

WOLSDECI Ebike Tuning

for Bosch Active- and Performance-Line V4

Operating Instructions

as original operating instructions in English language





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1 General information

- ▶ Be sure to take the time to read these operating instructions carefully **before** starting to install the tuning module.
- ► Keep these operating instructions in a safe place, yet within easy reach, so that you always have access to the important and safety-relevant information for use, even after installation.
- ▶ Make these operating instructions available for reading to any other person who may ride your tuned e-bike.
- ► Ensure that every person who is allowed to ride your tuned e-bike has read and understood these operating instructions before any use.
- ▶ Instruct the user in the safe use of the tuned e-bike with the aid of these operating instructions before leaving your tuned e-bike to other persons.
- ▶ Be sure to pass this manual on to the future owner if you ever want to sell the tuning module or your tuned e-bike.

1.1 Safety instructions

The warnings used in these instructions draw your attention to possible dangers. You endanger yourself and others if you do not follow these instructions. Serious injuries or considerable damage to property may result.

Warning notices are available in the following categories:

▲ WARNING

Warns you of hazards that could result in fatal or serious injury to persons if you do not follow these instructions.

⚠ CAUTION

Warns you of hazards that may result in minor, usually reversible injury to persons if you do not follow these instructions.

ATTENTION

Warns you of situations that can lead to property damage and malfunctions during use if you do not follow these instructions.

IMPORTANT

Identifies safety-relevant descriptions and instruction parts.



2 Requirements for safe use

2.1 Intended use

The tuning module shifts the cut-off threshold of the motor support of your e-bike. Thus, with the installation of the tuning module, speeds of up to 45km/h (28mph) can be achieved with electric motor support.

Intended use also includes compliance with all of the following without exception

- Restrictions on use and
- Installation requirements and the
- Obligations of the owner and the user.

2.2 Restrictions on use

The following restrictions of use are associated with the installation of the tuning module in your e-bike.

2.2.1 Do not use in public areas

E-bikes for use on public roads or public ways with a permitted speed of > 25 km/h are subject in the EU 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.

IMPORTANT Prevent misuse and abuse

- ▶ Only use your tuned e-bike on private, secured property or race tracks.
- Never ride on public paths or areas that you have not previously been able to securely block off against entry by other persons.
- ▶ Also prevent another person from using your tuned e-bike in public traffic or on public roads.
- ▶ Always lock your tuned e-bike when you park it. This will prevent misuse and abuse, even by other people.

2.2.2 Restricting the circle of users

Reaching higher speeds can lead to the permissible group of users determined by the e-bike manufacturer having to be further restricted.

Such a restriction must be determined by the owner of the tuned e-bike on his own responsibility, taking into account the physical and mental fitness of the persons to whom the tuned e-bike is made available for use.

IMPORTANT Prevent misuse and abuse

- Clearly define the permission for use before each transfer to other persons.
- Also clearly define the terrain to be covered.



Always lock your tuned e-bike when you park it. This will prevent misuse and abuse by other people.

2.2.3 Observe shortened maintenance and inspection intervals

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 with suitable strength and design of the vehicle.

IMPORTANT Define shortened maintenance and inspection intervals

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

- ▶ Before each use of your tuned e-bike, perform a comprehensive inspection of the vehicle.
- ▶ It is imperative that you check the condition and function of the
 - brakes and their functional components,
 - vehicle frame,
 - steering system and its functional components,
 - drive system and its functional components as well as
 - saddle and its functional components.
- ▶ In addition, observe all inspections not mentioned here that are prescribed by the manufacturer of your e-bike before each use. This list does not replace the original operating instructions of the e-bike manufacturer.
- ► Establish further inspection and maintenance cycles according to the manufacturer's instructions for your e-bike.
- Shorten them according to your operating conditions.
- ▶ If necessary, coordinate this with your specialist company, which will carry out the inspection and maintenance work.

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

2.3 Know and comply with installation requirements

For safe use of the tuning module in your e-bike, your e-bike must also meet some requirements.

2.3.1 Requirements for the strength and construction of the e-bike

Strength and construction requirements are regulated by EN 15194 and EN ISO 4210-2 and must be confirmed as applied by the manufacturer of your e-bike.



Prevent increased accident risks 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 can only be largely ruled out with e-bikes that are demonstrably designed and built in accordance with both product standards.

