

# OPERATING MANUAL

CREATION DATE - FEBRUARY 2022



REDPED APP  
WITH  
REDPED 3 FOR BOSCH

Tuning module for Pedelec-  
Mountainbikes with

- Bosch Active Line
- Bosch Performance Line
- Bosch Cargo Line

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# 1. IMPORTANT SAFETY INSTRUCTIONS

Only use the interchangeable equipment "tuning module" for the purpose described in these instructions. Otherwise you will endanger yourself or damage parts of your Pedelec-Mountainbike. You endanger yourself and others if you install or operate the interchangeable equipment incorrectly or if you do not observe the safety or warning instructions. Serious injuries or considerable damage to property may result.

## 2. COMPLY WITH THE REQUIREMENTS FOR SAFE USE

For safe use of the tuning module in your Pedelec-Mountainbike, it is first essential to read and understand these operating instructions in full.

### These operating instructions

- informs you about the intended use,
- the installation and use requirements,
- important usage restrictions,
- obligations of the owner and the user,
- warranty and liability conditions and
- guides you step by step for correct installation and safe use
- warns you of potentially unsafe or dangerous situations with conspicuous safety and warning notices and uses.

### Know and observe all contents of the operating instructions

- It is essential that you take the time to read these operating instructions carefully before you start by installing the tuning module.
- Keep this operating manual in a safe place and yet to hand so that you can access it at any time even after installation to have the important and safety information for use.
- Make these operating instructions available to anyone else who uses your tuned Pedelec-Mountainbike.
- Make sure that everyone who is allowed to ride your tuned Pedelec-Mountainbike has read and understood the operating instructions before any use.
- Instruct the user in the safe use of the tuned Pedelec-Mountainbike on the basis of this, before you hand over your tuned Pedelec-Mountainbike to other people
- It is imperative that you pass these operating instructions on to the future owner if you use the tuning module or you want to sell a tuned Pedelec-Mountainbike.

## 2.1. KNOW THE INTENDED USE

The tuning module shifts the cut-off threshold of the motor support of your Pedelec-Mountainbike. Thus, with the installation of the tuning module higher speeds can be achieved with electric motor support. However, intended use also includes compliance with all of the following without exception

- Use restrictions and
- Installation requirements and the
- Obligations of the owner and the user.

### Intended use of the "exchangeable equipment"

According to the product regulations of the European Union, the tuning module is classified as "interchangeable equipment" in the sense of Directive 2006/42/EC for machinery, Article 2b).

### Know meaning

The tuned Pedelec-Mountainbike remains within the scope of the European Machinery Directive even after the tuning module has been installed. **If the intended use is strictly observed, a „non-essential change“** of the „machine“ can be assumed. This means that the applicable safety requirements of the „machine“ Pedelec-Mountainbike by the manufacturer of the tuning module checked within a risk assessment and also with the use of the tuning module as continued have been assessed as complied with.

### Safety and protection devices

The safety and protection devices of the Pedelec-Mountainbike remain unaffected by the installation of the tuning module.

## 2.2. KNOW AND COMPLY WITH OPERATING RESTRICTIONS

### **Strictly adhere to the usage restrictions**

The installation of the tuning module in your Pedelec-Mountainbike is associated with usage restrictions. The "machine" bicycle with electric motor assistance is being changed. Although there is no increase in performance, however, the achievable speed of more than 25 km/h means that

- use on public roads or on public roads is no longer permitted,
- use without appropriate protective clothing and a crash helmet after an accident has occurred can relieve you of your obligation to pay benefits if you fall with the consequences of injury,
- the permissible circle of users must be further restricted by the owner of the vehicle, taking into account the physical and mental suitability, before the Pedelec-Mountainbike is handed over to other persons,
- the owner of the tuned Pedelec-Mountainbike must always prevent misuse and misapplication, also by other persons, as well as
- necessary maintenance and inspection intervals according to the original manufacturer's specifications and usual battery charging cycles or those specified by the manufacturer may be considerably shortened.

### 2.2.1.DO NOT USE IN PUBLIC AREAS ANY MORE

Pedelec-Mountainbikes for use on public roads or public ways with a permissible speed of > 25 km/h are subject in Europe to Regulation 168/2013/EU, the Vehicle Regulation. Further approval requirements in non-European countries may apply. The purchase of the tuning module does not entail any approval for operation in public areas. Therefore, participation in public road traffic and driving on public roads is prohibited after installation of the tuning module.

This also applies and in spite of the "non-substantial change" of the "machine" Pedelec-Mountainbike recognized by the tuning module manufacturer when used as intended.

#### **Prevent misuse and abuse**

Due to the higher speeds with electric motor assistance, you will lose your license to drive the tuned Pedelec-Mountainbike to use on public roads or on public roads without any further legal authorization.

### 2.2.2.USE ONLY WITH PROTECTIVE CLOTHING AND HELMET

After installing the tuning module, a Pedelec-Mountainbike can reach speeds of up to reach 45 km/h.

#### **Reduce the increased risk of accidents**

Reaching such speeds increases the risk of a fall even with suitable strength and design of the vehicle. The use of the tuned Pedelec-Mountainbike without appropriate protective clothing and crash helmet can release accident insurers from their obligation to pay benefits after a fall has occurred with injury consequences.

- Always wear suitable protective clothing and a crash helmet while using your tuned Pedelec-Mountainbike to protect yourself from increased accident risks.
- Insist that every user of your tuned Pedelec-Mountainbike always wears appropriate protective clothing and a crash helmet during use.

### 2.2.3.RESTRICT CIRCLE OF USERS

A Pedelec-Mountainbike can reach electric motor-assisted speeds of up to 45 km/h after installation of the tuning module. Reaching such speeds can lead to the fact that the permissible circle of users determined by the Pedelec-Mountainbike manufacturer must be further restricted. Such a restriction must be determined by the owner of the tuned Pedelec-Mountainbike on his own responsibility, taking into account the physical and mental fitness of the persons to whom the tuned Pedelec-Mountainbike is given for use.

#### **Also consider the terrain to be traveled**

A significant factor in determining the permissible users should also take into account the

- of the terrain to be traveled.  
Clearly define the permission for use before giving it to other people.
- Always lock your tuned Pedelec-Mountainbike when you park it.

This is how you prevent misuse and abuse by other people.

## 2.2.4.PREVENT ABUSE AND MISUSE

### Use in public traffic means abuse

Due to the higher speeds with electric motor support, you lose the permission to use the tuned Pedelec-Mountainbike in public road traffic or on public paths without further legal approval.

