



USER'S MANUAL

# RANGE EXTENDER

*ORBEA*

# CONTENTS

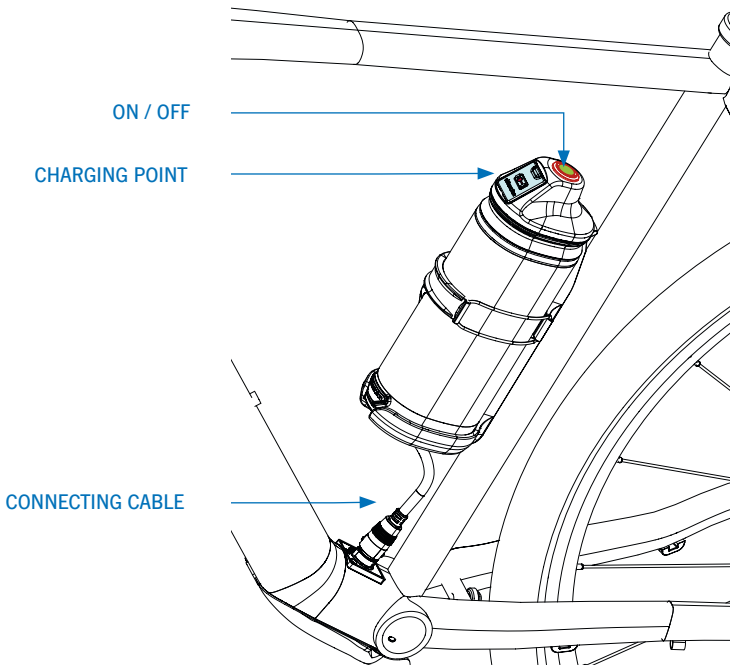
<b>TECHNICAL SPECIFICATIONS</b>	<b>3</b>
<b>HOW THE RANGE EXTENDER WORKS</b>	<b>4</b>
<b>TURNING ON AND OFF THE RANGE EXTENDER</b>	<b>5</b>
<b>CHARGING THE RANGE EXTENDER</b>	<b>5</b>
<b>ASSEMBLING THE RANGE EXTENDER</b>	<b>6</b>
<b>TRANSPORTING THE RANGE EXTENDER</b>	<b>8</b>
<b>REPAIRING THE RANGE EXTENDER</b>	<b>8</b>
<b>WARNINGS</b>	<b>9</b>

## RANGE EXTENDER USER'S MANUAL

The Range Extender from Ebikemotion provides an extra 208W/h to the main internal battery on Ebikemotion's X35 systems, increasing the 248W/h of the main battery up to a maximum capacity of as much as 450W/h.

This increase in total capacity of the system will make it possible to increase the autonomy achieved with the internal battery by up to 70%.

# TECHNICAL SPECIFICATIONS



**Total capacity:** 208.8Wh (5.8Ah)

**Voltage:** 36 V

**Cells:** Panasonic

**Charging time:** 3 hours

**Maximum discharge ratio:** 1.9 A

**Water resistance:** IP57

**Color:** Anodized black

**Charging and ignition display:** Iwoc One button

Charging port protected by a rubber cover.

**Dual charging:** The Range Extender and main battery can be charged at the same time by connecting the Range Extender to the main battery and the X35 charger to the Range Extender.

**Certifications:** EN 15194:2017

**Bicycle mounting:** Specific X35 bottle holder with Quick Lock rubber band. Exclusive mounting on the seat tube \*(diagonal tube on the Optima).

**Weight:** 1645 g with bottle holder

## HOW THE RANGE EXTENDER WORKS

The Range Extender works like a portable internal battery charger that charges the main battery while it is turned on. It operates differently from other systems in that on the Ebikemotion X35, only the main battery provides power to the motor, while the Range Extender charges the main battery, regardless of whether the motor demands current from the main battery or not (such as at speeds greater than 25 km/h, when there is no pedaling or the bicycle is not moving).

The Range Extender provides charge to the main battery at a discharge ratio of 2A, while the motor can demand current of up to 9A. Therefore, the Range Extender is not capable of supplying enough current to the motor by itself, and all this current comes from the main battery.

If the main battery is discharged and the Range Extender is connected and turned on, you must wait until the Range Extender has charged the main battery enough for the system to provide electrical assistance. For this reason, it is recommended that whenever you use the Range Extender, always keep the unit connected to the main battery through the charging port in order to make sure that the main battery charges during use, thus ensuring the maximum possible autonomy. In the case of intensive use of the system in extreme cases, in the top assistance mode during long periods of time, the battery may completely discharge faster than the Range Extender is able to charge it. In this case, you will need to wait for the main battery to have enough charge from the Range Extender to be able to continue riding with electrical assistance.

