

eboikemotion®

The B2B Connected Bicycle Platform



Dealer APP
Distributors Operations

ebom  bikes

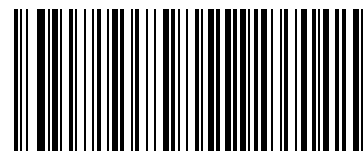
Dealer APP

Diagnostic APP for distributors

Version 1.0 - April 2017
English version

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ebikemotion.com



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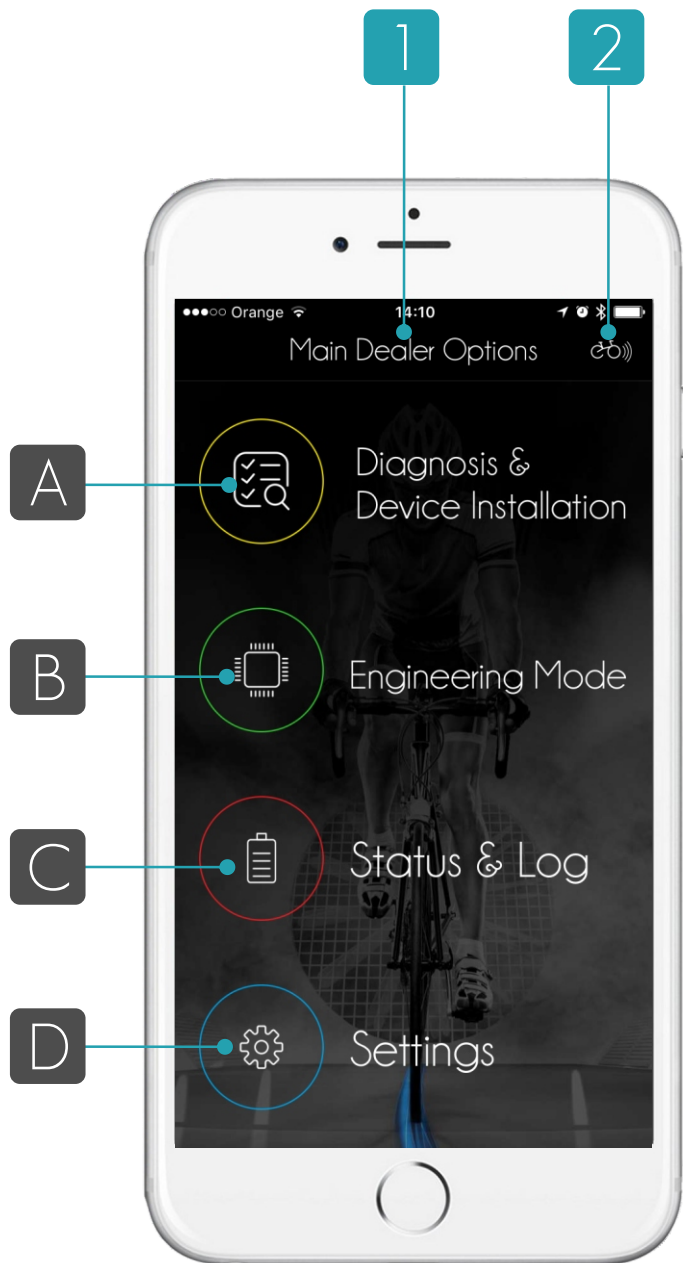
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1. illustrations

1.1 Dealer App Main Diagram

MAIN SCREEN



1 - Application Menu:

The application menu has a hierarchical structure; the user can first view main options and later browse through the sub-options displayed by the system. The active option always appears in the upper part.

2 - Access the eBike tab:

The tab displays the eBike state, kilometers travelled, battery charging cycles and errors. A white light means that the eBike is connected.

A - Access Diagnosis and Installation of Devices:

Funciones de revisión de errores, asignación de número de serie de eBike a componentes, etc.

B - Access the Engineering Mode:

Display of general parameters of the eBike and the issuing of reports.

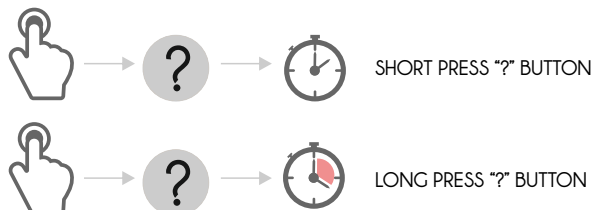
C - eBike Mode

The mode of the eBike can be changed from TRANSPORT to DEMO, ACTIVATED or SOLD.

D - Settings

Access the pairing menu and change of the active user.

1.2 Interpreting icons



2. Safety warnings



Read all instructions carefully before using the system

- Keep all safety instructions and warnings for future reference.
- Not adhering to the instructions provided may result in electric shock, fire and/or serious injury.
- The term “battery pack” used in these operating instructions, irrespective of model, refers both to standard battery packs (battery packs with holder on the bike frame) and spare-type battery packs (removable battery packs with holder in the rear rack/carrier or on the bike frame).
- Make sure you do not get distracted by the display of the on-board computer, remote information and Smartphone while cycling. Not focusing exclusively on traffic can be the cause of an accident.
- Read and follow the safety warnings and operating instructions of the eBike system
- The ebikemotion electronic components and casings are designed to work under the standards of the IP54 code against dust and water. Although, the electronic parts of the remote have received conformal coating for extra protection and sealing grommets are used to increase the waterproof features, this does not mean they can withstand extreme climatic conditions or large volumes of water and caution should be taken to protect the eBike elements from such conditions.

An e-bike is similar to a conventional bicycle, however, it includes some electronic devices such as the electric motor, the battery and HMI (remotes and displays etc.) There are some norms that should be followed in order to prolong the life span of an electric bicycle and the durability of its electronic components:

! IMPORTANT

- Do not immerse electronic components in water and do not wash them using washing machines. If you use water pressure systems it is important that you take out the battery (if removable) and control devices, such as remotes and displays; these should not be washed with water pressure under any circumstance.
- Do not leave the eBike parked outside in Winter in extreme weather conditions. The remote is designed to prevent water ingress in its internal structure, but this design can be endangered if we subject it to poor weather conditions or low temperatures during long periods of time.
- Do not leave the control systems or the iWoc® remote in rain or snow for long periods of time.
- Withdraw and protect remotes, displays and batteries if you transport the electric bicycle by attaching it to the exterior of the car. Failing to do so, especially in poor weather conditions, could increase the risk of breaking its protection from water.
- Maintain the buttons and points of contact clean from dust and dirt. If one of the components breaks, ask your supplier to replace it with another original part. The suppliers of the bicycle manufacturers who have the ebikemotion® components are the only persons authorized to install the components and activate them through the Dealer APP.
- You should not insert any types of metallic contact in the places of battery connection, it can cause a power cut.
- The battery should not hit any surface. If the outside cover of the battery breaks you should contact the technical service of its brand in order to change the casing.
- After 500 charging cycles the capacity of the battery can drop by around 20%
- The lithium doesn't have memory, for this reason it can be charged when battery level drops to 50%. Remember that the batteries should be charged once every two months.

3. Product Description

3.1 Intended Use of APP

DEALER APP is an ebikemotion® smartphone application designed especially for stores and suppliers of electric bicycles. It is compatible with products designed by ebikemotion® and other electric bicycle technologies. The function of this application is to connect the eBike to the user's mobile phone and the technical service, in order to directly carry out procedures such as diagnosis, reparation, set-up and updating or the replacement of components in case of a malfunction.

The diagnosis can be carried out on the devices manufactured by ebikemotion® as well as compatible technologies from other electric bicycle manufacturing brands, due to the lack of third party diagnostic tools, the ebikemotion® application is frequently opted for by other brands. A store should have a Dealer User Account that is authorized by the brand, enabling it to operate the application. The user account must be created by the brand which will provide the user with login information.

This application is public and free, it can be downloaded from the cloud by any user, however, its use is restrained by the stores who manage the users and valid passwords. Any procedures carried out on compliant eBikes are saved on the cloud for future reference.

3.2 Compatible Systems

At the moment of publishing this document the ebikemotion Dealer APP is compatible with the following systems:

- Remote Control iWoc® (5 buttons)
- Remote Control iWoc® TRIO (3 buttons)
- Remote Control iWoc® ONE (1 button)
- iWoc® Display (Color)
- ebikemotion® Smart Motor Controller
- ebikemotion® Smart BMS
- Propulsion System X35

3.3 Required Smartphone Features

- Minimum 512MB RAM (1 GB)
 - 80 MB free space in the ROM
 - 1 GHz Processor or greater
 - Android 4.3 or upper
 - Bluetooth® BLE or 4.0
 - Apple iPhone 4S or greater (iOS 7.1.2 / 8 or greater)
- Recommended iPhone 5 or 6 updated to the last iOS version
- Recommended Android phones is 1G of RAM
- 3G connection is recommended but the app can also work offline (some features will be not be available)*Most values are limited to the Bluetooth® BLE electronic components

3.4 Functionality

The Dealer APP enables stores to activate components, detect errors and diagnose and solve problems. The most important functions of the application are outlined below:

- The eBike is activated at the time of its sale through the application
- The application displays a list of the components installed and their status
- eBike's battery status, serial number and the distance travelled
- Status of eBike components and error list.
- Access to technical documentation and solving failures depending on the eBike model, component and error.
- Details on the hardware and software version of the installed components.
- Assignment of a serial number.
- Assignment of the eBike serial number when new components are installed.
- Codification of a new component to adapt its behaviour to the eBike model.
- Automatic updating of eBike software.
- Automatic reading of device coding and its correction.
- Modifying of eBike Motor Maps and manual adjustment if the eBike model supports this functionality.
- Changing the serial number if the eBike frame is being replaced or if the number on the frame or the eBike cannot be read.
- Issuing of reports on the eBike status, to be used as a reference by manufacturer or the ebikemotion® technical staff.
- In the Engineering Mode, access to real time eBike values (Current, Voltage, RPM, Device Temperature, etc.)

