyer is not entitled to compensation, proportionate refusal, cancellation or re-delivery.
- The buyer delivers and collects at his own expense the delivered goods at the repair location specified by HF Christiansen A/S within the country's borders.
- The burden of proof that there is a defect in material or manufacturing rests with the buyer. The same applies to the burden of proof that the fault occurred during delivery.
- In the first 6 months after delivery, however, a detected fault is assumed to have been present at the time of delivery.
- Repair costs relating to errors due to the buyer not caring for the purchased item correctly, including failing to carry out such maintenance as the conditions and the manual as well as other documents handed over to the buyer at the latest at the same time as delivery require, shall be handled by the buyer.
- The same applies to costs for repairs as a result of natural wear and tear, damage caused by overloads, as well as damage caused by constructive changes to the item.
- The buyer's claim in accordance with the present warranty provisions must be submitted to HF Christiansen A/S within a reasonable time after an error has been detected, and at the latest before the end of the two-year warranty period, since the warranty and HF Christiansen A/S otherwise can no longer be held responsible.
- HF Christiansen A/S can only be held responsible for losses caused by defects in what has been delivered if the buyer proves that the loss is a foreseeable consequence of errors or negligence committed by HF Christiansen A/S.
- HF Christiansen A/S is not liable for indirect damages and consequential losses unless the buyer can document that:
- HF Christiansen A/S has acted contrary to common decency.
- HF Christiansen A/S has given the buyer misleading information that HF Christiansen A/S did not have reason to believe to be correct.
- HF Christiansen A/S has neglected to provide the buyer with information about a defect such as HF Christiansen A/S knew or should have known; the E-Bike lacks characteristics, whether to be considered a given accompanying feature of the product; or the deficiency exists due to negligence from HF Christiansen A/S.

# TECHNICAL SPECIFICATIONS

## PRINCIPIA E GRAVEL

Frame	Aluminium 6061
Fork	Aluminium
Motor	Mahle X35+
Display / Controller	Mahle IWOC One
Battery	Mahle i250
Groupset	SRAM NX Eagle 1x12 speed
Max user weight	100 kg

## MAHLE EBIKESYSTEM X35

### MOTOR

Nominal power	250W
Voltage	36V
Type	Triphasic Brushless DC
Max torque	40Nm
Gear reduction	14:1
Max speed	25 kmph with assistance
Weight	2.1kg without wheel
Spokes	32

### INTERNAL BATTERY CONTROLLER

Capacity	244.8Wh
Voltage	36V
Weight	1.5wkg
Bluetooth® connectivity	Bluetooth 4.1 (For mobile apps)
ANT+® connectivity	ANT+® LEV (For compatible computers)
Lights connections	Front and rear
Maximum light output	6.6W 6V 1.100mA
Charge level visualization	iWOC One / Mobile app
Charge time	3.5 hours
Updates	CAN BUS
Diagnosis	CAN BUS / Bluetooth®

## CHARGER

<b>Input</b>	100-240V / 50-80Hz
<b>Output</b>	42V / 2A

## RANGE EXTENDER (OPTIONAL)

<b>Capacity</b>	209.8Wh
<b>Voltage</b>	36V
<b>Charge time</b>	3 hours
<b>Discharge</b>	1.9A
<b>Weight</b>	1.7kg
<b>Charge level visualization</b>	iWOC One / Mobile app

## IWOC ONE REMOTE

<b>Functions</b>	Assist level charge Charge level visualization Error visualization Light ON/OFF System ON/OFF
<b>Assembly</b>	Top tube
<b>COMPONENTS WATER PROOF RATING</b>	IP54

# SERVICES

To maintain and preserve the condition of the E-bike, we recommend an inspection twice a year but at least once a year.

Ordering a service inspection can be done at your dealer.

<i>Date and dealer stamp</i>	<i>Date and dealer stamp</i>
<i>Date and dealer stamp</i>	<i>Date and dealer stamp</i>
<i>Date and dealer stamp</i>	<i>Date and dealer stamp</i>
<i>Date and dealer stamp</i>	<i>Date and dealer stamp</i>

# CE DECLARATION OF CONFORMITY 2023

**Distributor:**

HF Christiansen A/S  
Hvidemøllevej 9-11  
DK-8920 Randers NV

**Hereby confirms that the following products are in compliance according to:**

Directive 2006/42/EC  
Directive 2014/30/EU  
Directive 2011/65/EU

The design meets the requirements for EN 15194: 2017

**Production year - 2023****Product:**

Mahle Ebikemotion X35+

**Model:**

Principia E Gravel

Randers, Denmark

18/12-2023

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Location

Date

Michael Hansen  
Product manager, E-Bikes



HF Christiansen

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