- ▶ Check the EC declaration of conformity of the manufacturer of your e-bike.
- ▶ Only install the tuning module in your e-bike if the manufacturer of your e-bike states the two product standards EN 15194 and EN ISO 4210-2 as applied in its EC declaration of conformity.
- ▶ Only if both standards are mentioned as applied, it can be assumed that the requirements for strength and design are fulfilled.
- Never use the tuning module in vehicles for which you cannot clearly establish these requirements and prove them by means of the EC declaration of conformity from the e-bike manufacturer.

IMPORTANT Racing e-bikes, city e-bikes or trekking e-bikes are usually not equipable

Racing e-bikes, city e-bikes or trekking e-bikes often do not meet the requirements for strength and construction, as lower requirements apply to these types of e-bikes. Furthermore, it cannot be assumed that these e-bikes are actually only used on private, secured properties or race tracks.

2.3.2 Check and confirm drive system and display requirements

The tuning module is adapted to specific drive systems and display types.

- ► Check the equipment of your e-bike.
- ► The tuning module only works with e-bikes that have an electric motor support of up to 25km/h ex works. Children's e-bikes with a support up to 20km/h and Speed-e-bikes with a support up to 45km/h are not supported.
- ▶ Only install the tuning module into your e-bike if you can determine that your e-bike equipment matches the drive systems and display types listed below.

Drive System:	Display type:
Bosch - Active Line	Intuvia, Purion, Nyon, Kiox, Nyon2
Bosch - Active Line plus	Intuvia, Purion, Nyon, Kiox, Nyon2
Bosch - Performance Line	Intuvia, Purion, Nyon, Kiox, Nyon2
Bosch - Performance Line CX	Intuvia, Purion, Nyon, Kiox, Nyon2
Bosch - Cargo Line	Intuvia, Purion, Nyon, Kiox, Nyon2



Smart System / BES3

The tuning is not compatible with the BES3 system. Bikes with 750Wh battery or the Kiox 300 are therefore not supported



IMPORTANT Prevent damage and malfunctions

Use in vehicles with unsuitable drive systems and/or display types will lead to malfunctions or damage to the e-bike or the tuning module.

2.4 Obligation of the owner

Any user of the tuned e-bike must be instructed accordingly by the owner of the tuned e-bike on the basis of these operating instructions, as well as being informed about the special restrictions on use and increased risks due to the increased speed.

The owner of the tuned e-bike ensures that

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

The owner of the tuned e-bike undertakes to only make the tuned e-bike available to persons who

- have read and understood these operating instructions and
- ▶ have been instructed in the safe and proper use of the tuned e-bike.

2.5 Obligation of each user

Every user is obliged,

- ▶ to read and observe these operating instructions in full, and
- ▶ to follow all safety and warning instructions without exception,
- ▶ to use the tuned E-bike only in technically perfect condition and in accordance with its intended purpose, in a safety-conscious and hazard-conscious manner and in compliance with these operating instructions and
- to remedy immediately any damage or malfunctions detected which could impair safety, or, if necessary, to have them remedied.



3 Warranty and liability

3.1 Warranty and liability of the tuning module manufacturer

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

- ► Increased wear or breakage of components of the e-bike, especially parts of the brake system and/or the drive system,
- ▶ non-observance of these operating instructions,
- improper use of the tuning module or the e-bike with integrated tuning module,
- ▶ non-observance of the operating restrictions of these operating instructions,
- ▶ use or operation with operating conditions that do not comply with these operating instructions,
- improper installation, commissioning, maintenance or repair not specified in these operating instructions,
- ▶ after unauthorised structural, hardware or software modifications to the tuning module itself or to the e-bike approved for the tuning module or its equipment.

IMPORTANT The installation and operation of the tuning module is at your own risk.

- ▶ The manufacturer of the tuning module does not accept any liability for damage related to the operation or 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, inform yourself about possible further technical and legal consequences and requirements that you must comply with in order to operate the tuned e-bike.

3.2 Warranty, guarantee and liability by the manufacturer of the e-bike

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

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

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

3.3 Property damage and personal injury - Further exclusions of liability to be considered

An e-bike can reach electric motor-assisted speeds of up to 45 km/h after the tuning module has been installed. Reaching such speeds increases the risk of a fall and resulting injury, even with



suitable strength and design of the vehicle. It also increases the risk of damaging other people or property.

