

# E Bike Tuning App

RedPed 2 for Bosch

April 2020

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## 2. INFORMATION ON ROAD TRAFFIC REGULATIONS AND DISCLAIMER

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The use of the module is only allowed in private, gated areas, for example for sports or marketing purposes. It manipulates the maximum speed settings of your pedelec or s-pedelec, set by the manufacturer, which is prohibited by the road/streets' laws. The module manipulates the speed sensor signal and therefore the total distance display of your e-bike. The use of the module falls under own risk. No liability is assumed for any present and future damage caused to property and/or persons by the installation/removal and/or use. The guarantee of the e-bike is completely extinguished by the use or application of the module, because the installation or use represents a modification or manipulation of the e-bikes (pedelec or s-pedelec). If your e-bike has an operating license, it will extinguish. Always drive carefully, use protective clothing such as helmets or protectors and do not bring yourself and others in danger. Talk beforehand with your insurance company, so that all areas of your actions are protected. Please note further that other statutory provisions apply in other countries. This is especially true when you are driving with the e-bike in your holidays. Please inform yourself beforehand about possible restrictions and keep principles in mind.

## 3. COMPATIBILITY

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Module	Motor	Display	Year
RedPed 2 for Bosch 1.0	Active, Performance	Intuvia, Kiox, Nyon, Purion, Nyon 2020	From 2014