- Only use your tuned Pedelec-Mountainbike on private, secured property or race tracks.
- Never drive on public paths or areas that you have not previously been able to securely block off from being entered by others.
- Also prevent another person from using your tuned Pedelec-Mountainbike in public traffic or on public roads used.
- Always lock your tuned Pedelec-Mountainbike when you park it. This will prevent misuse and abuse, even by other people.

## 2.2.5.OBSERVE SHORTENED MAINTENANCE AND INSPECTION INTERVALS

Due to the higher speeds with electromotive assistance, higher loads and forces are placed on everyone Act on vehicle parts. Reaching higher speeds increases the wear and tear on all vehicle parts, especially the brake system and all Parts of the drive system, even if the vehicle is of suitable strength and construction.

### Define and carry out shortened inspection and maintenance cycles

Shortened inspection and maintenance cycles must be determined by the owner of the tuned Pedelec-Mountainbike on his own responsibility, taking into account the conditions of use.

- Before each use of your tuned Pedelec-Mountainbike, perform a comprehensive inspection of the vehicle.
- Check the condition and function imperatively
- the brakes and their functional components,
- the vehicle frame,
- the steering and its functional components,
- the drive and its functional components as well as
- the saddle and its functional components.
- Also observe all inspections not mentioned here that are carried out by the manufacturer of your Pedelec-Mountainbike are prescribed for every use. This list does not replace the original operating instructions for the Pedelec-Mountainbike manufacturer.
- Determine further inspection and maintenance cycles in accordance with the manufacturer's instructions for your Pedelec-Mountainbike
- Shorten this time according to your application conditions.
- If necessary, coordinate this with your specialist company that will carry out the inspection and maintenance work becomes.

This ensures that the shortened inspection and maintenance intervals are adhered to.

## 2.2.6.OBSERVE SHORTENED BATTERY CHARGING CYCLES

The "machine" bicycle with electric motor assistance is changed. Although there is no increase in power, the achievable speed of more than 25 km/h leads to the fact that the maximum possible power from the battery is taken regularly and over longer time(s). This leads to an earlier discharge of the available battery capacity than you know from your Pedelec-Mountainbike or was specified by the manufacturer of the Pedelec-Mountainbike in the operating instructions. Take this into account during your planned rides.

## 2.3. KNOW AND FOLLOW THE INSTALLATION REQUIREMENTS

### Meet requirements for strength and design as well as for the drive system

For a safe use of the tuning module in your Pedelec-Mountainbike, your vehicle must also meet some requirements.

### City or Trekking bikes are usually not equipable

City or Trekking bikes often do not meet the requirements for strength and construction, or the requirements cannot be tested due to a lack of manufacturer specifications.

### Prevent abuse and misuse

Furthermore, in the case of tuned City or Trekking bikes, it cannot be assumed that these will actually only be used on private, secured properties or race tracks. Misuse and misapplication contrary to the intended use and restrictions mentioned under point 2.1 would have to be feared. For these reasons, the installation of the tuning module is only permitted for Pedelec-Mountainbikes that demonstrably meet the following requirements according to their manufacturer's specifications.

### 2.3.1.REQUIREMENTS FOR STRENGTH AND DESIGN AND CONFIRM

Strength and construction requirements are governed by EN 15194 and EN ISO 4210-2 and must be confirmed as applied by the manufacturer of your Pedelec-Mountainbike.

#### Prevent increased risk of accidents due to insufficient strength

Due to the higher speeds with electric motor assistance, higher loads and forces will act on all vehicle parts. Increased accident risks due to part breakage and part failure on the entire vehicle can only be largely ruled out for vehicles that have been demonstrably designed and built in accordance with **both** product standards.

- Check the EC declaration of conformity from the manufacturer of your Pedelec-Mountainbike.
- **Only** use the tuning module in your Pedelec-Mountainbike if the manufacturer of your Pedelec-Mountainbike mentions the **two** product standards EN 15194 and EN ISO 4210-2 as applied.

In this way you ensure that the necessary requirements for strength and design are met.

#### Normative requirements met?

Before installation, confirm the references in the EC declaration of conformity from the manufacturer of your Pedelec-Mountainbike:

- Is the EC declaration of conformity verifiably valid for the vehicle to be equipped?
  - EN 15194 ..... mentioned in the declaration of conformity?
  - EN ISO 4210-2 ..... mentioned in the declaration of conformity?
- ➔ Only if **both standards** are named as applied, the requirements for strength and construction are met to go out.
- ➔ **Never** use the tuning module in vehicles for which you cannot clearly determine these requirements and prove them by means of the EC declaration of conformity of the Pedelec-Mountainbike manufacturer.

### 2.3.1.CHECK AND CONFIRM REQUIREMENTS FOR THE DRIVE SYSTEM AND DISPLAY

#### Prevent damage and malfunctions

The tuning module is adapted to certain drive systems and display types. Use in vehicles with unsuitable drive systems and/or display types will lead to malfunctions or damage to the Pedelec-Mountainbike or the tuning module.

- Check the equipment on your Pedelec-Mountainbike.
- Only use the tuning module in your Pedelec-Mountainbike if you are sure that your Pedelec-Mountainbike equipment matches the identify the drive systems and display types listed below.

| MODULE  | MOTOR  | DISPLAY  | YEAR      |
|---|--|--|-----------|
| RedPed 3 for Bosch                                      | Bosch Active Line<br>Bosch Performance Line<br>Bosch Performance Line CX<br>Bosch Cargo Line | Purion, Intuvia, Kiox, Nyon, Cobi, SmartphoneHub | From 2014 |
| <b>Not</b> compatible mit Bosch Smart System BES3 2022. |  |  |           |

#### Requirements for the drive system and display met?

Confirm the equipment of your Pedelec-Mountainbike **before** installation . The Pedelec-Mountainbike to be equipped comes with a

- Equipped with the above drive systems as well
  - Equipped with a display type suitable for the drive system?
- ➔ A functioning and safe operation can only be assumed if you can confirm **both** prerequisites.
- ➔ Never use the tuning module in vehicles for which you cannot clearly determine and prove the two requirements.

## 2.4. OWNER'S OBLIGATION

Any user must be instructed accordingly by the owner of the tuned Pedelec-Mountainbike on the basis of these operating instructions, as well as informed about the special restrictions of use and risk increases due to the increased speed.

### **The owner of the tuned Pedelec-Mountainbike ensures that**

- all requirements for safe use
- as well as for the intended use are complied with and
- these operating instructions are always available to every user.

### **The owner of the tuned Pedelec-Mountainbike undertakes,**

to make the tuned Pedelec-Mountainbike available only to persons who

- have read and understood these operating instructions and
- have been instructed in the safe and proper use of the tuned Pedelec-Mountainbike.