4. General Overview

Welcome to the ebikemotion® Platform. Before we go into detail on what the DEALER APP is, we believe that it is important to explain to you what ebikemotion® is about and how we can help your business grow and provide the most precise answers to the problems that can occur with this new element of the electric bicycle that continues to grow year after year and that we have a lot to say about.

Ebikemotion® Technologies is a Spanish engineering company (Palencia). Its main activity is the design and manufacture of electronic components for the electric bicycle business. Our technology and standards are exceptional due to our background in the automotive sector, mainly the electric vehicle sector. With time our company began to attain its know-how, we began to apply the technology used in eBikes to electric cars, improving their performance and capabilities.

All this technology is excellent, however, we need to create new tools that will ease the tasks of agents involved in eBike production, distribution, sale and use. The eBike product is to be enjoyed and we can only achieve this by simplifying the whole process and making it safe.

An eBike is quite similar to a conventional bicycle, the difference between them is that an electric bicycle is equipped with electronic devices. These devices can be designed to communicate with us; tell us about the problems they are experiencing or even give us clues on how to solve them. Imagine that the roller chain does not work correctly, a good mechanic will look and listen to the sound it makes in order to diagnose the problem, this is an ability he gained from his experience. However, how do we find a solution if the eBike's electronic sensor is taking wrong measurements? How can we fix it?

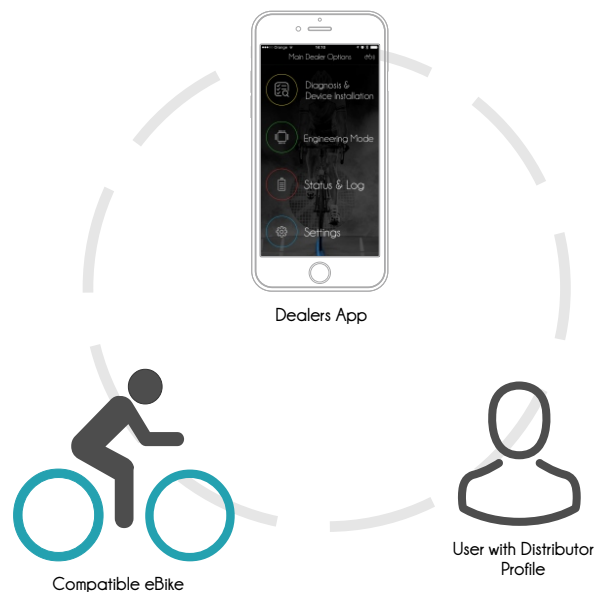
For these reasons, devices need to include an intelligent layer that will help us solve problems without creating any additional ones. The ebikemotion® DEALER APP has two main objectives, the first of them is to provide assistance to the mechanics in the FINDING and SOLVING of PROBLEMS. Its second purpose is to protect the DISTRIBUTION NETWORK of the product, ensuring that the stores will always be an important element in the development of the bicycle, its activation and delivery to the user. In this sense, the Dealer APP is an application that will only be available to USERS(stores) who are AUTHORISED by the brand(they have a Dealer Account), they will be able to operate the bikes from this BRAND. These users will have to carry out a special task at the moment of delivering the bike to the end-user, its

ACTIVATION. In such way, the bicycle is only considered as sold when it is activated. Activation is a crucial step since it includes a previous diagnosis and check, before carrying out the release procedure which enables the customer to use it. Before the release procedure the speed of the bike is limited to 50km (transport mode). In addition, the moment of activation is considered the effective date of the ebikemotion® electronic components guarantee. All this is done with the help of two buttons and a mobile phone that can be connected to the bike via Bluetooth®, there is therefore no need to invest in additional resources.

In addition, some electric bicycles may have a malfunction or we may have to replace some of the components with time. In order to change or install a new electronic component in the bicycle, it is compulsory for the store to have the Dealer APP downloaded on their Smartphone, as well as a dealer user account and the part that needs to be replaced. All the components are delivered to stores in the transport mode, disabling their use until authorized by the store in their official dealer account. Connecting an eBike to the DEALER application enables for the collection of data on the state and use of the electric bike, this information can be used by the brand to improve its service.

! YOU NEED TO START

Distributor User Account
A Smartphone
The Dealer APP
Dealer Manuals



It is not possible to replace the parts of one eBike with parts from another. (At least in ebikemotion® CAN BUS version components) This is because each component is manufactured to work in one bike and in a concrete eBike model. Even if the model of the bicycle is the same, its components are designed to work in only one frame (the serial number of the bicycle). If one of the components detects that rest of the parts is from a different bicycle, the bicycle will stop functioning (COMPONENT PROTECTION).

After reading this general introduction on the Dealer APP one should have a clear understanding of the following key points:

! IMPORTANT

- The eBike has to be ACTIVATED by the store via Dealer APP, at the moment of its delivery to the end user.
- The APP provides information on the status of the eBike, diagnoses and solves problems.
- The Dealer APP can only be used by authorized stores.
- The Dealer APP is compatible with various brands, if these give their permission to the Store.
- Only the store has the authority and the knowledge needed to activate the replaced ebikemotion® electronic parts. Activation cannot be carried out by the end user.

The functionalities of this application guarantee the proper life span of all parts, in all stages. It also ensures that stores are equipped with tools that are suited for the detection of errors. All this will make stores the most important elements of the supply chain, since their role in the development and delivery of the product will be crucial.

4.1 Activation: Factory, Dealer, End User

Each time an eBike is made, all the information that concerns it(serial number, components) is sent by the manufacturer to the ebikemotion® Server. A manufactured eBike arrives at the store in a special mode called DEMO or TRANSPORT MODE, this configuration limits its speed to a maximum of 50km. Before the end user can cycle on the eBike, the store will have to change this configuration by changing its mode to ACTIVE MODE. To change the MODE the store has to connect the eBike to the Dealer APP by Bluetooth®, a short diagnosis is made before the activation. Once activated the eBike is considered as sold.

As mentioned before, the ebikemotion® guarantee is considered to take effect from the moment the bike is activated.

Remember that if the eBike is not activated the light on the remote will be GREEN. Once the eBike has travelled more than 50 km the level of assistance will automatically change to NEUTRAL.

4.2 Installing the APP

If you have an iPhone, you can find the ebikemotion® APP in the Apple Store or on iTUNES. If you are using an Android smartphone, you can install the ebikemotion® APP through the Google Play Store.



The icon of the APP is characterised by a white square that has a GREEN letter "e" in its centre, the contrary of the end user ebikemotion® application, as pictured in this user manual. You only need to press the icon in order to download the APP. The APP is free and can be downloaded at any moment, provided you have a reliable internet connection. It can be used with any bike brand, although the application activates more functions for the eBike system. The eBike functions may work with other OEM bikes that use similar components powered by ebikemotion® technologies.



Differents status of a eBike

4.3 APP Language options

The APP automatically detects the current language configured on your Smartphone and configures the language of the APP accordingly. It is not possible to change the language of the APP manually and for that you will have to change the language of your smartphone in the General Settings.

Currently, possible language options of the APP:

- Spanish
- German
- French
- English (By default. If the APP doesn't support the language configured on your smartphone it will change to English automatically)

Other languages will be available shortly.

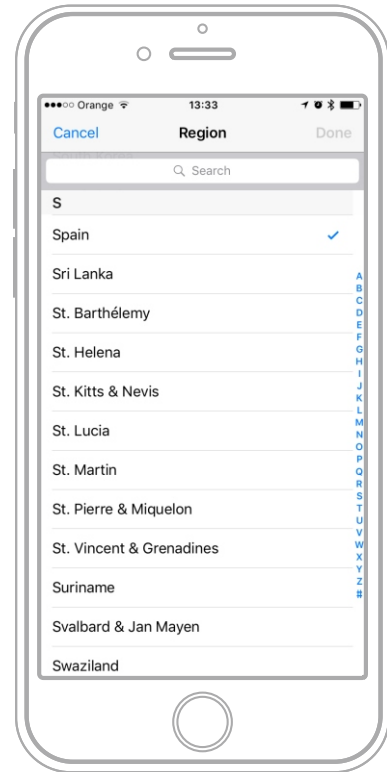


iOS Example: Language Selection

4.4 APP Units and Measurements

The metric and imperial systems of measurement are included in the ebikemotion® APP. Since the application is fully compatible with your smartphone, the measurement system of the app will also be defined by your mobile's configuration. On the APP itself there are no options to choose the system of measurement. Keep in mind that when you select a language and the system of measurement on your phone it includes many parameters (keyboard, voice, commands and measurements.).

If you want to change the type of measurement system between METRIC and IMPERIAL, please go to your smartphone's settings menu to adjust it in the "Language and Region" and go back to the APP.



iOS Example: Region Selection

5. User and Access

When you start the APP you will see the user LOGIN system where you will find the following options:

- LOGIN: If you have previously registered as an ebikemotion® user.
- LOGIN: STORES registered with ebikemotion®
- LOGIN: STORES registered with Facebook®
- Password Recovery

Remember that the DEALER APP users are privileged users of the ebikemotion® END USER APP, who as a STORE have a special profile in the application. Only the BRAND can create this type of profile for its users. As the system user you can select ebikemotion® or Facebook® to login into your account.