## 4. APP

### 4.1. START SCREEN

#### 4.1.1. Module search

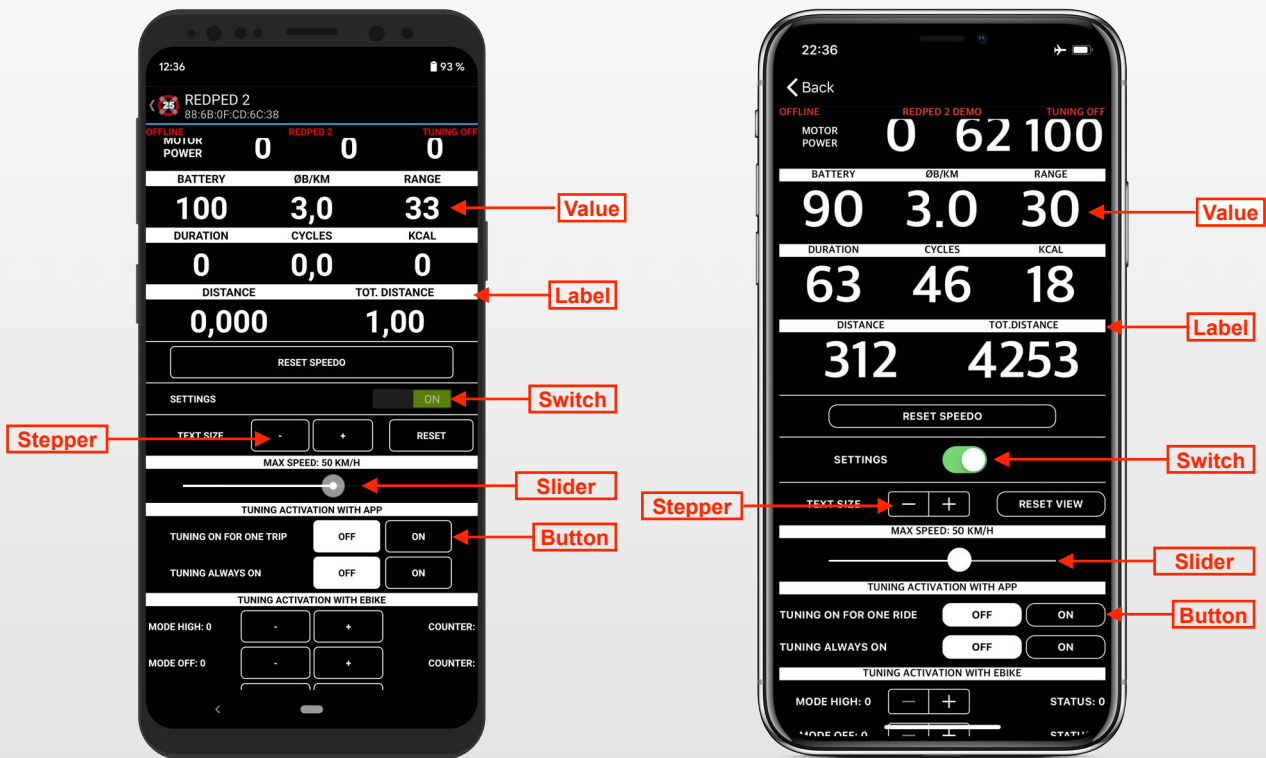


After launching the app scans for nearby modules. If a module is found, the name, UUID, motor, module and firmware version are displayed. If the signal of a module is no longer received, it will be removed from the list. The dBm value indicates the signal strength. Each module has a unique UUID. With a tap on a found module, the app connects to the module and opens the appropriate screen.

#### 4.1.2. Database

The app creates an image for each module it connects to and stores it in a database. The image is refreshed each time before the app is closed. When the app is reinstalled, demo modules are created that display the module's screen when the app is connected. Individual modules can be deleted with a long tap, in the options menu all modules can be deleted.

## 4.2. OPTICAL SPEEDO SETTINGS



### Change colors

A quick tap on the label changes the color of the underlying value. A tap on „CURRENT“, „AVERAGE“ or „MAXIMUM“ will change the color of the column below. A tap on „SPEED“, „RPM“, „TORQUE“, „USER POWER“ or „MOTOR POWER“ changes the color of the line.

### Hide values

A long tap on the label makes the label disappear and the associated value. A long tap on „TURBO“, „CURRENT“, „AVERAGE“ or „MAXIMUM“ causes the label and the underlying column to disappear. A long tap on „SPEED“, „RPM“, „TORQUE“, „USER POWER“ or „MOTOR POWER“ makes the label and the line disappear.

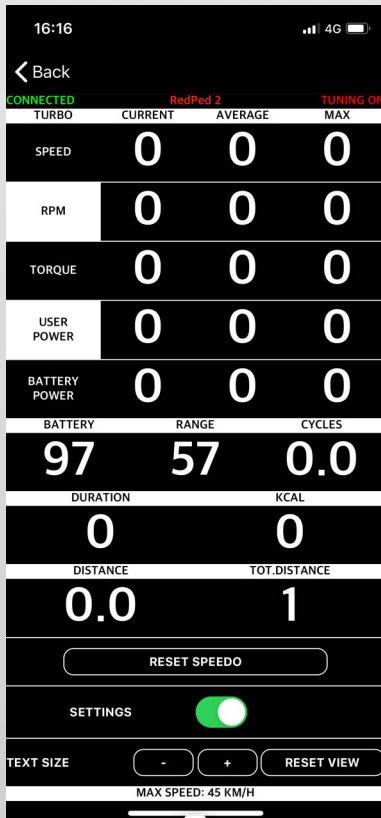
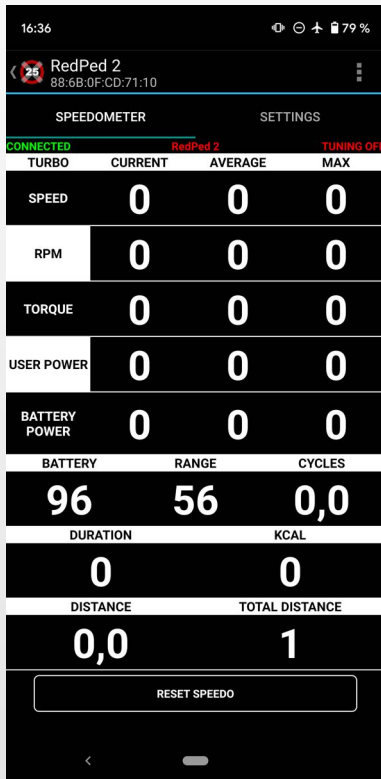
All settings are stored permanently and can also be changed offline in the database.