## 2.5. OBLIGATION OF EVERY USER

### **Every user is obliged**

- to read these operating instructions completely and to observe them as well as
- to follow all safety and warning notices without exception,
- to use the tuned Pedelec-Mountainbike only in technically perfect condition and in accordance with the intended purpose, in a safety-conscious and hazard-conscious manner, observing these operating instructions, and
- to immediately repair any damage or malfunctions detected which could impair safety, or have them repaired if necessary.

## 3. WARRANTY AND LIABILITY

### **Warranty and liability of the manufacturer of the tuning module**

Warranty and liability claims are excluded by the manufacturer of the tuning module in the event of direct or indirect personal injury or property damage if they are attributable to one or more of the following causes:

- Increased wear or breakage of components of the Pedelec-Mountainbike, especially parts of the brake system and/or the drive,
- Non-compliance with these operating instructions or
- improper use of the tuning module or the Pedelec-Mountainbike with integrated tuning module or
- Failure to observe the restrictions on use in these operating instructions or
- Use or operation with operating conditions that do not comply with these operating instructions, or
- improper installation, commissioning, maintenance or repair not specified in these operating instructions or
- after unauthorized structural, hardware or software modifications to the tuning module itself or to the Pedelec-Mountainbike approved for the tuning module or its equipment.

### **The installation and operation of the tuning module is at your own risk**

The manufacturer of the tuning module assumes no liability for damage caused by operation or related to the installation of the tuning module.

### **The technical and legal consequences mentioned may be incomplete**

In addition to the technical and legal consequences mentioned in these operating instructions, further requirements may apply depending on the place of operation.

- ➔ Before installing the device yourself, inform yourself about possible further technical and legal consequences and requirements that you must comply with for the operation of the tuned Pedelec-Mountainbike.

### **Warranty, guarantee and liability by the manufacturer Pedelec-Mountainbike**

Due to the higher speeds with electric motor assistance, higher loads and forces will act on all vehicle parts.

Reaching higher speeds increases the wear of all vehicle parts, especially the brake system and all parts of the drive system, even with suitable strength and design of the vehicle.

For this reason, liability, warranty and guarantee claims against the dealer or manufacturer of the Pedelec-Mountainbike will expire or be severely limited with the use of the tuning module.

### 3.1. PERSONAL INJURY - FURTHER THAT TO BE CONSIDERED DISCLAIMERS

A Pedelec-Mountainbike can reach electric motor-assisted speeds of up to 45 km/h after the tuning module has been installed.

#### **Reduce increased hazard risks**

Reaching such speeds increases the risk of a fall and resulting injury to persons even with suitable strength and design of the vehicle. The use of the tuned Pedelec-Mountainbike without appropriate protective clothing and crash helmet can release accident insurance companies from their obligation to pay benefits after a fall has occurred with injury consequences or reduce them considerably.

- Always wear suitable protective clothing and a crash helmet while using your tuned Pedelec-Mountainbike to protect yourself from increased accident risks.
- Insist that every user of your tuned Pedelec-Mountainbike always wears suitable protective clothing and a crash helmet during the entire period of use.

#### **Reduce accident risk in monetary terms**

- Precisely define your conditions of use and user groups to be insured.
- Take out insurance appropriate to the conditions of use and the user group for the use of your tuned Pedelec-Mountainbike.

How to prevent monetary risks from injuries caused by falls.

### 3.2. PROPERTY DAMAGE - FURTHER EXCLUSIONS OF LIABILITY TO BE CONSIDERED

A Pedelec-Mountainbike can reach electric motor-assisted speeds of up to 45 km/h after the tuning module has been installed. Damage caused in connection with the operation of the tuned Pedelec-Mountainbike may no longer be covered by private liability insurance. It is therefore advisable to take out coverage through a specially designed insurance policy.

#### **Reduce increased liability risks**

Reaching such speeds increases the risk of causing property damage.

#### **Reduce the risk of property damage in monetary terms**

- Precisely define your conditions of use and user groups to be insured.
- Take out liability insurance appropriate to the conditions of use and the user group for the use of your tuned Pedelec-Mountainbike.

In this way, you prevent monetary risks in the event of damage to other people's property during the operation of the tuned Pedelec-Mountainbike.



## 4. FUNCTIONAL DESCRIPTION

The tuning module offers the following functions after installation:

- Individual activation code can be set via the RedPed app
- Reduction speed freely adjustable via the RedPed app
- Correct display of speed and distance covered
- Correct mileage after removing the tuning module

### Setting options

All settings are made via the RedPed app for iOS or Android.

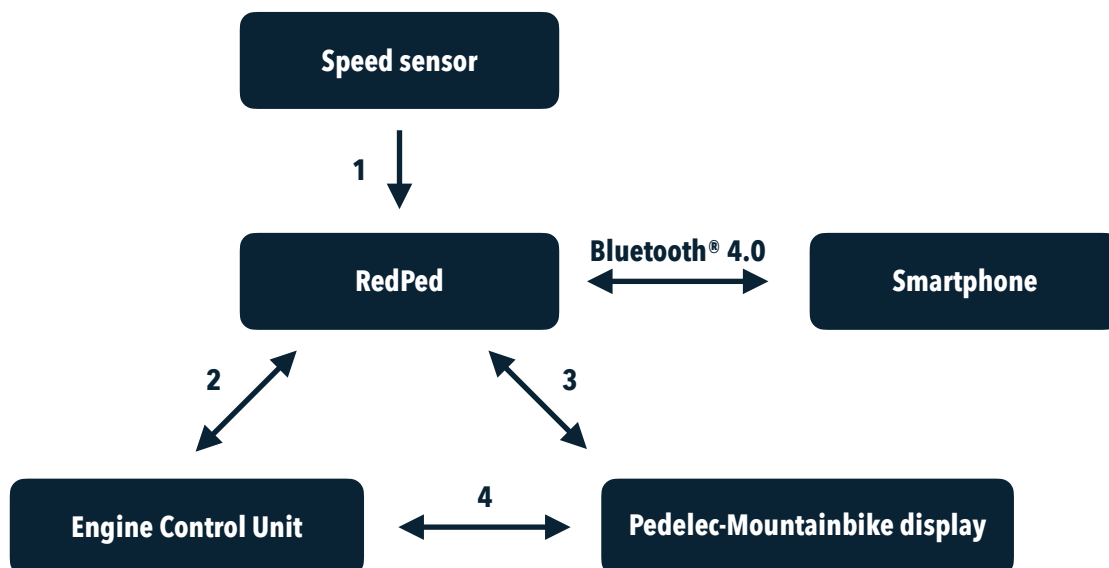
### Protected electronics

The electronics are covered with a layer of varnish and protected by a heat-shrinkable tube with internal adhesive.