ATTENTION Reduce increased liability risks

- Precisely define your operating conditions 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 e-bike.

- Always wear suitable protective clothing and a helmet while using your tuned e-bike to protect yourself from increased risk of accidents.
- Insist that every user of your tuned e-bike wears appropriate protective clothing and a helmet at all times during use.

ATTENTION Reduce the risk of accidents monetarily

- Precisely define your operating conditions and user groups to be insured.
- Take out an insurance policy for the use of your tuned e-bike that is appropriate to the conditions of use and the user group.



4 Functional description

The tuning module offers the following functions after installation in E-bike with Bosch drive system (25 km/h):

- ▶ Adjustable speed limit via control panel on the e-bike up to 45km/h
- ▶ Personal activation code adjustable
- ► Adjustable dynamic mode with reduced "wall effect"
- ▶ Additional individual support configurable for each assistance level
- Correct display of speed and distance travelled
- ► Correct total odometer reading after re-removal of the tuning module
- ▶ Optimized range calculation with active tuning
- Additional battery display in percent for Intuvia and Purion



Setting options

All settings are made via the display on the e-bike. No smartphone or notebook is required.

Protected electronics

The electronics are cast into the housing and thus safely protected against moisture.

Safety and protective devices

Safety and protective devices of the E-bike remain untouched by the installation of the tuning module.

5 Technical data

Housing dimensions: 37mm x 19mm x 9mm (1.46" x 0.75" x 0.36")

Cable length: Approx. 180mm (7.1")

Weight: 0.025kg (0.9oz)

Power consumption: 0.2W Supply voltage: 12VDC



6 Installation

IMPORTANT Before you start the installation

Confirm that you have read and understood all previous chapters of these operating instructions carefully and completely before you start the installation. This is the only way to ensure that you use the tuning module exclusively for the purpose described in these instructions and as intended.

The installation described below and all associated instructions refer to the installation example: Cube Reaction Hybrid Pro 500 / Bosch Performance CX 2020

6.1 Required tools

Allen key 4mm



Other tools may be necessary

The motor cover can, depending on the bike model, also be fitted with

- Torx or Phillips screws.
- Many covers also require removal of the pedal crank. In such a case, a suitable crank puller is required.

Note part number and serial number 6.2



Note for support requests

- Make a note of the
 - Part number (P/N) and
 - Serial number (S/N) of the tuning module on the back of these operating instructions.

This way you always have the data at hand for possible support requests.

6.3 Remove motor cover

⚠ WARNING

Prevent unexpected start-up

If the ride starts unexpectedly, hands and fingers may shear, crush or retract. Switch off the e-bike and remove the battery. This will prevent any movement supported by the electric motor.

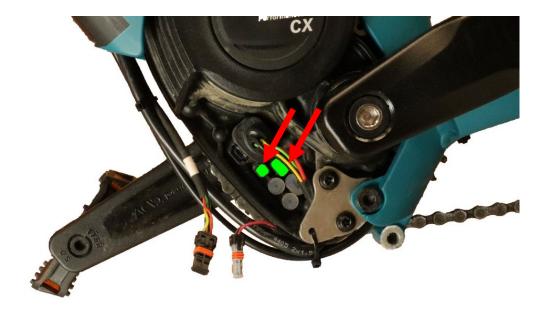


- ► Ensure that your e-bike stands firmly and securely.
- ▶ Loosen the hexagon socket screw (see illustration, "Allen" 4mm) of the motor cover.
- ▶ Remove the motor cover.
- ▶ Under the cover, the view of the wiring is unobstructed.



6.4 Plug in cable

▶ Plug the cables into the two sockets marked in the following figure.





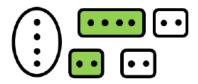
If other motors are installed:

- ▶ Use the following sketches as a guide.
- ▶ Disconnect the connectors marked in green.



Motor Gen. 2

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



Motor Gen. 3

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



Motor Gen. 4

■ Performance Line CX from 2020

ATTENTION

reduce the risk of confusion

In addition, pay attention to the color of the small plug.



Disconnect only the grey speed sensor plug.

blue = front light black = rear light

- ▶ Plug the tuning module into the free sockets on the motor.
- ▶ Connect the previously unplugged cables to the other connections of the tuning module.





6.5 Check function

- ▶ Insert the battery into the e-bike.
- ▶ Then check whether you can switch on the speed mode as described in chapter 7. If this is not possible, check the cabling again carefully.