**Android:** The font size can be changed in the main screen in the settings.

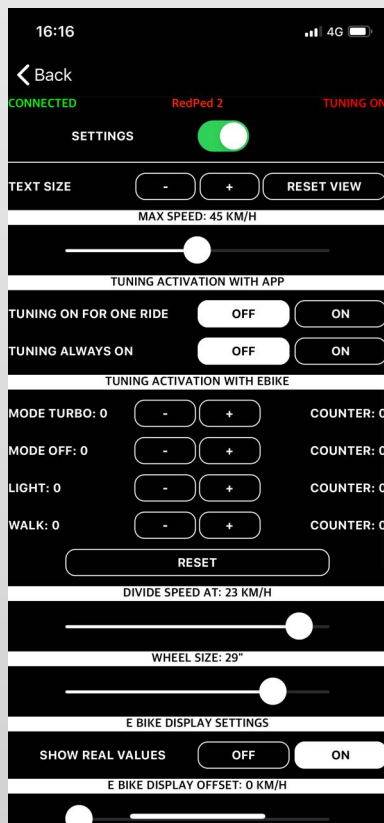
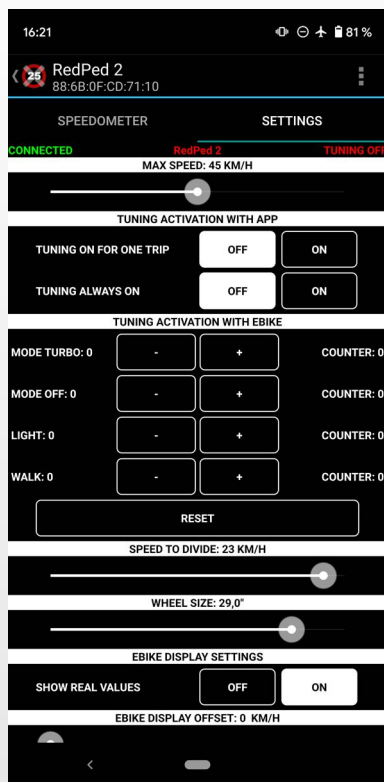
**iPhone:** You can zoom in on the main screen.

LABEL	TYPE	FUNCTION
SETTINGS	Switch	Shows or hides the area with the settings.
TEXT SIZE	Stepper	Gradually changes the font size of the speedometer.
RESET	Button	Resets all optical settings of the speedometer.