### Safety and protection devices

Safety and protective devices of the Pedelec-Mountainbike remain untouched by the installation of the tuning module.

### 4.1. FUNCTIONAL DIAGRAM



The RedPed module is connected between speed sensor and motor as well as motor and display. It measures the actual speed (1) and generates its own speed signal (2) for the motor control unit. The module disconnects the communication between engine control unit and Pedelec-Mountainbike display (4) after starting the Pedelec-Mountainbike, in order to send its own correct data to the display (3). The support limitation at 25 km/h is outsmarted by generating a lower speed (2). This causes various values, such as mileage, to be calculated incorrectly by the motor controller, but this is corrected by the RedPed module (3) as long as it is connected.

5. TECHNICAL DATA

| TECHNICAL DATA     |                            |
|--------------------|----------------------------|
| Dimension          | 4,3 x 2,3 x 0,9 cm         |
| Cable length       | 5cm, 7cm, 10cm             |
| Weight             | 25g                        |
| Power              | 150mW                      |
| Transmission range | 10m                        |
| Radio              | Bluetooth® 4.0             |
| Protection class   | IPX4 according to EN 60529 |
| Supply voltage     | 12 VDC                     |



| CONNECTOR CONNECTED TO... |                           |
|---------------------------|---------------------------|
| 1                         | the speed sensor          |
| 2                         | the speed sensor socket   |
| 3                         | the display socket        |
| 4                         | the display               |
| 5                         | not connected, reset plug |

## 6. INSTALL

### Before you start the installation

- ➔ Confirm that you have read and understood all previous chapters of these operating instructions carefully and completely, **before** starting the installation.

This is the only way to ensure that you use the interchangeable equipment "tuning module" exclusively for the equipment described in these instructions Use for purpose and as intended.

### Have you read and understood all previous chapters and their sub-items?

- 1 Important safety information
- 2 Observe requirements for safe use
  - 2.1 Know the intended use
  - 2.2 Know and adhere to the restrictions on use
  - 2.3 Know and comply with the installation requirements
- 3 Warranty and Liability
- 4 Description of functions
- 5 Technical data

Do **not start** with the installation until you have read and understood all chapters and subsections.

## 6.1. KNOW THE INSTALLATION EXAMPLE

In these operating instructions, the installation can only be shown on an example vehicle and its equipment. The installation described below and all associated instructions refer to the installation example:

### Cube Reaction Hybrid Pro 500 / Bosch Performance CX 2020

## 6.2. KNOW THE TOOLS REQUIRED

- ➔ Hex key 4mm

### Additional tools may be required

The engine cover can, depending on the vehicle model, also with

- Torx- or
- Phillips screws must be fastened.

With many covers it is also necessary to dismantle the crank.

- In such a case, a suitable crank puller is required.

## 6.3. REMOVE MOTOR PROTECTION COVER



Motor cover

### Prevent unexpected start-up

If the drive starts up unexpectedly, hands and fingers can shear, crush or move in

- ➔ Switch off the Pedelec-Mountainbike and **remove the battery**.

In this way you prevent any movement supported by an electric motor.

### Parts can be sharp-edged, protective particles can splash out

Wear protective gloves and goggles when using the protective motor cover remove

### Remove the protective motor cover

- Make sure that your Pedelec-Mountainbike is stable and secure.
- Remove the battery.
- Loosen the hex screw on the motor cover.
- Remove the engine cover

The cabling can be seen under the cover.

## 6.4. DISCONNECT AND CABLES



Gen4 Sockets

➔ **Pull the connectors from sockets 1 and 2.**

**If other motors are installed:**

- Use the following pictures as a guide.
- Remove the marked connectors.

The nose of the connectors is down, the connector has to be pushed up to pull it out.

Connector 1 is black.

Connector 2 is gray, please pay attention to the color here.

The blue 2-pin plug belongs to the front light and the black 2-pin plug belongs to the rear light, please leave both plugs in the socket.



Connector 1



Connector 2

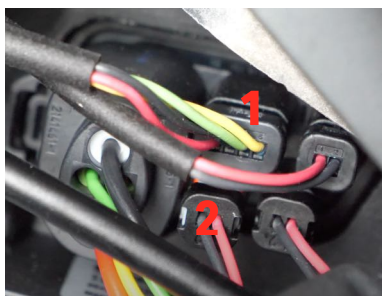


Gen2 Sockets

**Motor Gen. 2**

- Active Line
- Performance-Line (CX) until 2019

The tabs of the plugs are up, so you have to push down and pull the plugs.



Gen3 Sockets

**Motor Gen. 3**

- Active Line Plus from 2018
- Performance-Line from 2020

The nose of connector 1 is up, ie the connector must be pushed down to pull it out.

The nose of the connector 2 is down, ie the connector has to be pushed up to pull it out.

## 6.5. PLUG IN THE TUNING MODULE

- Connect the tuning module to the sockets on the motor that have become free.
- To do this, connect the previously unplugged cables to the other connections on the tuning module.

### Check connectors

- Make sure that all connectors are inserted as far as they will go.



Connect and place the module

## 6.6. PERFORM INITIALIZATION

### Prevent unexpected start-up

You must insert the battery for initialization.

If the drive starts up unexpectedly, hands and fingers can shear, crush or pull in.

- Make sure that no one can get to the driven parts of the Pedelec-Mountainbike during this time.

### Immediately after initialization

- Switch off the Pedelec-Mountainbike and remove the battery again.

### Perform initialization

Wiring errors can be discovered during setup.

- Connect to the module using the RedPed app
- Enter the PIN: **000000**
- Check whether all data is loaded in the app
- Turn the wheel and check if a speed is displayed in the app and in the Pedelec-Mountainbike display
- Please enter the mileage of the Pedelec-Mountainbike in the app

## 6.7. COMPLETE INSTALLATION

### **Prevent unexpected start-up**

If the drive starts up unexpectedly, hands and fingers may shear, crush or retract.

- Switch off the Pedelec-Mountainbike and remove the battery.

In this way you prevent any movement supported by an electric motor.

### **Parts can be sharp-edged, protective particles can splash out**

- Wear protective gloves and goggles when installing the protective motor cover.

Place the tuning module and lay the cables

- a. Remove the battery.
- b. Place the tuning module in a place where no water can collect.
- c. Lay the cables in such a way that the motor protection cover can be reinstalled without hindrance.

In the picture, the module has been pushed into the down tube.

### **No uniform installation location can be defined**

Due to the large number of different drive systems and covers, it is not possible to define a uniform installation location.