Acting as the main battery charger, the Range Extender is compatible with any version of the Ebikemotion X35 system.



## TURNING ON AND OFF THE RANGE EXTENDER

After connecting the Range Extender to the bicycle charging port, turn on the Range Extender by pressing the Iwoc One button on the top of the unit. The light on the button will turn white. To turn off the Range Extender, press and hold the Iwoc One button for 2-3 seconds.

After turning on the Range Extender with the unit connected to the bicycle, the Iwoc One button on the top tube of the bicycle will blink continuously in the color corresponding to the current level of charge of the main battery, just like when the charger is connected to the charging port. The bicycle will provide assistance as normal and the assistance modes can be changed just as if the Range Extender were not connected.

To ensure maximum continuous autonomy, be sure to turn on the Range Extender as soon as you turn on the bicycle for use, so that the Range Extender begins to charge the main battery from the very beginning.

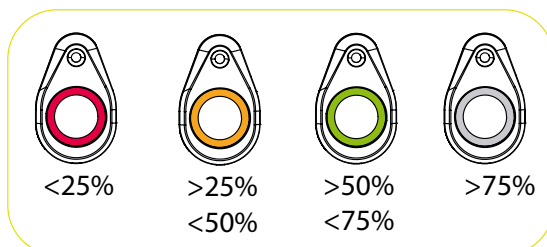
## CHARGING THE RANGE EXTENDER

The Range Extender can be charged by itself when it is disconnected from the bicycle. Connect the X35 charger to the charging port on the top of the unit. The charge levels of the Range Extender will be displayed using the same color code as the main battery:

**White:** 100%-75% / **Green:** 74%-50% / **Orange:** 49%-25% / **Red:** 24%-1%.

The unit can also be charged while it is connected to the main battery. Connect the charger to the charging point of the Range Extender using the Range Extender cable connected to the charging point of the bicycle and both batteries will charge at the same time.

Alternatively, the charging level of the Range Extender can be seen on the Ebikemotion smartphone application. The exact way in which the charge is displayed in the application will depend on the version of the X35 system to which the Range Extender is connected.



## ASSEMBLING THE RANGE EXTENDER

The Range Extender must be installed using the specific Ebikemotion bottle holder included with the unit.

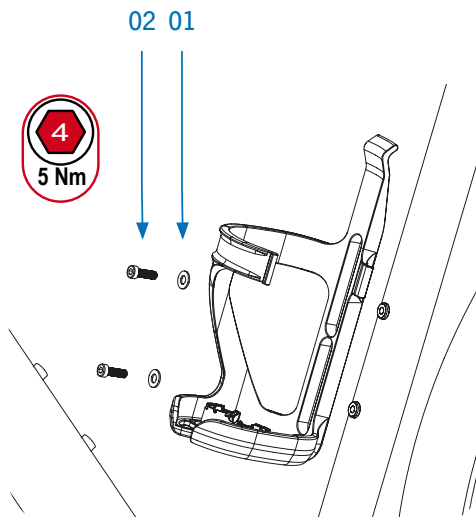
The Range Extender must always be installed on the seat tube of the bicycle frame. The unit is not compatible with mounting on the diagonal tube. The Range Extender can only be installed on the diagonal tube on Optima models with the Ebikemotion system.

For installation, separate the specific Ebikemotion bottle holder from the unit. Then install the bottle holder on the seat tube of the bicycle using the M5x16 (2) screws and washers included (1). The washers must be placed between the head of each screw and the bottle holder.

Tighten the M5x16 screws to a tightening torque of 5Nm. It is recommendable to check this tightening torque on a regular basis before using the Range Extender on the bicycle.

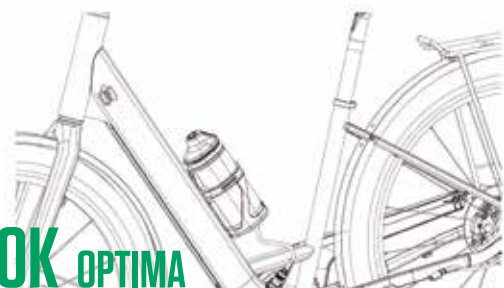
The Range Extender is not compatible with eMX24 models.