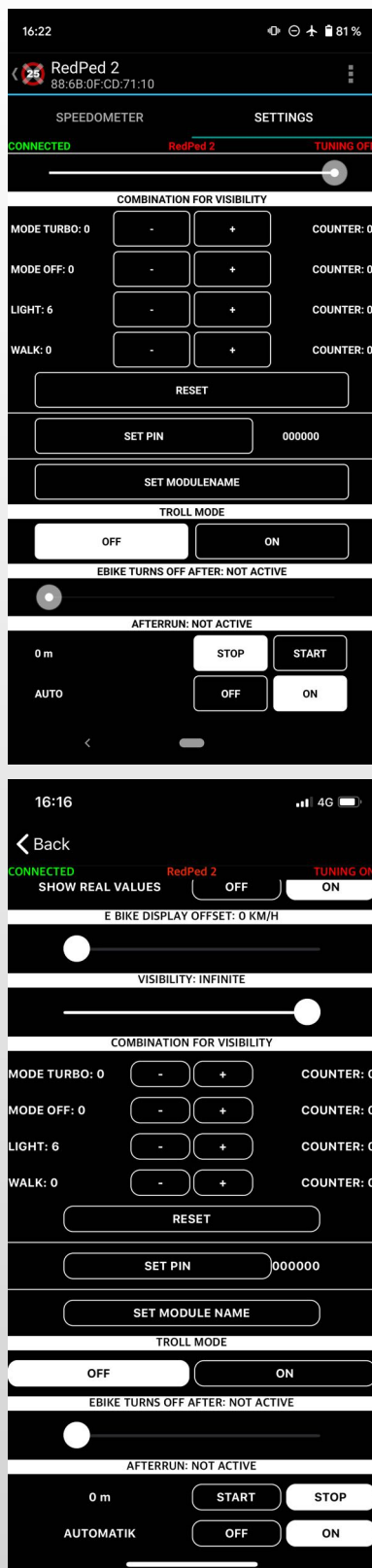
## 4.3. MAIN SCREEN



LABEL	UNIT	FUNCTION
BACK	-	Disconnects and starts the search screen.
RedPed 2	-	Name of the connected module.
88:3F:4A:E0:C2:EF	-	Unique ID of the module.
CONNECTED	-	Displays the current connection status to the module.
TUNING ON	-	Shows if the tuning is activated.
TURBO	-	Support level of the e-bike.
SPEED	km/h	Displays the current, middle and maximum speed.
RPM	Rpm	Displays the current, average and maximum speed of the crank.
TORQUE	Nm	Displays in the line the current, average and maximum torque of the crank in Nm.
USER POWER	Watt	Displays the current, middle and maximum rider power.
BATTERY POWER	Watt	Displays the current, average and maximum battery power.
BATTERY	Percent	Battery charge level of the e-bike in percent.
RANGE	Km	Calculated range of RedPed, can be reset with a long tap.
DURATION	Minutes	Travel time in minutes.
CYCLES	Number	Number of battery cycles, with a long tap, the value can be changed.
KCAL	-	Burned kcal of the rider.
DISTANCE	Km	Currently ridden distance.
TOTAL DISTANCE	Km	Total distance of the module, can be changed with a long tap by entering a new value.
SPEEDO RESET	-	A tap resets the entire speedometer, except battery cycles and total distance.



LABEL	SCALE	FUNCTION
MAX SPEED.	15 to 75 km/h	Sets the theoretically possible top speed of the e-bike when the tuning is active.
<b>TUNING ACTIVATION WITH APP</b>		
<u>TUNING OF FOR ONE RIDE</u>	OFF   ON	Tuning activated until the e-bike is switched off.
<u>TUNING ALWAYS ON</u>	OFF   ON	Tuning activated even if the e-bike is restarted.
<b>TUNING ACTIVATION WITH EBIKE</b>		<b>TO ACTIVATE TUNING...</b>
MODE TURBO	0 to 10	Switch between Mode TURBO and EMTB.
MODE OFF	0 to 10	Switch between Mode OFF and ECO.
LIGHT	0 to 10	Press the Headlight button.
WALK	0 to 10	Press the Walk button once and then the set number the + button.
COUNTER		Counts the rider's input.
RESET		Resets all values to 0.
DIVIDE SPEED AT	10 to 24 km/h	The speed is internally kept constant at this value.
WHEEL SIZE	18,7" to 31,2"	Sets the wheel diameter in inches. Setting applies to the module and not to the e-bike.
SHOW REAL VALUES	OFF   ON	Here you can set whether the e-bike display shows the values of the e-bike control unit or the manipulated values of the RedPed.
<u>EBIKE DISPLAY OFFSET</u>	0 to -15 km/h	Decreases the speed display by the e-bike display by the set value.
VISIBILITY	0 to 240 Sek or permanent	Sets how long a smartphone can connect to the module after turning on the e-bike.



LABEL	SCALE	FUNCTION
<b>COMBINATION FOR VISIBILITY</b>		<b>TO MAKE THE MODULE VISIBLE ...</b>
MODE TURBO	0 to 10	Switch between Mode TURBO and EMTB.
MODE OFF	0 to 10	Switch between Mode OFF and ECO.
LIGHT	0 to 10	Press the Headlight button.
WALK	0 to 10	Press the Walk button once and then the set number the + button.
COUNTER		Counts the rider's input.
RESET		Resets all values to 0, except LIGHT to 6.
<b>PIN</b>		
SET PIN	6 digits	The PIN code can be entered here.
<b>MODULNAME</b>		
SET MODULE NAME	9 characters	The module name can be entered here.
<b>TROLL MODE</b>		
TROLL MODE	OFF   ON	Turns on the troll mode.
EBIKE TURNS OFF AFTER	5s to 60s	E-Bike turns off if no smartphone has connected within the set duration.
<b>AFTERRUN</b>		
0 m		Displays the difference of total distance between the engine control unit and the RedPed.
MANUALLY	STOP   START	If the difference is greater than 0 m, a speed of up to 45 km/h is generated internally.
AUTO	OFF   ON	Speed is generated automatically when the bike is standing as long as the difference is not 0 m.



## 5. EXPLANATION AND NOTES

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### 5.1. PAIRING

The PIN always has six digits and is **000000** in the factory setting.

#### iPhone

When connecting for the first time, the PIN must be entered once.

#### Android

Pairing must be done in the Bluetooth menu (Settings => Bluetooth®). After pairing, Bluetooth® must be switched off and on, otherwise the RedPed will not be found in the app.