! VERY IMPORTANT

To create an end user account use the WEB DASHBOARD or the END USER APP.



Login Screen ebikemotion® Dealer App



5.1 Register as new ebikemotion® user

From the mobile application or the ebikemotion user website

1. Press "Register". You will be asked to complete a form, fill in the required information and again choose the option "Register".
2. The ebikemotion® Server will send you an email with a link. Click on the link to activate your account.
3. The ebikemotion® Server will confirm that the registration process has been completed.
4. From now on, you will use your USERNAME and PASSWORD to login into the APP.

If you do not receive the email, it means that there has been a problem in ebikemotion® APP Email Server or that you have entered an incorrect email. Please try to register again or contact our support centre.

5.2 Registro con facebook



If you want to login using your Facebook® account, press on the blue icon "Log in with Facebook". The APP will use different processes for iOS and Android.

- With the iPhone, the APP will open a special window where you will introduce your Facebook® user and password.
- With Android you must have the Facebook® APP installed on your smartphone, if you are logged in as a user the ebikemotion® APP will automatically use your Facebook account.

5.3 Password Recovery

If you are using an ebikemotion® USER ACCOUNT (not Facebook®), you will be able to easily recover your username and password. On the user login page of the Dealer application, press the option "Recover Password". The system will take you directly to a recovery form that you will have to fill in, in order to receive your data by e-mail.

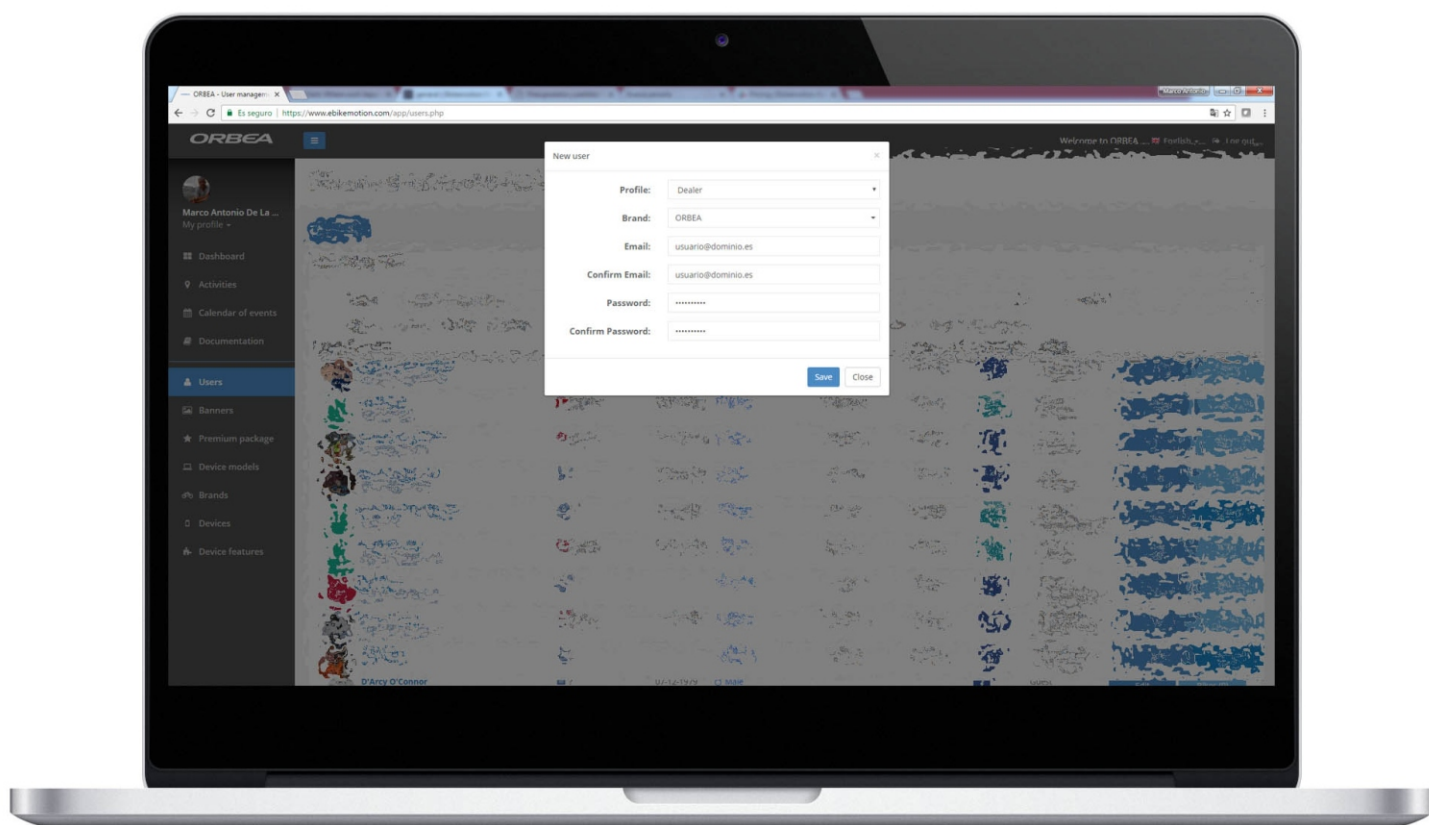
5.4 Linking your user to the BRAND

Independently of whether you have a DEALER type account (you can diagnose bikes of other brands) or you just created a new user account, you have to LINK YOUR USER to the brand. If you are a store and have access to the bikes of your new brand, you should open the END USER ebikemotion application and pair up with a bike of a brand that you wish to diagnose. From then onwards, your user account will stay linked to the new brand and the brand will see you as a compatible user. Send your user account and your username to the brand and they will give you a permission to use the DEALER application. If you have one previous ebikemotion® or you have created a new one, the first step that you need to follow is to PAIR WITH ONE EBIKE of the BRAND that you want to MANAGE.

When you create a connection with one eBike of any brand, your user account is available for that BRAND. In this way you can send your username to the BRAND and they will be able to access your data to pair your account with the BRAND. Remember that this process must be done on all the brands that you want to admin.

5.5 Remote creation of user by Brand

The BRAND has the ability to create a user account for its Store. They will need a valid email account to do this operation. The BRAND will create a password that they will send to your email address and that you will have to modify afterwards. The BRAND is in control of all the user accounts with the DEALER profile, so they have the power to change your possibilities; deciding on whether you can access the DEALER APP or not.



List of users of the brand - Distributors Form

6. eBike Pairing and Connection

Both APPs cannot be connected at the same time to the same bicycle. You should check how to close your APPs, this depends on your smartphone and OS version.

The DEALER APP is free and you can download it from any APP store with compatible platforms (Apple Market or Google Play). The following steps are to help you with the installation process:

The ebikemotion® eBike pairing process is required to use the APP when you are using an ebikemotion® compatible eBike. Before start prepare the following:

In order to carry out the ebikemotion® pairing process through Bluetooth® between the APP and an eBike compatible system you need the following:

- An ebikemotion® compatible eBike with Bluetooth® connectivity
- Reliable internet connection (WIFI or 4G)
- Your smartphone with the DEALER APP installed

1. Install the APP on your smartphone and complete the Registration or Login process

2. Switch on the POWER button of the ebikemotion® (Remote Control)

a) When the APP detects an unpaired ebikemotion® compatible eBike, it will pair up with it and a notice will inform you that the pairing process has been carried out correctly.

i. In addition, the SETTINGS menu will show display the option "EBM Pairing Status" Connected

ii. You will see a lit up eBike icon in the top right corner to show its connection status

iii. Finally, the LED on the remote will light in BLUE for a few seconds to inform that connection is done.

b) If the ebikemotion® compatible eBike is not paired, perhaps the bike is paired with another Smartphone. In this case check your remote manual to see the Bluetooth® reset process on your remote. (In the section 7.2 you have some information about this process). To reset the smartphones paired follow this process:

i. Switch off the eBike

ii. To switch on keep the button pressed for 4 seconds or more.

iii. The LED will blink in BLUE colour for a few seconds to inform you that the last smartphone has been deleted and that it is waiting for pairing anew one (a section)

When an ebikemotion® eBike is paired you will see a GREEN NOTICE in the top of the screen with the message "bike pairing - pairing with the eBike done". From that moment onwards your ebikemotion® compatible eBike and your Smartphone will be paired and it will not be necessary to pair again. The ebikemotion® compatible eBike will be paired with your last paired smartphone and will not be visible to other Smartphones.

Each time that you switch-off your ebikemotion® compatible eBike, you will receive in the APP an alert in the top of the screen with the message: "bike pairing - connection with the bike lost".

NOTE

Remember that you must close the END USER APP before opening the DEALER APP.

Remember that the end user needs to pair his phone again before leaving the store. It is very important that once you finish any process in the shop, you delete the eBike off your smartphone, leaving it free for the new user pairing process

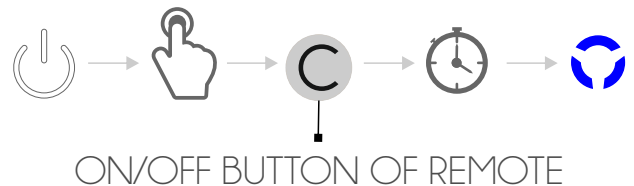
6.1 Deleting paired smartphones

The deleting process is already explained, basically this process is:

i. Switch off the eBike

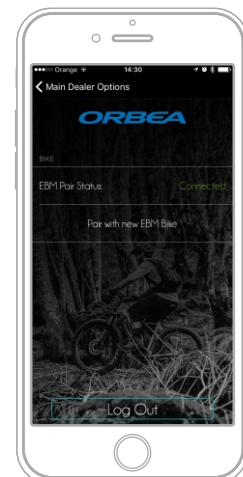
ii Switch on and keep the button pressed during the whole starting process and 4 seconds more.

iii. The LED will start to blink in BLUE colour for some seconds to inform you that the last smartphone was deleted and is waiting for pairing the new one (a section)



6.2 Force the BT Connection

There is a way to force your mobile to delete any link to the eBike that has been connected previously so that it looks for a new connection. Please select SETTINGS in the main menu and later in the BIKE options tap on "Pair with a new EBM bike", the actual Bluetooth® connection will be refused and the system will try to find a free eBike through Bluetooth®.