It is not possible to mount or connect two Range Extender units on the same system/bicycle.





**OK** GAIN



**OK** OPTIMA



## TRANSPORTING THE RANGE EXTENDER

Like any battery, the Range Extender must be transported according to current regulations and the means of transport permitted for these items. The unit must always be shipped using the original approved packaging and an approved carrier.

Find out about the conditions for handling and transporting this type of item in your country.

If the Range Extender must be sent to Orbea for repairs or diagnosis, it must be shipped in its original approved packaging and via a shipping company that is qualified to transport batteries. Orbea can give you information about the best option.

## REPAIRING THE RANGE EXTENDER

If you have any sort of problem with your Range Extender, contact an Orbea dealer, who can contact us to give us all the information we need about your case and organize the secure shipping of the necessary material to our facilities for correct diagnosis, if necessary.



## WARNINGS



### Battery temperature intervals

Charging: 10 °C - 45 °C

Discharging (in use): -20°C - 60°C

Storage: -20°C - 50°C

These intervals have been established by the battery cell manufacturer. It is recommended not to store the battery at temperatures below 0 °C. Using or storing batteries at temperatures below 0 °C could affect their total capacity over time.



### Storing the Range Extender for long periods of time.

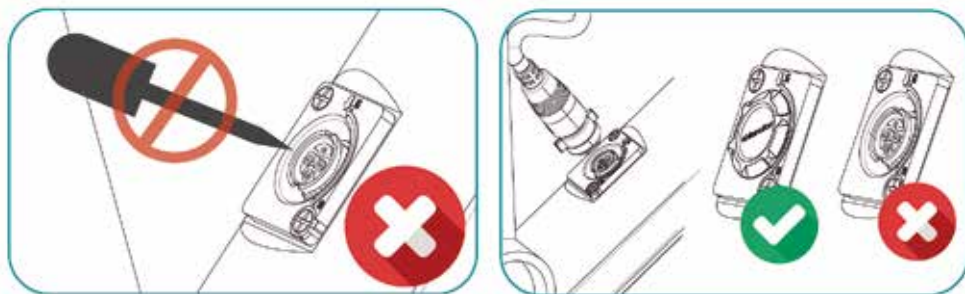
When storing the Range Extender for long periods of time, make sure that the battery level is above 80%. Maintaining the battery at low levels of charge over long periods of time can affect the total capacity of the battery. An unused battery in storage can lose its charge over time. Make sure that the battery level never drops below 10% to prevent it from affecting its capacity. Avoid letting the battery charge drop below 10% on a regular basis.



### Charging time

The Ebikemotion X35 battery is equipped with a battery management system that interrupts the flow of current to the battery once the charge reaches 100% to prevent damage to the cells.

However, it is recommended not to leave the bicycle plugged in for more than 8 consecutive hours in case any damage to the charging port might let the current continue to flow once the battery has reached a full charge.



Do not insert metal objects in the charging port or in any of the component connectors. This could damage the connectors or even short-circuit the system.

Always connect components in the proper direction to prevent damage to the connectors.

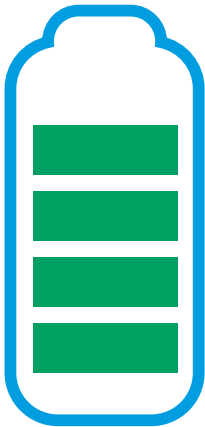


### Washing your bicycle

Do not use pressurized hoses to wash your bicycle. If you do, you could damage the lubricated mechanical components. Even though the X35 system is sealed to protect it against rain and splashing, when submerged in water or pressure washed, its components could be damaged.



If the bicycle is stored for a long period of time at low temperatures or in extreme weather conditions, its electrical components may be damaged.



### AUTONOMY

The Ebikemotion X35 system and battery have been designed to provide the greatest range available for a pedal-operated ebike system with a reduced size and weight. However, it is important to bear in mind that there are several factors that can affect the range and overall performance of the ebike battery:

- \*Cyclist weight:
- \*Power supplied by the cyclist
- \*Use of system assistance modes
- \*Terrain (slope and pavement conditions)
- \*Tires (pressure and tread)
- \*Frame geometry (more upright geometries are less efficient)
- \*Temperature (extreme temperatures can negatively affect battery performance)

The autonomy times indicated in Section 2 of the Mahle Quick Start Guide for the Range Extender are estimates under ideal conditions of use. This autonomy will be affected by the agents mentioned above.



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