Set activation code

If an individual activation code is to be set to protect the tuning from unauthorized use:

- ▶ Set the activation code according to the instructions in chapter 8 Activation code now.
- ▶ Then check if you can activate the tuning using the set code.
- Switch the e-bike off again and remove the battery.

6.6 Finalize installation

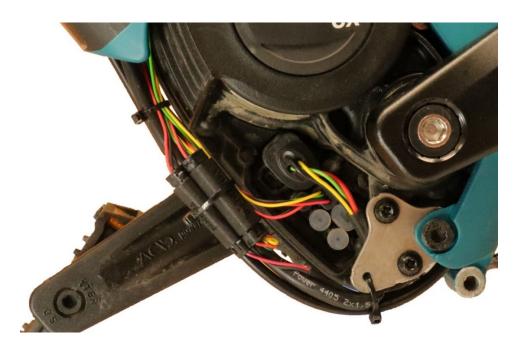
- ▶ Place the tuning module in a suitable location.
- ▶ Lay the cables in such a way that the motor protection cover can be refitted without hindrance.
- ► Refit the motor protection cover.
- ▶ Make sure that no cables chafe on it or even get crushed.
- Screw the motor protection cover back on.



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.

It is often possible to place the module directly in the connection area of the motor. It is also possible to place the module in the seat tube, but this usually requires the motor to be detached from the frame. In the picture the module was pushed into the down tube.





7 Speed mode

When Speed mode is activated, the speed limit for the motor assistance is raised. The limit can be freely set in the range 25 to 45km/h.

When the e-bike is switched off, the speed mode is automatically switched off and must therefore be reactivated when the bike is switched on again.



Note Displays

The following illustrations show the Purion display as an example. For Nyon, Intuvia or Kiox, the corresponding buttons on the control unit must be pressed.

7.1 Switch on without activation code



Press the "Minus" key for > 3 seconds.



Speed limit is displayed for 5 seconds. If desired, change with the "Plus" and "Minus" keys. Possible values: 25... 45 km/h. Default value: 32 km/h. The set value is saved.



The Display shows the normal driving speed again. Speed mode is active.

7.2 Switch off



Press the "Minus" key for > 3 seconds.



The display shows the factory limit for 2 seconds. Speed mode is off.



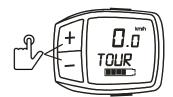
7.3 Switch on with activation code



Code invisible

The code is not displayed when you enter it. Enter the code quickly and proceed immediately to the next step.

If the entry is incorrect, wait 5 seconds before trying again.

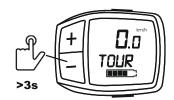


Enter the activation code. First the set number of minus keystrokes, then the plus keystrokes.

Input examples:

Code 32: press "Minus" 3 times, then press "Plus" 2 times.

Code 3: Press "Plus" 3 times.



Press the "Minus" key for > 3 seconds.



Speed limit is displayed for 5 seconds. If desired, change with the "Plus" and "Minus" keys. Possible values: 25... 45 km/h. Default value: 32 km/h. The set value is saved.



The display shows the normal driving speed again. Speed mode is active.



8 Activation code

With the activation code set, the speed mode can only be activated after entering this code. This prevents unauthorized activation of the tuning. The code consists of 0 to 3 keystrokes of the minus button, followed by 1 to 3 keystrokes of the plus button.

8.1 Preparation

Disconnect the two smaller, two-pin connectors of the tuning module from the motor and the wiring and connect them together as shown in the following figure.



8.2 Set code



Switch on the bike and set the code with the plus and minus buttons. The number of button presses is displayed as speed as shown.

Possible values: Minus $0 \rightarrow ..3$, Plus $1 \rightarrow ..3$, Default value: 0



Old code invisible

If a code was already set previously, it is deleted. Unauthorized reading of the code is therefore not possible.

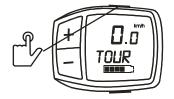
Display unit mph

Set the display to km/h for the setting so that the values are displayed correctly.



Note the set value and switch the bike off. This saves the code. Then restore the wiring to its original condition and check whether it is possible to activate the speed mode with the code before reassembly.