Force the Bluetooth® connection

7. Diagnosis and Device Installation

Diagnosis is the main process before any other operation with the DEALER APP. A diagnosis is done each time the Dealer has any interaction with the eBike. Unlike the END USER APP that only shows the error code and a short description to look for possible solutions in the manual, the DEALER APP can show additional documentation (Technical PDF) to extend the information on the error and possible solutions. Each ERROR in the eBike model includes technical documentation to help the dealer solve the problems, the relation is one PDF file per ERROR per MODEL of the eBIKE. At the same time the diagnostic process also is designed to update the eBike STATUS in the Cloud.

This part of the manual will show you how to see the eBike basic information, serial number, when it was manufactured, the history of actions, actual battery status and other extra information because each data is archiving as time goes by for each user and dealer connection. Also we will explain the process that the dealer needs to follow if the frame is replaced or if an additional component is added to the system, or if the eBike Bluetooth® connection is not possible.

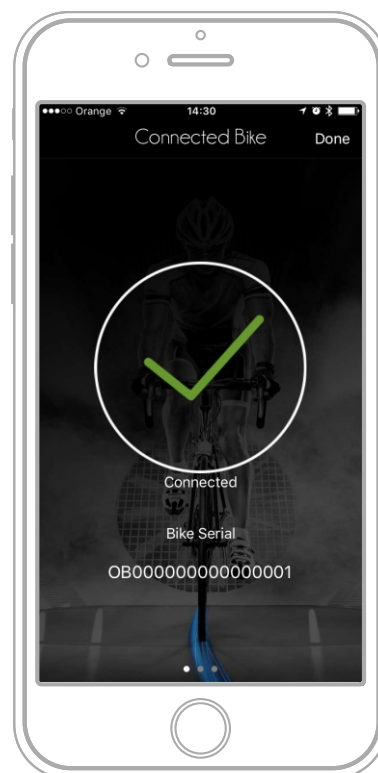


eBike card - Connection

7.1 The eBike File

The eBike File is the starting point of the system and usually is the first point that we must check and get a clear idea about the eBike status. The following, is the main information that we can check:

- eBike Serial Number (e-SN)
- Model of eBike
- Manufacturing Date
- Distance travelled with the eBike
- Time of use
- Battery charging cycles
- Battery Status
- Additional information



eBike confirmation connected

7.1.1 The Serial Number

Once you are paired with the eBike, you will see an icon in the top corner of the APP with the connection symbol, if it lights up in WHITE it means the eBike is connected, in GREY it means that there is no connection. Check the previous chapter in order to learn more about the Bluetooth® pairing process.

If there is connection, TAP on the top right icon. The APP will show you the eBike Serial number, that ebikemotion® names "e-SN" or eBike Serial Number. The eBike Serial number is composed of two codes:

- Brand CODE: This is an internal ebikemotion codification composed of 2 digits, for example:
OB = Orbea, LE = Legend ebikes, DS = Desiknio, etc...

XX 1234567890ABCDE

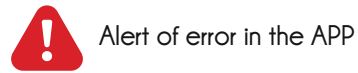
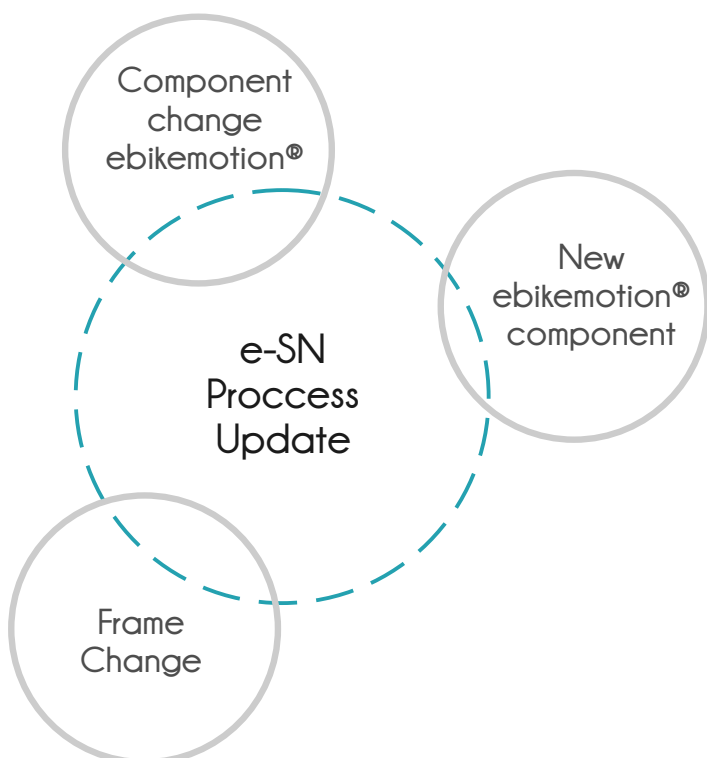
- Manufacturer Serial Number: This code is an alphanumeric chain with 15 characters at maximum, that must be identical to the Serial Number that the manufacturer put in the FRAME of the eBike.

For example, one eBike has the Serial number: 123AH456, can have an e-SN resembling this one: OBI23AH456

The DEALER application is the one that sends the e-SN of the devices to ebikemotion®. These are the situations in which you may need to indicate the e-SN

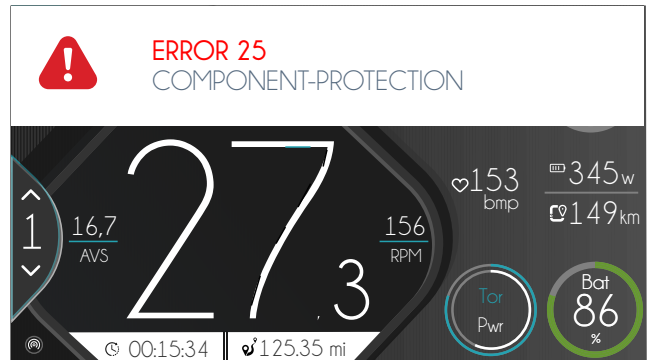
- If the eBike frame is broken and you need to move all components to a new eBike frame.
- If you need to change or add an ebikemotion® component:
 - o Because the component that manages the Bluetooth® module is broken and there are no more ebikemotion® components in the system.
 - o Because all ebikemotion® components are BROKEN.
 - o Because there is a NEW ebikemotion® component.
 - o Because you need to add a new component. All the components arrives to the dealer without having the e-SN assigned. If the eBike has a component whose e-SN does not match with the rest of if the e-SN is missing, the eBike will enter in ERROR-25 -> COMPONENT PROTECTION and will not push. To solve this problem, you need to introduce the e-SN to the new component.

Changing the e-SN is a critical operation that has certain effects on the ownership and identification of eBike, for this reason, this operation is protected and to be exclusively carried out by the Store. At the moment of execution, all the operations made are registered.



IMPORTANT NOTE

This operation is very common when the store is adding a NEW COMPONENT. Remember that new components come without any e-SN and using one component in this status will generate ERROR-25 -> COMPONENT PROTECTION



7.1.2 eBike General Status

The eBike general status provides the store with a lot of interesting and useful information when an eBike arrives at the shop. The most important information is:

- Manufacturing time and date
Reports on when the eBike was created and updated at the factory after its complete assembly. This information is received by ebikemotion® after the production diagnosis process.
- Total Distance travelled: It is the distance the eBike travelled with the electric system on. It is not the total distance, because it may have been cycled with the electrical system off
- Use Time:
It is the time of all archived activities. It also includes the total time cycled with the electric system on.
- Battery cycles:
Number of charging cycles that have been made since purchase
- Date of Last Battery Charging:
Time at which the last complete charge of the battery was made.
- Battery status:
Health status of the battery cells (100% maximum, for example). This data is calculated by comparing factory nominal maximum capacity to the current nominal maximum capacity.



eBike information

NOTE

The charging capacity of the battery cells degrades over time and with the number of charging cycles, so it is important to know two things:

- The date from the last full charging, which if supported by the system should be displayed in the status tab. More than 2 or 3 months is an excessive time that can affect the operation of the battery.
- The total number of charging. The number of charges reduces the maximum load capacity of the cells that compose it. Depending on the material of the cell, within 500 charging cycles we could reduce the maximum charge level of the battery between 80 and 70%. 2 years is what it takes to complete 500 cycles if used intensively at 100% discharge. The usual battery life span is around five years.