### 5.2. VISIBILITY

In order to prevent third party access to the module, the module can become invisible after a set time. The visibility can be set from 0 to 240 seconds or to infinity. If you put them e.g. to 30 seconds, the module can no longer be found in the app 30 seconds after the e-bike starts. You can connect to the module within 30 seconds, after disconnecting the timer is reset to 30 seconds.

If you set the visibility to 0 seconds, the module can no longer be found with the app.

Possibilities to make the module visible:

- Factory settings: 6x Headlight Button
- Set combination
- Black reset plug on the module

#### Combination

If the module is invisible, it can be made visible by a combination of the manual controls. In the factory state, the light button must be pressed 6 times. If all values are set to 0, the module can only be made visible via the reset plug.

### 5.3. RESET MODULE (RESET)

The module can only be brought to the factory settings via the black connector. To do this, the two contacts must be connected with a conductive material, e.g. a key. The contacts must be connected 10 times within 10 seconds, 0.5 seconds must elapse between short-circuiting. Another reset can only be made after restarting the e-bike.

### 5.4. TOP SPEED

The actual top speed with activated tuning depends on the engine and chainring. The value set via the app is only the theoretically possible value.

**WATCH OUT! Bosch engines from Gen4 have tuning recognition, we can only guarantee that the RedPed will not be recognized if the maximum speed is set to a maximum of 33 km/h. The maximum value that the user has ever set is stored permanently internally and can be read by us. If the error 504 nevertheless occurs, then our support should be contacted.**

## 5.5. PIN

Before the data of a module can be read out, a PIN must be entered. The PIN is always 6 digits and can be changed in the app. If the new PIN entered is too short, zeros are prefixed, e.g. Entered "123", the PIN is automatically changed to "000123". The PIN can be reset to "000000" using the reset plug.

## 5.6. TUNING ACTIVATION

APP TUNING ACTIVATION is not possible and will be greyed out if EBIKE TUNING ACTIVATION is active.

All set conditions must be fulfilled if TUNING ACTIVATION WITH EBIKE (AND operation) is on. A maximum of 5 seconds may pass between two actions, otherwise the counters are reset.

## 5.7. TOTAL DISTANCE AND INFORMATION AND REMOVING THE MODULE

The total distance of the module is set to 1 km in the factory setting. You can set it to a maximum of 65535 km with a long tap.

If AFTERRUN is not active:

After removing the tuning chip, the e-bike shows another lower total distance. The reason for this is that the RedPed sends a lower speed to the engine control unit, so you can drive faster. However, it corrects the divided values that the engine control unit sends to the display. If it is removed, the values are no longer corrected.

Please read [AFTERRUN](#) for further information.

## 5.8. E-BIKE DISPLAY OFFSET

The value can be set between 0 and -15 km/h. The speed in the e-bike display is reduced by the set value. If you set the slider e.g. to -5 km/h so at real 30 km/h only 25 km/h are shown in the e-bike display. However, all other values are counted correctly. The idea behind this is that the maximum speed on e.g. 30 km/h and the e-bike display offset is set to -5 km/h. Then the e-bike drives 30 km/h, but the display shows 25 km/h and the support stops.

## 5.9. TROLL MODE

Troll mode is used to annoy riders who have access to the e-bike but are not allowed to drive. It does not prevent the theft of an e-bike. The module disconnects communication between the motor and the display if the smartphone does not connect to the module within the set time. With the Purion this causes the e-bike to be switched off, with the other displays a recurring restart.

## 5.10. AFTERRUN

If the mileage of the e-bike is less than that of the RedPed, then the difference is displayed as a negative value in meters. If you press the START button, the RedPed generates a speed of up to 45 km/h until the difference is 0 m. The generated speed is not visible on the e-bike display, unless SHOW REAL VALUES is set to OFF. If AUTO is set to ON, the module generates a speed of up to 22 km/h each time the actual speed drops to 0 km/h for 5 seconds. Speed generation stops automatically when the e-bike is moved.

**WATCH OUT!** It is important that the actual mileage of the e-bike is entered into the RedPed after installation. The module does not check whether the entered value is plausible and generates until the difference is 0 m.

**Note:** A ride is simulated without the motor having to perform, which increases the theoretical range, which is shown in the RedPed and e-bike display. The range quickly adapts while riding.