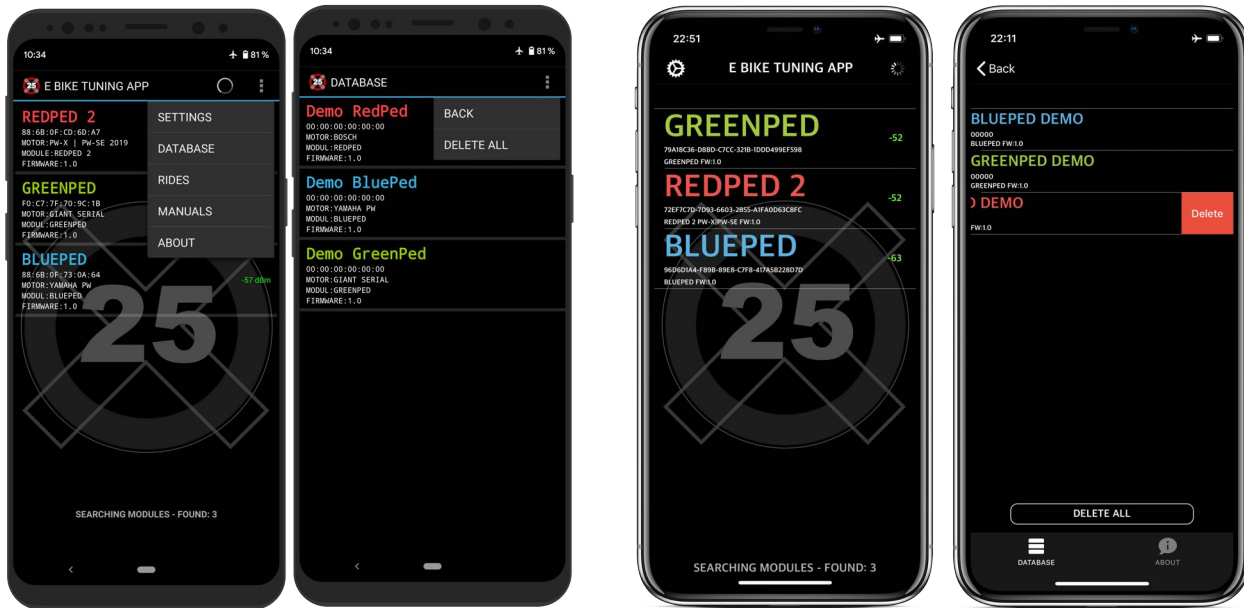
The module can often be placed directly in the connection area of the motor. It can also be accommodated in the frame tube, although this usually requires the motor to be detached from the frame.

- d. Refit the motor protection cover.
- e. Make sure that no cables chafe or get squashed.

Screw the motor protection cover back on.

## 7. REDPED APP

### 7.1. MODULE SEARCH



After startup, the app scans for modules in the vicinity. 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 is removed from the list.

The dBm value indicates the signal strength.

Each module has a unique UUID, the UUIDs in the iOS and Android app differ.

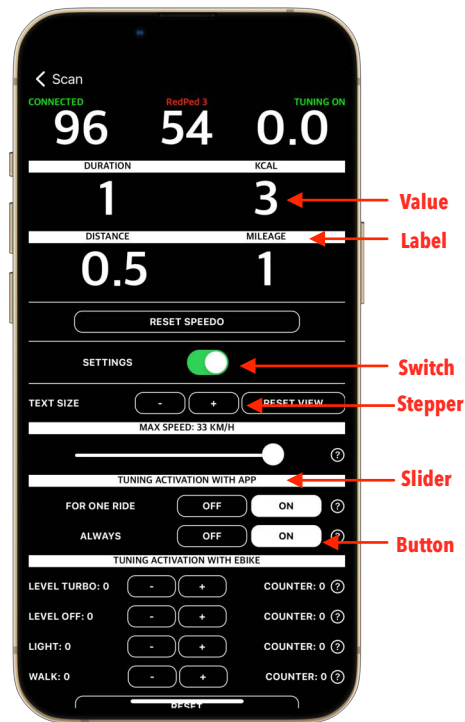
With a tap on a found module, the app connects to the module and opens the appropriate screen.

### 7.1. DATABASE

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



## 7.2. MAIN SCREEN - OPTICAL SETTINGS



### Change colors

A short tap on the label changes the color of the underlying value. A tap on "CURRENT", "AVERAGE" or "MAXIMUM" changes the color of the column below. A tap on "SPEED", "RPM", "TORQUE", "CYCLIST POWER" or "MOTOR POWER" changes the color of the row.

### Hide values

A long tap on the label makes the label and the corresponding value disappear. A long tap on "TURBO", "CURRENT", "AVERAGE" or "MAXIMUM" makes the label and the column below disappear. A long tap on "SPEED", "RPM", "TORQUE", "CYCLIST POWER" or "MOTOR POWER" will make the label and the row disappear.

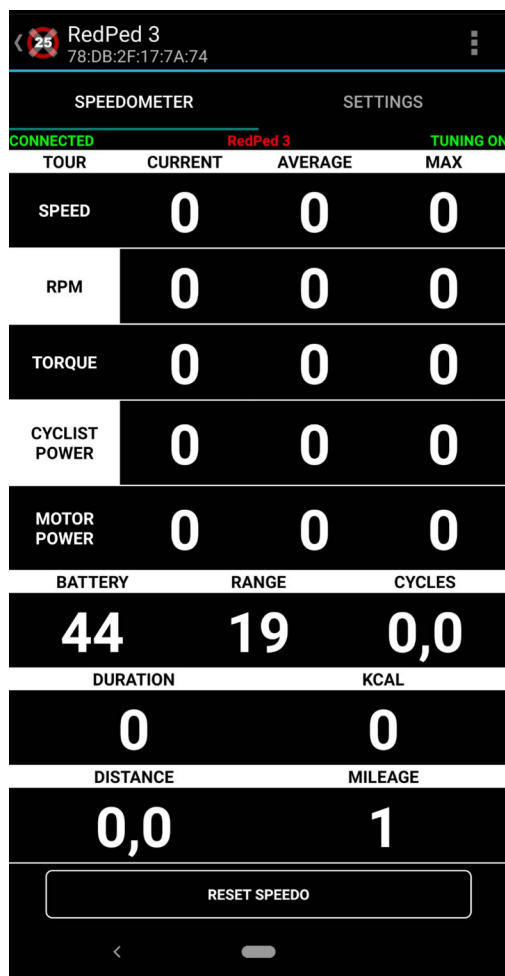
All settings are saved permanently and can also be made offline in the database.

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

iPhone: It is possible to **zoom** into the speedometer.