7.2 Assigning the Serial Number "e-SN"

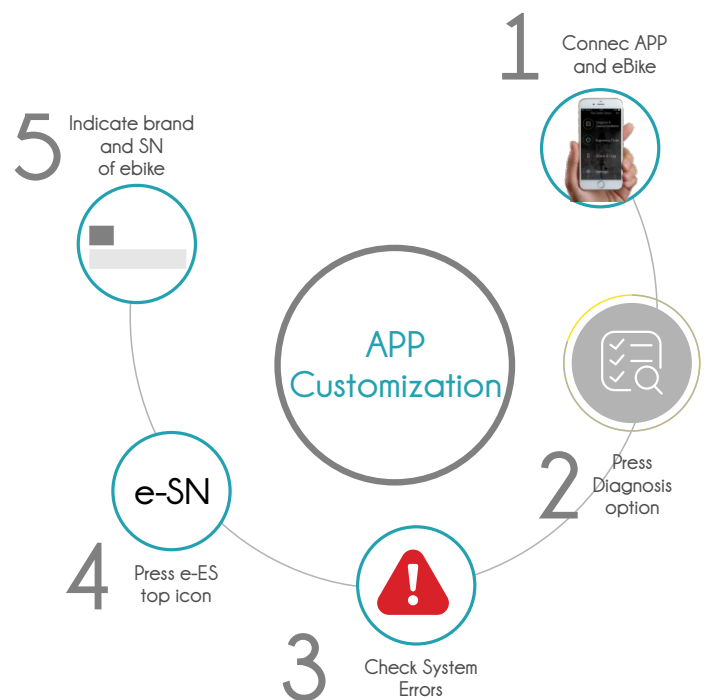
It is necessary to use the DEALER APP to assign the e-SN, in these two situations:

- Changing of the Frame
- Changing any ebikemotion® component

To carry out the e-SN assignment you need to follow this process:

- 1- Pair with eBike
- 2- Click on the Main Diagnosis and Device Installation option
- 3- If there is an error, the system will inform you of it
- 4- You will see an icon with the letters e-SN in the upper bar area. Click on the icon
- 5- It will look like a dialog box where you should perform the following steps:

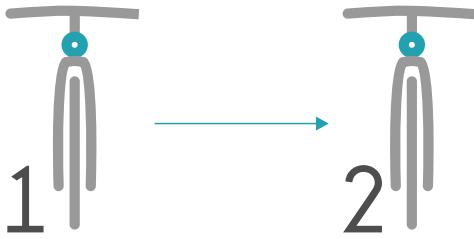
- Indicate the eBike brand (The system will only allow you to indicate brands that you are authorized to use)
- Enter the manufacturer's SERIAL NUMBER, WITHOUT OUR PREFIX. The prefix is entered automatically by the system, based on the mark indicated in the previous step
- The e-SN is sent to all eBike devices. Check that the e-SN of all the devices has changed in the list of devices.



7.2.1 Replacing the Frame

If you have to change all the components from one frame to another, the components must be given the serial number of the frame on which they are mounted so that the whole operation is registered in the system.

To change the components, follow the process described in the previous point.



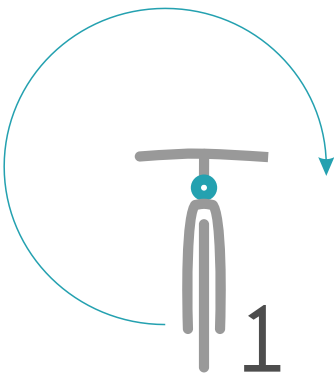
The same components with at different frame

7.2.2 Changing ebikemotion® Components

Due to many circumstances the ebikemotion® components may have to be changed, this occurs most commonly when:

- A component is broken
- The user wants another component to be assigned to the eBike, for example another remote backup, another battery
- The Bluetooth® device is faulty and you need to connect another remote to test the eBike and diagnose it

The process in any case is exactly the same as that described in the previous point. Make the connection, select diagnosis and select the top e-SN option to assign bike brand and serial number to all components.



Only ebikemotion® componets change

! IMPORTANT NOTE

Remember that when there are components in the eBike with different e-SN the system generates ERROR 25, component protection error. This error will DISABLE THE FUNCTIONING OF THE EBIKE SYSTEM. You must make the e-SN assignment process so that all components have the same e-SN.

7.3 Diagnosis and Errors

7.3.1 Introduction to Diagnosis

Diagnosis is one of the most important services. Through a simple Bluetooth® connection between our mobile phone and the eBike, this system allows you to:

- View installed components
- View the serial number of the components
- See the e-SN assigned to each component (they must all be the same on one eBike)
- Know the status of each of the components and their errors
- View the firmware version of each component
- Change the coding of a component (Change the behaviour of the component)
- View the error and PDF document associated with the error and its repair
- Change and associate new devices with eBike
- See details of power, current, etc. And generate a report while the eBike is being cycled.

It is very important that any eBike store that has ebikemotion® equipment knows the Dealer APP and the basic operations, such as the start-up and activation of the eBike which are needed for it to function properly, as well as the changing of any component, so the Store plays a fundamental part in the supply chain of parts and accessories that cannot be purchased and installed outside the network of establishments authorized by each brand.



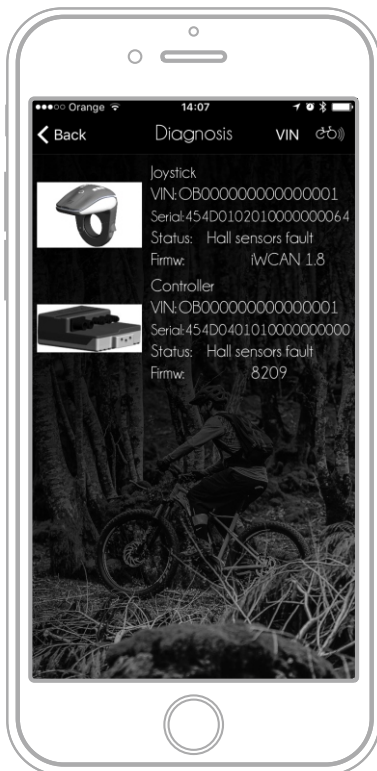
Diagnosis &
Device Installation

7.3.2 Device List

In order to see the list of the ebikemotion® devices that are installed in the system, press the Diagnosis option (YELLOW button). The application will wait to have a paired eBike and will show you the devices that have been detected and that are connected to the system. The connection is made by Bluetooth® between your mobile terminal and the eBike so it is essential that you have previously paired with it. Refer to the previous sections describing this process and deleting other previously paired phones.

Once the list of devices is displayed, we can access the most important operations:

- View the details of a device including its photo
- Assign the e-SN to a device
- View the error of a device
- Update the firmware of a device
- Coding a device



Diagnosis - ebikemotion® device list

7.3.3 Details of the devices

Once we have access to the list of devices with photos, we can easily identify them and view their details; the type of the equipment together with its serial number and the serial number assigned to the eBike, also the firmware version and errors. To access to the file with information of the device you must click on the image of the device.

When you tap on the image, it gives access to a page that gives more detail on the characteristics of the device. There are three important points in the device description:

- Firmware:

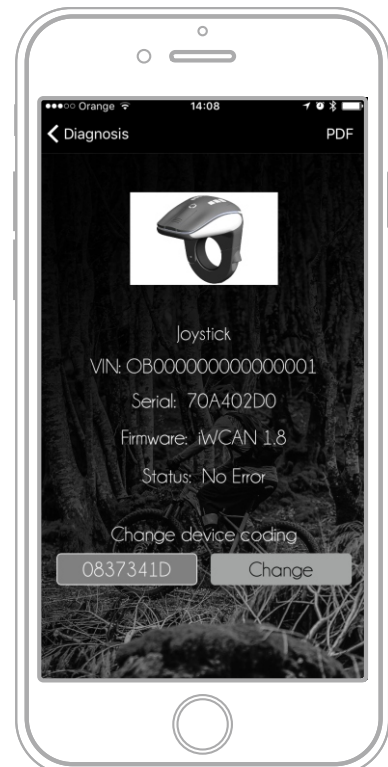
This option displays the current firmware version of the device. If it appears in red, it indicates that the firmware of the device must be updated with the latest version available. This process can be done through a more advanced diagnostic tool or via Bluetooth® if the device allows.

- Status:

This option can display either: NO ERROR or a CONCRETE ERROR. In case the system shows an error, an icon will appear in the upper area with the abbreviations PDF. The PDF is a technical documentation file that is associated to each of the possible errors of each of the bike models that the system has. This information is very useful for solving problems since it contains concrete guides to support the repairing.

- Coding:

This function allows to change the BEHAVIOR of the EBIKE, the coding is an encrypted field for each model that is generated by the manufacturer and that makes the same device work in one way or another, for example, whether the lights are on when starting the eBike, The position of the remote, levels of attendance, etc.



Diagnosis - Component information

! IMPORTANT NOTE

Coding values should not be modified if they are not known. The value should be provided by the manufacturer and be associated with the model of the bike.

7.3.4 Coding Devices

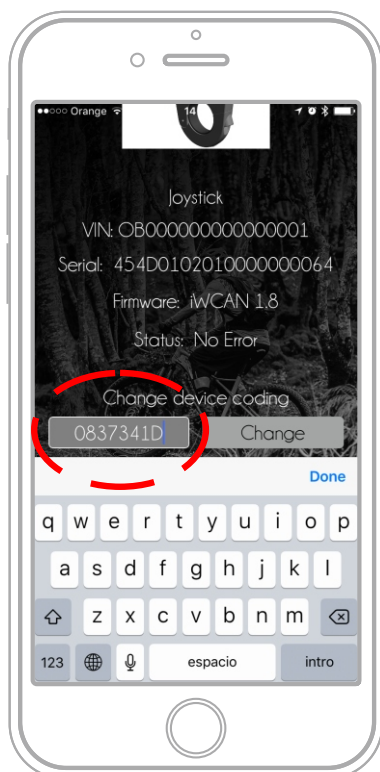
Device coding controls the operation or behaviour of each of the ebikemotion® devices

7.3.4.1 Different types of Coding

In the ebikemotion® system there are two types of coding that define behaviour.