## 6. HARDWARE



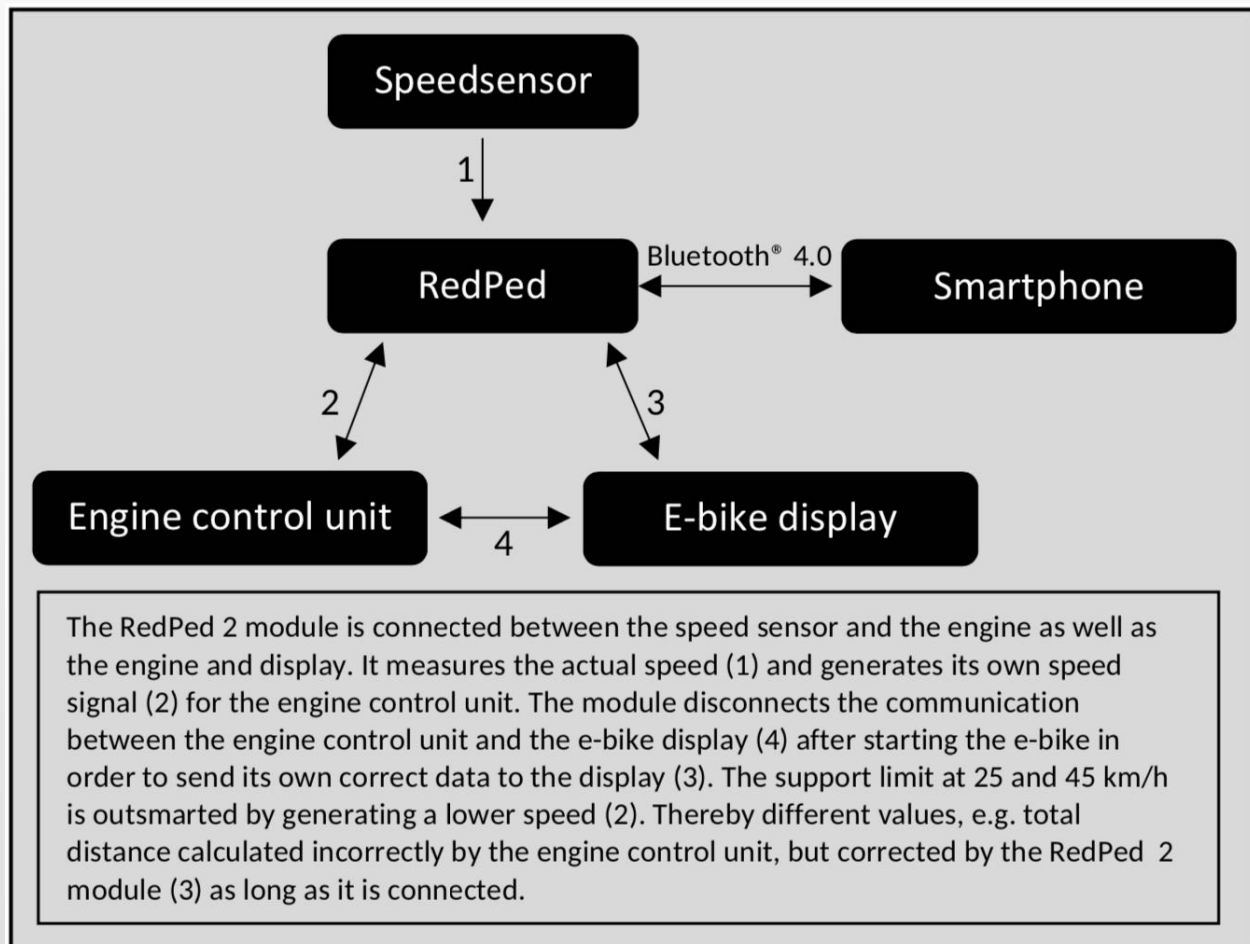
### Connector connected to ...

1	to the speed sensor, 2-pin
2	to the speed sensor socket of the motor, 2-pin
3	the display socket of the engine, 4-pin
4	to the ebike display, 4-pin
5	not connected, 2-pin

### Technical specifications

Dimensions	5,3 x 2,1 x 0,8cm
Cable length	7cm, 10cm
Power	150mW
Transmission range	10m
Radio communications	Bluetooth® 4.0
Splash-proof	Yes

## 7. FUNCTIONALITY



## 8. COMPANY INFORMATION

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