## 7.3. MAIN SCREEN - SPEEDO AND SETTINGS



| LABEL             | UNIT    | FUNCTION   |
|-------------------|---------|--|
| BACK              | -       | Disconnects from the module. Deactivates the automatic connection to the module  |
| RedPed 3          | -       | Name of the connected module   |
| 78:DB:2F:17:7A:74 | -       | Unique ID of the module.   |
| CONNECTED         | -       | Current connection status  |
| TUNING ON         | -       | Tuning status  |
|                   |         |  |
| TOUR              | -       | Support level of the Pedelec-Mountainbike  |
| SPEED             | Km/h    | Displays the current, average and maximum speed  |
| RPM               | -       | Displays the current, average and maximum speed of the crank   |
| TORQUE            | Nm      | Displays the current, average and maximum torque on the crank  |
| CYCLIST POWER     | Watt    | Displays the current, average and maximum cyclist power  |
| MOTOR POWER       | Watt    | Displays the current, average and maximum motor power  |
| BATTERY           | Percent | Current battery level  |
| RANGE             | Km      | Calculated range of the module, can be reset with a <b>long</b> tap  |
| DURATION          | Minutes | Duration   |
| CYCLES            | -       | Number of charge cycles of the battery, can be changed as desired with a <b>long</b> tap                                 |
| KCAL              | -       | Burnt KCAL of the driver   |
| DISTANCE          | Km      | Distance currently driven  |
| MILEAGE           | Km      | Mileage of the module, can be set arbitrarily with a long tag or the value of the Pedelec-Mountainbike can be taken over |
| TACHO RESET       | -       | Resets all values except CYCLES and MILEAGE  |

25

RedPed 3

78:DB:2F:D2:39:51

SPEEDOMETER

SETTINGS

CONNECTED

RedPed 3

TUNING OFF

MAX SPEED: 33 KM/H

?

TUNING ACTIVATION WITH APP

FOR ONE TRIP

OFF

ON

?

ALWAYS

OFF

ON

?

TUNING ACTIVATION WITH EBIKE

LEVEL TURBO: 0

-

+

COUNTER: 0

?

LEVEL OFF: 0

-

+

COUNTER: 0

?

LIGHT: 0

-

+

COUNTER: 0

?

WALK: 0

-

+

COUNTER: 0

?

RESET

TUNING TIMER: OFF

0 | 20

?

VISIBILITY: INFINITE

?

COMBINATION FOR VISIBILITY

LEVEL TURBO: 0

-

+

COUNTER: 0

?

LEVEL OFF: 6

-

+

COUNTER: 0

?

LIGHT: 0

-

+

COUNTER: 0

?

WALK: 0

-

+

COUNTER: 0

?

RESET

SET PIN

000000

?

SET MODULENAME

?

WHEEL SIZE: 28,0" | 2240 mm

?

AFTERRUN: NOT ACTIVE

0,000 km

STOP

START

?

AUTO

OFF

ON

?

SPEED OFFSET: 0 KM/H

?

WORKSHOP MODE

OFF

ON

?

DIVIDE SPEED AT: 22 KM/H

?

EBIKE TURNS OFF AFTER: NOT ACTIVE

?

MAX SPEED: NOT UNLOCKED

UNLOCK

?

| CONTROL ELEMENT   | SCALE                          | FUNCTION   |
|---|--------------------------------|--|
| <a href="#">MAX SPEED</a>                                   | 15 - 33 km/h<br>(15 - 45 km/h) | Theoretically, the maximum possible speed depends on the chaining of the Pedelec-Mountainbike          |
| <a href="#">TUNING ACTIVATION WITH APP</a>                  |                                |  |
| FOR ONE TRIP  | OFF   ON                       | Tuning on until the Pedelec-Mountainbike is switched off   |
| ALWAYS  | OFF   ON                       | Tuning on automatically when the Pedelec-Mountainbike is turned on                                     |
| <a href="#">TUNING ACTIVATION WITH PEDELEC-MOUNTAINBIKE</a> |                                |  |
| LEVEL TURBO   | 0 - 10                         | Switch between the level TURBO and another   |
| LEVEL OFF   | 0 - 10                         | Switch between level OFF and another   |
| LIGHT   | 0 - 10                         | Press the Light button. Attention! With some motor firmwares, the Walk is recognized as a Light button |
| WALK  | 0 - 10                         | Press the Walk button once and then the Level up (+) button  |
| RESET   | -                              | Sets all settings to 0   |
| COUNTER   | 0 - 10                         | Counts the inputs of the user  |
| <a href="#">TUNING TIMER</a>                                |                                |  |
| Slider  | OFF<br>10 - 180 sec            | Timer duration   |
| 0   20  | Seconds                        | Countdowns for the activation of the timer   |
|   |                                |  |
| <a href="#">VISIBILITY</a>                                  | 0 - 180 sec<br>Permanent       | Sets how long the module can be found in the app when the Pedelec-Mountainbike is switched on          |
| <a href="#">COMBINATION FOR VISIBILITY</a>                  |                                |  |
| LEVEL TURBO   | 0 - 10                         | Switch between the level TURBO and another   |
| LEVEL OFF   | 0 - 10                         | Switch between the OFF level and another level.  |
| LIGHT   | 0 - 10                         | Press the Light button. Attention! With some motor firmwares, the Walk is recognized as a Light button |
| WALK  | 0 - 10                         | Press the Walk button and then the Level up (+) button   |
| RESET   | -                              | Sets LEVEL OFF to 6 and the rest to 0  |
| ZÄHLER  | 0 - 10                         | Counts the inputs of the user  |

25

RedPed 3

78:DB:2F:D2:39:51

SPEEDOMETER

SETTINGS

CONNECTED

RedPed 3

TUNING OFF

MAX SPEED: 33 KM/H

?

TUNING ACTIVATION WITH APP

FOR ONE TRIP

OFF

ON

?

ALWAYS

OFF

ON

?

TUNING ACTIVATION WITH EBIKE

LEVEL TURBO: 0

-

+

COUNTER: 0

?

LEVEL OFF: 0

-

+

COUNTER: 0

?

LIGHT: 0

-

+

COUNTER: 0

?

WALK: 0

-

+

COUNTER: 0

?

RESET

TUNING TIMER: OFF

0 | 20

?

VISIBILITY: INFINITE

?

COMBINATION FOR VISIBILITY

LEVEL TURBO: 0

-

+

COUNTER: 0

?

LEVEL OFF: 6

-

+

COUNTER: 0

?

LIGHT: 0

-

+

COUNTER: 0

?

WALK: 0

-

+

COUNTER: 0

?

RESET

SET PIN

000000

?

SET MODULENAME

?

WHEEL SIZE: 28,0" | 2240 mm

?