- Simple coding:

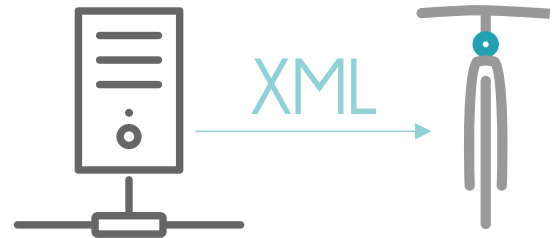
This type of coding is associated with devices whose behaviour is simple, such as a remote, where we can modify parameters associated with simple concepts. For example, define what level the system starts at, how many levels it has, whether it is to the right or left, if it starts with the lights on, etc. The coding based on simple definitions is based on a short alphanumeric code of type 37671592



Diagnosis - Simple encoding

- Complex Coding

When the information that we have to send to define the behaviour is much more extensive, complex and detailed, an XML file is used, since it contains all the data. This type of files cannot be sent manually and the system is responsible for retrieving it from the database and uploading it to the device. It is a security measure so that behaviour cannot be unduly modified. This tool is used on devices such as Engine Control or Location System.



Diagnosis - Automatic full coding

7.3.4.2 Circumstances requiring coding

There are three circumstances in which the store may need to modify the CODING:

- If a part of the system is replaced:

In this case the store must follow the following procedure:

- 1- Assemble the equipment
- 2- Enter diagnosis mode in the APP after pairing with eBike
- 3- Enter the eBike e-SN

The system will automatically retrieve the coding and send it to the device, whether simple or complex.

- If the manufacturer sends a code to change the behaviour based on a simple coding:

In this case, the store will enter the tab of the device and change the code manually. Only simple coding is supported. Click on the coding field and insert the code that you want to modify. Once the code has the correct values, press the button to save the changes.

- If a firmware update occurs:

In this case, the update may have associated simple or complex coding that the system downloads and sends after loading the new firmware.

Remember that next to the coding value you have the option of recovering factory settings.



7.3.5 Error in the Device

Errors in the devices can occur for several reasons; loss of the waterproof shield, failure of an electronic component, failure of a cable that generates an incorrect signal. The same error can occur for a number of different reasons, which can originate from different parts. For example, if the system tells us of an error in the motor phase, the origin can be in a sensor of the motor phase or in the wiring of a motor or in the intermediate or final connector. Where is the error and what must we do to solve it? The answer is not easy in most cases. To help installers solve these types of problems the system shows an error and a possible solution.

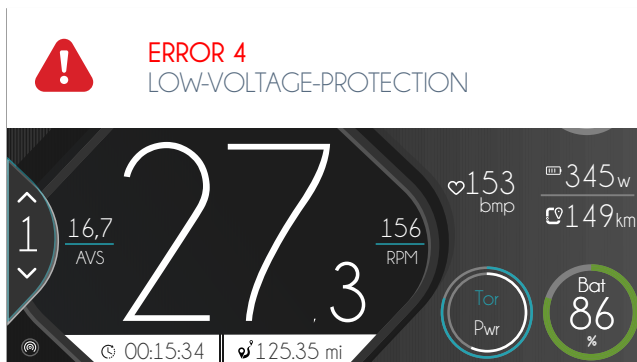
Commonly, when an error occurs in the system, this process takes place:

1- STEP 1:

The system visually informs the user that an error has occurred. It can be, for example, through a red light that flashes on the remote or an icon on the display or in the end user application.



Alert of error in iWoc®



App alert

2- STEP 2:

When we have a display, the error can be represented with a code and a short description. This code and this description are fundamental to solving the problem. You will have to go to the user manual to check what this error means. Usually, the steps taken to resolve the problem at the user level are: Visual inspection, connector review, cleaning and restarting the system.

iWoc® Standard - Manual

7. Error Codes Reference

REMEMBER

If there is any error, the iWoc™ will show you by flashing the RGB LED in RED colour flashing. Please connect your smartphone and open the iWoc™ APP to get a detailed description about the error.



Alert of error in the APP



Alert of error in iWoc



Code	Description	Corrective Measure
0	NO ERROR	Not needed
1	THRITTLE-NO-GO-BACK	Switch off the eBike System. Ensure that the throttle is released and try again.
2	THRITTLE-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. Please charge the battery pack.
5	OVER-VOLTAGE-PROTECTION	The Battery Pack voltage is not correct for this system. Please install the specific 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 permissible temperature range. Switch 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.
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	Error in the communication with the Battery Pack. Please check the battery Pack connector. If the problem persists, contact your eBike dealer.

Listado y descripción de errores (Manuales de Usuario)

3- STEP 3:

If the malfunction cannot be resolved by the user, the eBike has to arrive to the store where it will be connected to the DEALER APP to find out what is the source of the eBike's problem. A diagnosis will be made and the errors marked in its list will be checked. Here we can apply our experience to solve the problem.

4- STEP 4:

If none of these work, our last resource is to access the online technical documentation of the error for the particular eBike model. If the manufacturer has uploaded this information, we will be provided with hints on how to solve the problem. A button in the upper area of the diagnostic tab will enable us to access the technical PDF.

7.3.5.1 Technical PDF

The technical PDF is a document that the manufacturer of the eBike can upload to the system to offer us additional help in finding solutions based on descriptions and photographs. The system can offer a TECHNICAL PDF FOR EBIKE MODEL ERROR CODE. It can be an ideal resource for finding solutions to failures, for example, in the PAS sensor. This document can even describe what connector it is, how to access it, and how to replace the sensor if necessary.

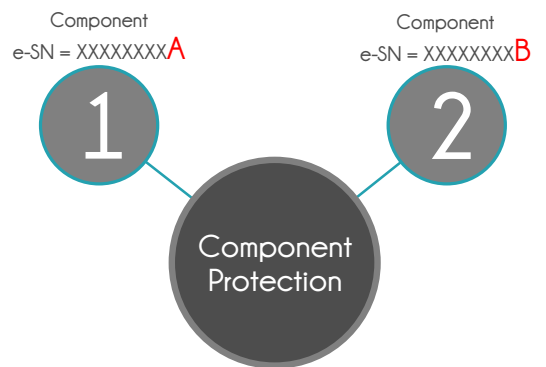


Access to technical PDF

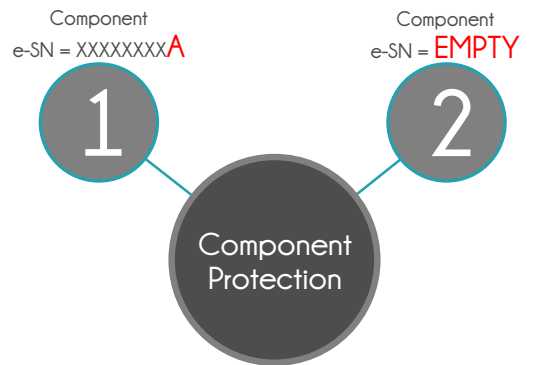


! IMPORTANT

To install a new component, it is important to have the battery fully charged and disconnected if possible. Install the new component and ensure that you have plugged all the connectors. Once this process is completed enter Diagnosis, the system will display the component protection ERROR 25 in the new installed device. Follow the process described in the "Assigning the Serial Number(e-SN)"- and the component will be installed and connected to the rest of the eBike.



Component Protection - Different e-SN



Component Protection - Componente without e-SN

7.4 Installing a new accessory

To install a NEW ebikemotion® accessory, EXACTLY the SAME PROCESS must be carried out as when REPLACING a component. When a new compatible device is placed on the eBike, the DEALER APP detects it and the user has to perform the process described in the "e-SN" Assigning the Serial Number - to store the e-SN on the eBike and also load its coding. Read over the previous points to find more information on this process.

7.4.1 Component Protection

Component protection is a state in which the eBike enters when the system detects a component which does not have an e-SN or whose e-SN does not match with the rest of the eBike's e-SN. In this case, the eBike will not function and the remote will flash in GREEN. In addition, the system will display ERROR 25.

To solve this problem simply assign the eBike e-SN to the new device following the process described in the point: e-SN Assigning the Serial Number-

8. Engineering Mode

8.1 What is the Engineering Mode?

The Engineering Mode is an option that enables you to see the technical information of the eBike during its operation (motor and battery in terms of voltage, current and power). Being able to make diagnosis on the basis of this information is very interesting. Having a clear idea of the values that are being obtained by the eBike enables us to make appropriate adjustments or detect the origin of a problem. The engineering mode basically includes:

- An Information Panel, which shows us the values
- A system that takes marks malfunctions
- A System that generates reports on these malfunctions

The Engineering mode is available in the Dealer APP and in the End User APP, although in the End User APP the report function is not available.



Engineering Mode - Access

8.2 Information Panel

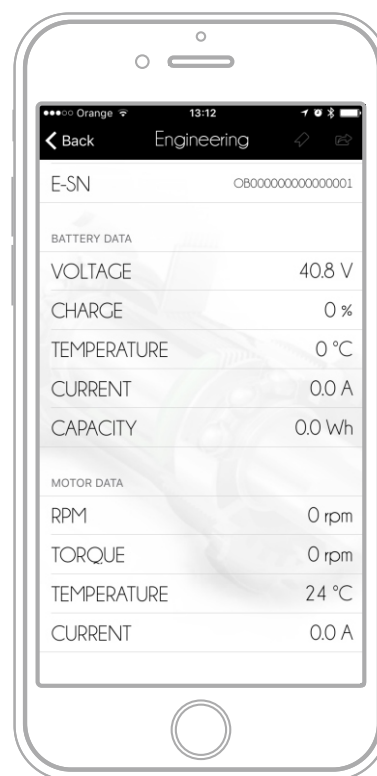
The information panel shows the main values of the eBike system in a table:

- MAIN SUMMARY
- Support Level
- Speed
- Autonomy
- The identifier
- The e-SN

- BATTERY DATA
 - Voltage
 - Battery Level
 - The temperature
 - Current
 - Capacity in Wh

- MOTOR DATA
 - The RPM (Cadence)
 - The torque
 - Temperature
 - Current

The display updates the values at the same rate as they are updated in the system via Bluetooth®. The Dealer user can start a tour and send a status report to the bicycle manufacturer for further analysis, as explained below.