8.3 Delete code



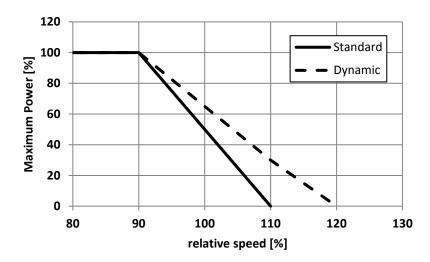
Switch on the bike. 0.0 km/h is displayed. Switch the bike off again. This deletes the code. Then restore the wiring to its original condition.



9 Individual assistance modes

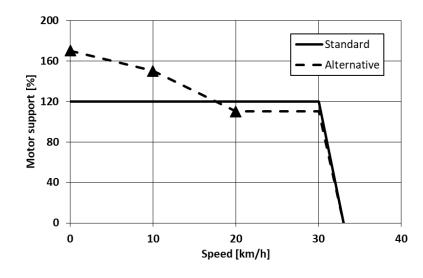
9.1 Dynamic mode

If the speed limit is exceeded, the motor power is reduced very strongly by default. A higher pedal force then initially no longer results in a higher speed, but in a lower motor support. For a more natural riding experience, the dynamic mode spreads the downshift over a wider speed range, the so-called "wall effect" is significantly reduced and it is possible to ride with much more constant pedal force.



9.2 Alternative mode

The drive system increases the torque delivered by the rider depending on the selected assistance level. In the TOUR level, for example, by 100 or 120% depending on the motor type. With the alternative mode, it is now also possible to define an additional configuration for each level, which you can then easily activate via the WALK button. It is also possible to change the support depending on the speed. You can assign your own value for 0km/h, 10km/h and 20km/h, see the following example.



Example:

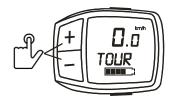
- -Performance Line CX
- -TOUR mode

Alternative configuration:

0km/h	170%
10km/h	150%
20km/h	110%



9.3 Configure alternative mode

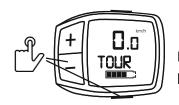


With Speed mode activated, select the assistance level to be configured. Possible values: TURBO, SPORT/eMTB, TOUR, ECO



Display unit mph

Set the display to km/h for the setting so that the values are displayed correctly.



Press the WALK button briefly and then immediately press the minus button.



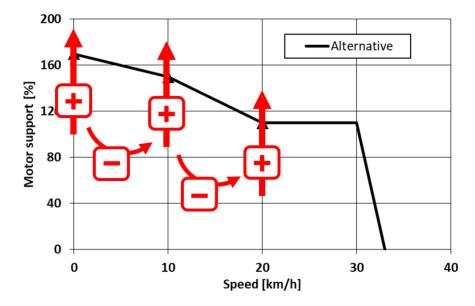
Note Display Purion

With the Purion, depending on the software version, it may be necessary to press the minus button twice to activate the input.



The display now alternately shows the speed (0, 10 or 20km/h) and the corresponding assistance level. Now use the PLUS button to set the desired value for the assistance. 1km/h corresponds to 100%. Above 400% (4km/h) the value jumps back to 0%. With the MINUS button the display changes to the next value. Pressing the MINUS button again at the end

terminates the entry and saves the values.



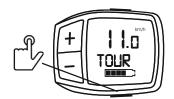


	ECO	TOUR	SPORT	TURBO
Active Line	40	100	170	250
Active Line Plus	40	100	180	250
Performance Line	40	120	190	275
Performance Line CX	50	120	210	300
VOLspeed (default values)	80	150	230	310

Table: Default values for the different motors and the VOLspeed



9.4 Activate individual assistance modes



While riding (> 10km/h), briefly press the WALK button when the speed mode is activated. Each time the button is pressed, the display switches between the following values:

10.0km/h / 6.2mph Standard mode 11.0km/h / 6.8mph Dynamic mode 12.0km/h / 7.4mph Alternative mode

13.0km/h / 8.0mph Dynamic and alternative

The set value is saved.



Note Nyon

If you have activated the custom riding modes in the Nyon, the settings made there are used. The alternative mode therefore has no function.

Note Kiox and Nyon

When pressing the WALK key, the speed is only shown in the upper left corner of the display.