AFTERRUN: NOT ACTIVE

0,000 km

STOP

START

?

AUTO

OFF

ON

?

SPEED OFFSET: 0 KM/H

?

WORKSHOP MODE

OFF

ON

?

DIVIDE SPEED AT: 22 KM/H

?

EBIKE TURNS OFF AFTER: NOT ACTIVE

?

MAX SPEED: NOT UNLOCKED

UNLOCK

?

| CONTROL ELEMENT                  | SCALE              | FUNCTION  |
|----------------------------------|--------------------|---|
| <a href="#">SET PIN</a>          | 6 digits           | The PIN can be set as desired   |
| SET MODULE NAME                  | 9 digits           | Any name can be entered   |
| WHEEL SIZE                       | 18,7" - 31,2"      | Please enter the wheel diameter here  |
| <a href="#">AFTERRUN</a>         |                    |   |
| 0,000 km                         | -                  | Displays a value when the mileage of the Pedelec-Mountainbike is less than that of the module                                   |
| Buttons                          | STOP   START       | Starts AFTERRUN manually, which is faster than the AUTO mode  |
| AUTO                             | OFF   ON           | Starts the AFTERRUN automatically when the Pedelec-Mountainbike comes to a stop   |
|                                  |                    |   |
| <a href="#">SPEED OFFSET</a>     | 0 - 15 km/h        | Reduces the speed in the Pedelec-Mountainbike display by the selected amount, but the mileage is calculated correctly           |
| <a href="#">WORKSHOP MODE</a>    | OFF   ON           | ON: Motor and display communicate <b>without</b> manipulation<br>OFF: Modul filters and sends manipulated data                  |
| <a href="#">DIVIDE SPEED AT</a>  | 10 - 24 km/h       | Sets how the speed should be divided (is not visible in the Pedelec-Mountainbike display)                                       |
| <a href="#">TROLL MODE</a>       |                    |   |
| EBIKE TURNS OFF AFTER            | OFF<br>10 - 60 sec | The timer switches the Pedelec-Mountainbike off or restarts it if no smartphone has connected to the module within the set time |
| <a href="#">UNLOCK MAX SPEED</a> |                    |   |
| UNLOCK                           | -                  | Press the button 10 times within 20 seconds to set MAX SPEED from 33 km/h to 45 km/h  |

## 8. EXPLANATIONS AND NOTES

### 8.1. PAIRING

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

#### iPhone

When connecting for the first time, the PIN must be entered once. The module is not visible in the Bluetooth® menu before it was paired. It must be found and linked in the RedPed app.

#### Android

Find the module in the Bluetooth menu, click on it and enter the PIN. With some smartphones such as Huawei, the first click indicates that the module must be paired in the app, in which case click on the module again and enter the PIN.

➔ **After pairing, the Pedelec-Mountainbike must be restarted.**

### 8.2. VISIBILITY

To prevent access to the module by third parties, the module can become invisible after a set time. The visibility can be set from 0 to 240 seconds or to infinity. If you set it to 30 seconds, for example, the module can no longer be found in the app 30 seconds after the Pedelec-Mountainbike has started. You can connect to the module within 30 seconds, after disconnecting the connection, the timer is set to 30 seconds again.

If the visibility is set to 0 seconds, the module can no longer be found with the app. Possibilities to make the module visible:

- **Factory setting: switch back and forth between the OFF and ECO level 6 times**
- **Set combination for visibility**
- **Black reset connector on the module**

### 8.3. RESET

#### Without reset button

The module can only be set to the factory state via the black connector. For this purpose, the two contacts must be connected with a conductive material, e.g. a key. The contacts must be connected **at least** 10 times within 10 seconds, 0.5 seconds must elapse between short-circuiting. A further reset can only be made again after restarting the Pedelec-Mountainbike.

#### With reset button

Please insert the button into the black plug and press the button **at least** 10 times.

### 8.4. MAX SPEED

The actual top speed with activated tuning depends on the motor and chainring. The value set via the app is only the theoretically possible value. **If the set value is not reached, either DIVIDE SPEED AT is set too high or the WHEEL SIZE is too low.**

### 8.5. MANIPULATION DETECTION - ERROR 504

Attention! With the Bosch motors Gen3 **from firmware 1.8.4.0 and all Gen4** there is a tuning recognition, we can only guarantee that the module will not be recognized if the maximum speed is set to a maximum of 33 km/h. If error 504 occurs anyway, please contact our support. Please do not confuse error 504 with 503. Error 503 can be deleted and has other causes, e.g. an incorrectly seated magnet.

### 8.6. UNLOCK MAX SPEED

You can unlock MAX SPEED to 45 km/h, please note that you will then no longer receive support if error 504 (manipulation detection) occurs. To do this, press the UNLOCK button at least 10 times. The module will be unlocked permanently, it can not be undone.

## 8.7. DIVIDE SPEED AT

Sets how the speed is divided internally. The **division is only visible on the Pedelec-Mountainbike display in WORKSHOP MODE**. The higher the value, the better. However, if it is set too high, the assistance will stop before MAX SPEED is reached. In this case, please set the value lower.

## 8.8. PIN

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

## 8.9. TUNING ACTIVATION

**TUNING ACTIVATION PER APP is not possible and is grayed out if TUNING ACTIVATION WITH EBIKE is active.**

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

## 8.10. TUNING TIMER

The tuning timer deactivates the tuning after the set time. The duration can be set between 10 and 180 seconds. If the Pedelec-Mountainbike is moving above 15 km/h for at least 20 seconds, then the tuning timer is activated when the Pedelec-Mountainbike comes to a stop. After the timer starts, the Pedelec-Mountainbike can be moved up to 10 km/h fast without the timer stopping. When the timer expires, the tuning is deactivated and must be activated either via app or via a combination.

## 8.11. MILEAGE

The mileage of the module is set to 1 km in the factory state. You can set it to a maximum of 65535 km with a long tap on the value in the app. The value of the Pedelec-Mountainbike can also be adopted. NACHLAUF should be set to AUTO for motors with tamper detection.

**If AFTERRUN is not active**

After removing the module, the Pedelec-Mountainbike will show a lower mileage. The reason is that the module sends a smaller speed to the motor controller, so the Pedelec-Mountainbike supports over the limit. However, it corrects the split values that the motor controller sends to the display. When it is removed, the values are no longer corrected.

Please refer to the [AFTERRUN](#) section for more information.

## 8.12. RANGE

If TUNING is on, then the range calculated by the module is shown in the Pedelec-Mountainbike display. **When AFTERRUN is active, the range value increases when stationary because a speed is generated without the motor having to provide any power.** However, the value quickly adjusts during the next ride. The factor for calculating the range can be reset with a long tap on the value.