Engineering Mode - Information Panel

8.3 Engineering Mode Report

Engineering Mode Report is a CSV FORMAT document that is generated by the application based on the values received via the Bluetooth® system. The report stores 10 values per second and for each of the values the following information is stored. The system behaves differently on Android and iOS because of how the systems are built:

- iOS:

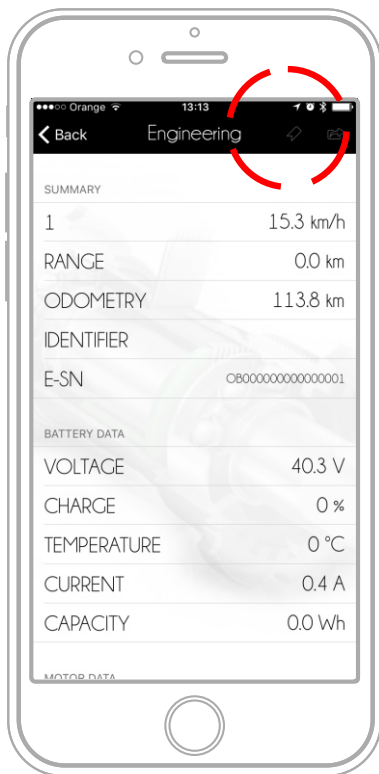
Recording is cyclic and 50,000 records can be stored. Recording starts from the first second the application connects to the eBike. Each record shows a moment in time in a sequential manner with the values of all fields sorted in a table which can be imported to third-party tools for further analysis.

The estimated maximum time is 1 hour.

- Android

On Android you must start the recording process, stop it and send it, for this this, you have 3 buttons in the upper area- Play-, -Stop-, and Send Report. Once a process has been started by pressing the Play button, the data will be saved until Stop is pressed. The created report can be sent by pressing the Send Report button.

In the report you can mark malfunctions to identify points where a specific behaviour occurs, this can be done using the button in the engineering mode or the remote control as we explain in the following points



Engineering Mode - Report Control Options

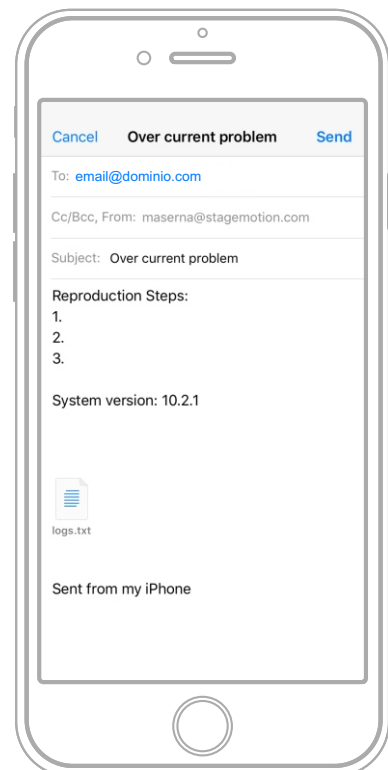
8.3.1 Engineering Mode Report

Marking malfunctions in the report is used to identify the malfunction while the system is saving file information. To mark a malfunction, the user must click on the mark malfunction option in the upper part of the screen in the Engineering Mode, or press shortly on the central button in the same mode or enter the ebikemotion remote control MODE. This way you can search the text file for the marks to see the values at the malfunction point.

The name that receives a label inside the report file is: XXXXXX

8.3.2 Sending reports by email

Once the report is finished, it is time to send it. You can send it to anyone and even yourself. Reports in the Engineering Mode should be short and last no longer than 5 or 10 minutes because the amount of data stored in the phone's memory may be too large. Moreover, a large file can be difficult to send by email. For these reasons, 5/10 minutes is considered a reasonable time.



Engineering Mode - Generating report

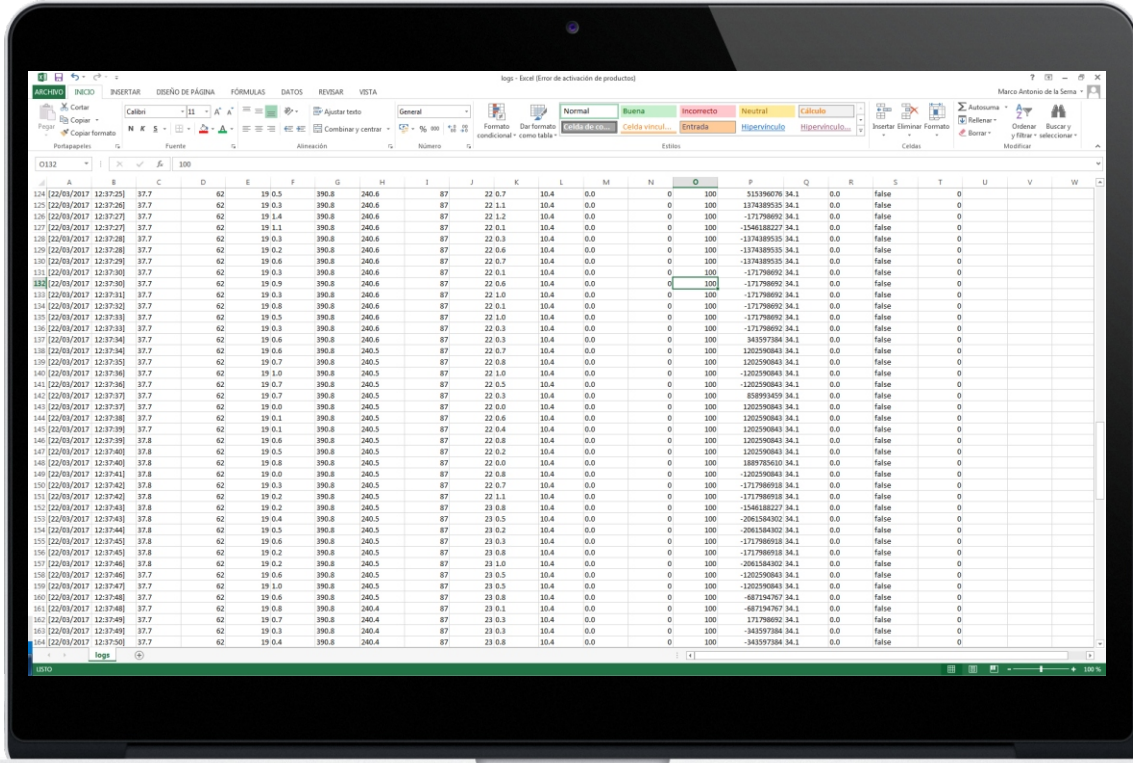
Once you press the report generation button the system compiles the report into a CSV file that is attached to an email. The mobile phone's e-mail user opens and the file is inserted. In this process the user is asked what name he wants to give to the report and the people he wants to share the report with.

The eBike manufacturer must have chosen and set up an email account for receiving status reports. If you do not have an account set up for this purpose, the Malfunction Marker and Send Report buttons are disabled and reports cannot be sent.

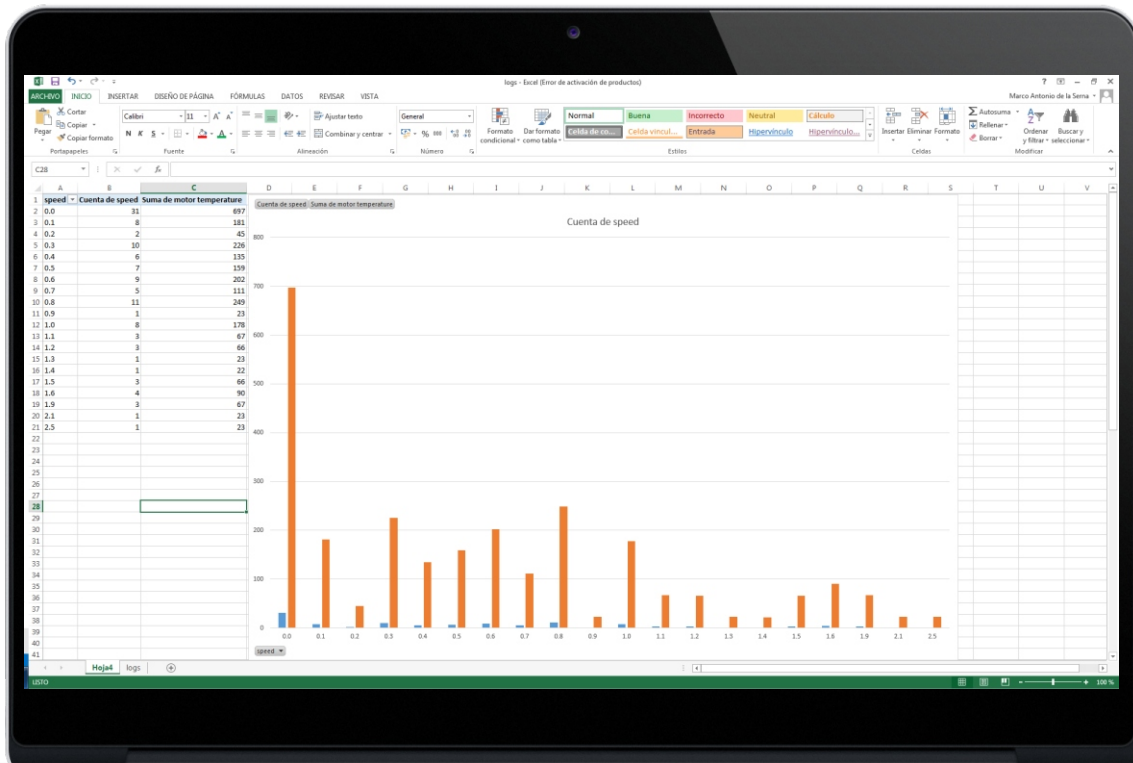
Otherwise, if they are enabled, the user can change the target account and add new accounts for e.g. receiving the report in their own email account.