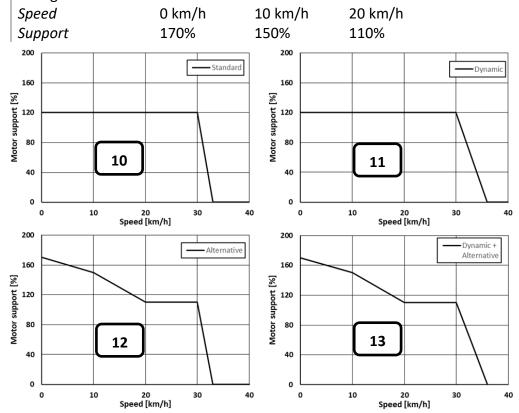
Note Purion

With the Purion, depending on the software version, it may be necessary to press the minus button twice to change the value.



Example

In the following example, a speed limit of 32km/h is set and the following alternative configuration has been stored for TOUR mode:





10 Range and charge status display

When the speed mode is activated, a range calculated by the tuning module is displayed instead of the value from the motor control unit after 5% battery discharge. The reason for this is that the motor control unit can no longer calculate the range correctly due to the tuning. The tuning module uses the charge level of the battery and the driven kilometres for this.

With the Intuvia and Purion display, the battery charge level is also shown as a percentage, alternating with the range. The charge level is displayed for one second at a time, then the range is displayed again for 4 seconds.

11 Restore factory settings

The tuning module sets itself up automatically. Even a conversion to another bike or another display is automatically detected. Nevertheless, it is possible to reset the tuning module to the factory settings. The following values are reset:

- ▶ The limit is set to 32km/h
- Any existing activation code is deleted
- ► The individual assistance modes are reset to the default values (ECO: 80%, TOUR: 150%, SPORT: 230%, TURBO: 310%).
- ► The mileage is taken over from the motor

To restore the factory settings, first activate the speed mode and then use the plus and minus keys to quickly enter the following sequence:

Sports / Turbo	Sports / EMTB	Tour	Eco	Tour	Eco
----------------	---------------	------	-----	------	-----

12 FAQ

Speed mode cannot be activated.

An activation code may have been set. If this is known, you must first enter the activation code. If you have forgotten it, delete the code as described in chapter 8.

If you operate the Tuning together with a Smartphone Hub or COBI.bike, the Tuning cannot be operated as described in these instructions. In this case, please refer to the document "COBI.bike operating instructions".



Do I have to remove the tuning module for software updates of the motor control or the display?

So far, software updates of the bike also work without removing the tuning. However, we do not know whether this will also be the case in the future. We therefore generally recommend removing the tuning.

Does the tuning module still work after software updates of the motor control or the display?

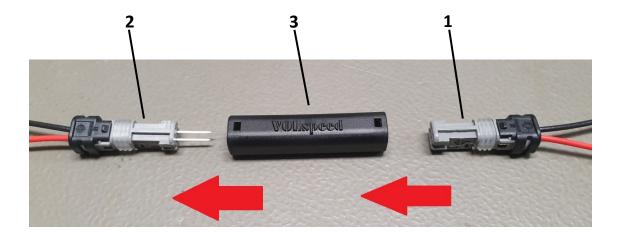
In principle, it is possible that software updates may affect the functionality of the module. A list of tested software versions can be found on our website. Before a planned update, you should check and observe the notes there.

Is the total mileage correct even after removing the module?

Yes, the total kilometres measured by the motor control unit are not changed by the tuning. This is ensured by a compensation function in the tuning module that works continuously in the background. However, before removing the module, the bike should be left at a standstill with the speed mode switched on until it switches itself off. This ensures that the compensation function has correctly adjusted the mileage.

After unplugging the module, there are contact pins sticking out of one connector. Is this normal?

No. The black plastic sleeve (3) must be plugged onto that connector. Pull it off the other connector (1) and put it back on the connector where the contacts protrude (2).





Technical support

If you have any questions or problems, please contact us by e-mail or telephone at:

TLI Elektronik GmbH

St.-Martin-Str. 11

D-86676 Ehekirchen

info@volspeed.de

Tel.: +49 (0) 8253 / 9279902

In addition to your request, please provide the following information:

- Article number and serial number of the device (S/N, P/N)
- Bicycle manufacturer, type and year of manufacture
- Display type (e.g. Nyon)
- Software version Display
- Motor type (e.g. Active Line)
- Software version motor

To ensure that you always have the device data at hand, you can enter them here before installing the device:

Part Number (P/N):	 	
Serial Number (S/N):		

Disposal



Electronic devices are recyclable materials and do not belong in household waste.

At the end of its service life, dispose of the product in accordance with the applicable legal requirements.