## 8.13. SPEED OFFSET

The value can be set between 0 and -15 km/h. The speed in the Pedelec-Mountainbike display is reduced by the set value. **If you set the slider to -5 km/h, for example, only 25 km/h are shown in the Pedelec-Mountainbike display at a real 30 km/h.** However, the route is calculated correctly. The idea behind this is that the maximum speed is set to e.g. 30 km/h and the Pedelec-Mountainbike display offset is set to -5 km/h. The Pedelec-Mountainbike then travels 30 km/h, but the display shows 25 km/h and the assistance stops. **The function is only active when TUNING is on.**

## 8.14. TROLL MODE

TROLL MODE is used to annoy riders who have access to the Pedelec-Mountainbike but are not allowed to ride it. It does not prevent theft of an Pedelec-Mountainbike. The module disconnects the 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 Pedelec-Mountainbike to shut down; with the other displays, it causes a recurring restart.**

## 8.15. AFTERRUN

If the mileage of the Pedelec-Mountainbike is less than that of the module, then the difference is displayed as a negative value in meters. Pressing the START button, the module will generate a speed up to 45 km/h until the difference is 0 km. **The generated speed is not visible in the Pedelec-Mountainbike display unless WORKSHOP MODE is set to on.** If AUTO is set to ON, then the module generates a speed up to 22 km/h every time the actual speed drops to 0 km/h for 5 seconds. Speed generation stops automatically when the Pedelec-Mountainbike is moved.

**Attention! It is important to enter the actual mileage of the Pedelec-Mountainbike into the module after installation. The module does not check if the entered value is plausible and generates until the difference is 0 km.**

Note: A ride is simulated without the motor having to provide any power, this increases the theoretical range, which is shown in the module and Pedelec-Mountainbike display. During the ride, the range quickly adjusts again.

## 8.16. WORKSHOP MODE

**In this mode, the CAN BUS data are not manipulated by the module.** Activate the mode when you bring the Pedelec-Mountainbike to the workshop. In this mode you can see in the Pedelec-Mountainbike display how the speed is manipulated by the module when the TUNING is ON. The manipulation of the speed is determined by the parameters MAX SPEED and DIVIDE SPEED AT. The AFTERRUN can also be observed in this mode.

## 9. CHECK BEFORE EACH USE

Due to the higher speeds with electric motor assistance, higher loads and forces will act on all vehicle parts.

Reaching higher speeds increases wear on all vehicle parts, especially the brake system and all parts of the drive system, even if the vehicle is of suitable strength and design.

Before each use of your tuned Pedelec-Mountainbike, perform a comprehensive inspection of the vehicle.

Check the condition and function imperatively

- of the brakes and their functional components,
- of the vehicle frame,
- of the steering system and its functional components,
- of the drive and their functional components as well as
- of the saddle and its functional components.

In addition, observe all inspections not mentioned here that are prescribed by the manufacturer of your Pedelec-Mountainbike before each use. This list does not replace the original operating instructions from the Pedelec-Mountainbike manufacturer.

Only use your tuned Pedelec-Mountainbike if you can determine and confirm that it is in perfect condition.

## 10. RIDE A TUNED PEDELEC-MOUNTAINBIKE

For safe use of the tuning module in your Pedelec-Mountainbike, it is first essential to read and understand these operating instructions in full.

### **These operating instructions**

- informs you about the intended use,
- important operational limitations,
- Obligations of the owner and the user,
- Warranty and liability conditions and
- alerts you to potentially unsafe or dangerous situations and uses with prominent safety and warning messages.

### **Know and observe all contents of the operating instructions**

- Make sure you take the time to read these operating instructions carefully before setting off with your tuned Pedelec-Mountainbike.
- Also make these operating instructions available for reading by any other person who may move your tuned Pedelec-Mountainbike.
- Ensure that every person who is allowed to move your tuned Pedelec-Mountainbike has read and understood these operating instructions before any use.
- Instruct the user in the safe use of the tuned Pedelec-Mountainbike based on these operating instructions before leaving your tuned Pedelec-Mountainbike to other persons.

### **It is imperative that the intended use and restrictions on use are complied with.**

- It is imperative that you comply with the intended use and the restrictions on use.
- Please note in particular the following points
  - 2.1 *Know the intended use* and
  - 2.2 *Know and comply with restrictions of use* and its subsections of this operating manual.

## 11. DISPOSAL

Know rules and regulations for disposal

- In any case, comply with the regional and in-house regulations on waste disposal.
- If in doubt, ask your municipality's waste management officer where you can properly dispose of e-waste.

### **Separate electronic waste**

- Never dispose of electronic components in household waste.
- Only dispose of electronic waste in the collection containers provided by a waste disposal company or your local authority.

## 12.EG-/ EU-DECLARATION OF CONFORMITY

in terms of the

**EC Machinery Directive 2006/42/EC,**  
**Annex II 1 A** for interchangeable equipment  
according to articles 1 b) and 2 b) as well as

EU Official Journal L 157/24 of 09.06.2006

**EMC RL 2014/30/EU,**

EU Official Journal L 96/79 of 26.02.2014

**RoHS RL 2011/65/EU,**

EU Official Journal L 174/88 of 01.07.2011

We, the manufacturer, hereby declare under our sole responsibility that the following interchangeable equipment, in its design and construction and in the version placed on the market by us, complies with the relevant provisions and harmonization legislation of the above-mentioned directives.

|  |   |
|--|---|
| Product name   | Tuning module for Pedelec-Mountainbikes   |
| Item number  | rp3b  |
| Serial number  | Readable with the RedPed App  |
| Manufacturing date   | from February 2022  |
| Interchangeable equipment exclusively for  | Pedelec-Mountainbikes   |
| with the standards specified in the Pedelec-Mountainbike<br>manufacturer's declaration of conformity | EN 15194<br>EN ISO 4210-2 (Mountainbikes)   |
| Manufacturer and address   | M. Sc. Andreas Fischer<br>Hagstr. 2<br>72762 Reutlingen<br>Germany<br><a href="mailto:info@redped.app">info@redped.app</a>  |
| Documentation representative   | M. Sc. Andreas Fischer<br><br>EN ISO 12100:2010<br>Risk assessment and mitigation   |
| Applied harmonized standards, in particular:   | EN 15194:2017<br>Bicycles - electric motor assisted bikes - EPAC<br><br>EN ISO 4210-2:2015<br>Bicycles - Safety requirements for bicycles - Part 2: Requirements for<br>city and trekking bicycles, youth bicycles, off-road bicycles (mountain<br>bikes) and racing bicycles |
| Further applied regulations:   | UNECE Regulation No. 78 Requirements for brakes   |