8.3.3 Report Management

Having a report in CSV format will allow you to open the report in EXCEL and create your own graphs. Reading the speed and power on a graph in a very simple way and the marks indicate anomalous behaviour.



Untreated report

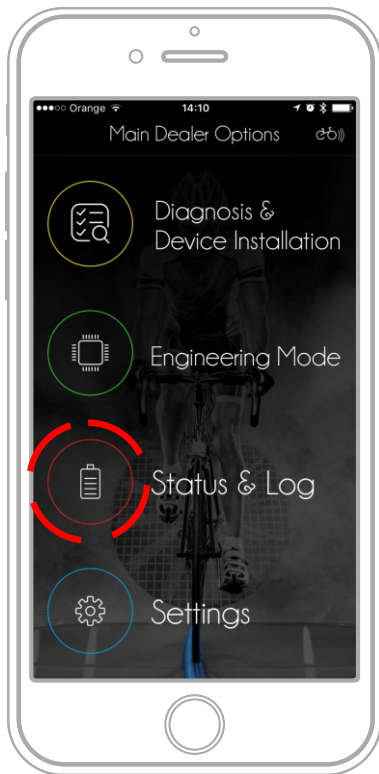


Report after treaty

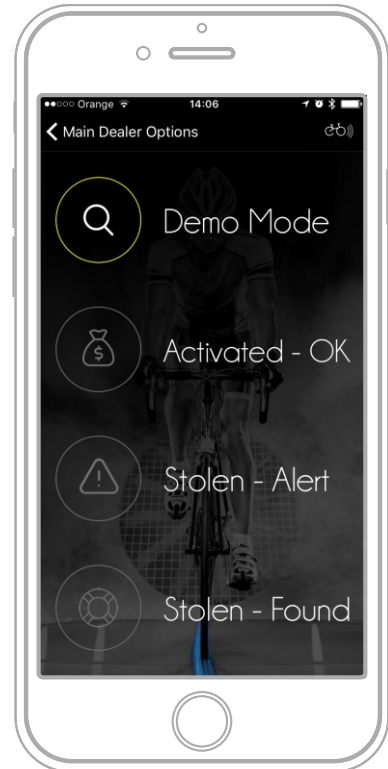
9. eBike Modes

9.1 Mode of the eBike

An eBike can go through different stages; from the time its parts are manufactured to when it is assembled as a bicycle, sent to the store and delivered to the customer. This section is undoubtedly one of the most important since a store must know HOW TO ACTIVATE AN EBIKE FOR DELIVERY TO THE FINAL CUSTOMER. This point is described in section 9.2 of this chapter in both written and graphic form and is one of the two most important processes of the Service with diagnosis and replacement of parts.



eBike Status - Access



Available states & enabled state

9.1.1 DEMO or TRANSPORT Mode

When an eBike is manufactured and the entire factory configuration is loaded for the model, eBike is in an intermediate state called MODE DEMO or MODE TRANSPORT. The DEMO mode is a mode in which the bike will operate as follows:

- The remote or display will notify the user that it is in DEMO MODE, either through a message on the display, application or through the own lights of the remote that may be in a special state, for example LED flashing in GREEN.
- The maximum distance that can be traced with eBike is limited to 50km. From that moment on the pushing level will always be NEUTRAL and the system will stop pushing any more.

It is essential that eBike switch to ACTIVATED MODE at the moment of the SALE.

9.1.2 ACTIVATED Mode

It is essential to ACTIVATE the eBike when delivering it to the customer. Switching from DEMO MODE to ACTIVE Mode imply the following:

- The eBike can travel more than 50km (there is no limit)
- The store that delivered the eBike and the date of delivery of the eBike are stored in the system
- The ebikemotion® parts warranty process begins

ONLINE SHOPS: Remember that if you have an online shop you also need to deliver the eBike activated

9.2 SAFETY against burglary in store

A store may have eBikes for testing or to sell them. If an eBike is to be used for user testing it must be activated and will therefore not be limited to 50km.

In case of a customer wishing to test a particular eBike, you can keep the DEMO mode after the set-up.

Activation should only be performed on eBikes upon their delivery to the customer, this is due to the guarantee taking effect upon activation, as well as security reasons. If an eBike is stolen in the DEMO mode, it is not functional until activated and it can easily be found out where an eBike has been activated afterwards.

It is very important therefore that, if a client goes to technical service to activate an eBike in the DEMO Mode, they are requested the purchase invoice of the eBike and that the technician checks with the brand to make sure it is not an eBike stolen through the eBike serial number. It makes no sense for a customer to buy an eBike in one store and go to another to activate it, since the activation process IS A MANDATORY STEP OF THE SELLING PROCESS.

9.3 eBike Selling Process

To summarize, an eBike should go through the following steps when in the store:

- 1- Make sure the battery is charged, otherwise charge the eBike to prevent it from turning off during an intermediate process
- 2- Check, in particular, system connections, remotes and bus cables.
- 3- Switch on the eBike with the MODE button pressed for 3 seconds to delete a paired phone
- 4- Start the DEALER application and login as a user
- 5- Enter the SETTINGS option and click on the pairing with a new eBike option.
- 6- Go back to the main application window and wait until the application is paired (The eBike "connection" icon lights up in the top right corner). If not, repeat the procedure from step 3.
- 7- Enter the main DIAGNOSIS option and verify that the e-SN of the devices matches
- 8- Make sure that there are no errors in the list of components
- 9- Go back to the main menu and press on the option STATUS and LOG

Press the ACTIVATED option



Different status of a eBike

10. Frequently Asked Questions

What to do if...

10.1 I am not able to pair the eBike by Bluetooth®

- Check that your Bluetooth® is ON. The application will alert you if it is switched off.
- Try deleting the paired phone with the eBike. Refer to section 6.1
- Reset the APP terminal. Refer to section 6.2

10.2 The Bluetooth® module is faulty

There is no way to make a diagnosis via Bluetooth® if the module is faulty. The ebikemotion® devices that include Bluetooth® are:

- Smart Motor Controller X-35
- iWoc Plus Remote
- iWoc Display

If you have another iWoc Plus or Display remote, you can change its settings and use it on the eBike with a faulty Bluetooth® module and perform a temporary diagnosis after solving the component protection problem, ERROR-25.

10.3 If I have to replace an ebikemotion® part

You must carry out the component protection process described in section: "7.2.2 Changing the ebikemotion® Component". Remember that you will have to make a diagnosis and activate the e-SN in the new, replaced component.

10.4 If the customer wants to have a backup accessory, for example two batteries or two remotes

To do this the same process must be performed as when changing a part. Check section "7.2.2 Changing the Ebikemotion® Component".

10.5 If the system does not function and ERROR 25 appears

This problem occurs when a component of the eBike does not have the eBike Serial Number(e-SN) assigned to it, this may happen if a component has been replaced after manufacture and the correct procedure has not been followed. Another reason for this error to occur is when a component from a different eBike is installed in another, since their e-SN numbers do not match the eBike cannot function. To solve this problem, check section: "7.4.1 Component Protection"

10.6 If you need to change the frame

If the frame needs to be changed, the manufacturer should supply the frame and change all the components. Once this process has been completed, the serial number of the box must be re-assigned to all components. Check "7.2 Serial Number Assignment" e-SN""

10.7 The remote marks an error and I do not have the APP installed

All stores must have the APP installed to be able to sell an eBike. In this case reinstall the APP and retrieve its credentials through the login page itself or call your brand to generate them again.

10.8 If all of the above do not work

You should contact your eBike´s manufacturer brand which will offer technical service that will help you find a solution.

10.9 What if I sell bikes from two different brands with ebikemotion® components?

It is not a problem. You have two options. The first one is to have two accounts, you will have to use the corresponding account for each brand. Otherwise, you can have one account that is enabled for the two brands. In this case, when you enter as a user and will have to assign the ESN, the system will ask you to choose the brand that you want to perform the operation on. This process is critical as the system will verify whether the serial number of the bike that is trying to load exists on the system.

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ebikemotion®

a fast view of your partner for the future of e-bikes

The reference questions always are who, why and where. ebikemotion® Technologies Limited Soc. was founded as new company in August 2015. The big difference with other company models like the startups is that ebikemotion® Tech. is created by automotive consolidate companies using their own funds, facilities and human staff. All the expertise of the members has been put at the service of the project team to create a product and solution with sense by the point of view of the experience in all the fields of development of it.

Why you must talk with us? ebikemotion® platform and solutions are built under 3 BIG PRINCIPLES:



Innovation



Modularity



Flexibility

If you want to get the success you need to innovate. For the innovation with have a huge product portfolio with different solutions that will be able to give to you the possibility to create one e-bike for your customers that will be yours, including your own view of performance. Be different, that is the way to innovation, that is the way to success.

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