VOLspeed Ebike Tuning

Bosch Active Line
Bosch Performance Line

Operating Manual
Installation Guide

Attention!

Read these instructions completely before using the device, keep the instructions and pass them on when handing over the device to other persons.

Product Features

The device offers the following functions after installation in eBikes with Bosch drive system:

- Speed limit adjustable via handlebar control buttons
- Adjustable dynamic mode with reduced "wall effect"
- Correct display of speed and distance
- Correct total distance after removal of the tuning module
- Battery indication in percent alternating with the range when tuning is active
- Workshop mode

All settings are made via the operating unit on the eBike. No smartphone or notebook is required.

The module is internally protected from splash water by a protective coating of the entire electronics.

Intended Use

The device is only suitable for installation in eBikes with the following Bosch drive systems:

Drive system:	**Display type:**
Active Line	Intuvia, Purion, Nyon, Kiox
Active Line plus	Intuvia, Purion, Nyon, Kiox
Performance Line	Intuvia, Purion, Nyon, Kiox
Performance Line CX	Intuvia, Purion, Nyon, Kiox

Legal and Safety Notes / Product Liability

- **Operation of the eBike in public traffic is no longer permitted after installation of the module. The use is only allowed on private areas or designated test and race tracks.**
- **Damage caused in conjunction with the operation of the eBike will no longer be covered by private liability insurance after installation.**
- **Liability and warranty claims against the dealer or manufacturer of the eBike expire or are constricted.**

- **The eBike is subject to higher mechanical stress when operating at higher speed for which it is not designed. This results in additional safety risks.**
- **The installation and operation of the module is at your own risk. The manufacturer accepts no liability for damage that is connected with the operation of the device.**
- **Please inform yourself about possible further technical and legal consequences before installing the device.**

Technical Data

Housing dimensions:	43mm x 22mm x 11mm
Cable length:	approx. 180mm
Weight:	0,025kg
Power consumption:	0,2W
Supply voltage:	12VDC

Installation (Example: Active Line)

Required tools:

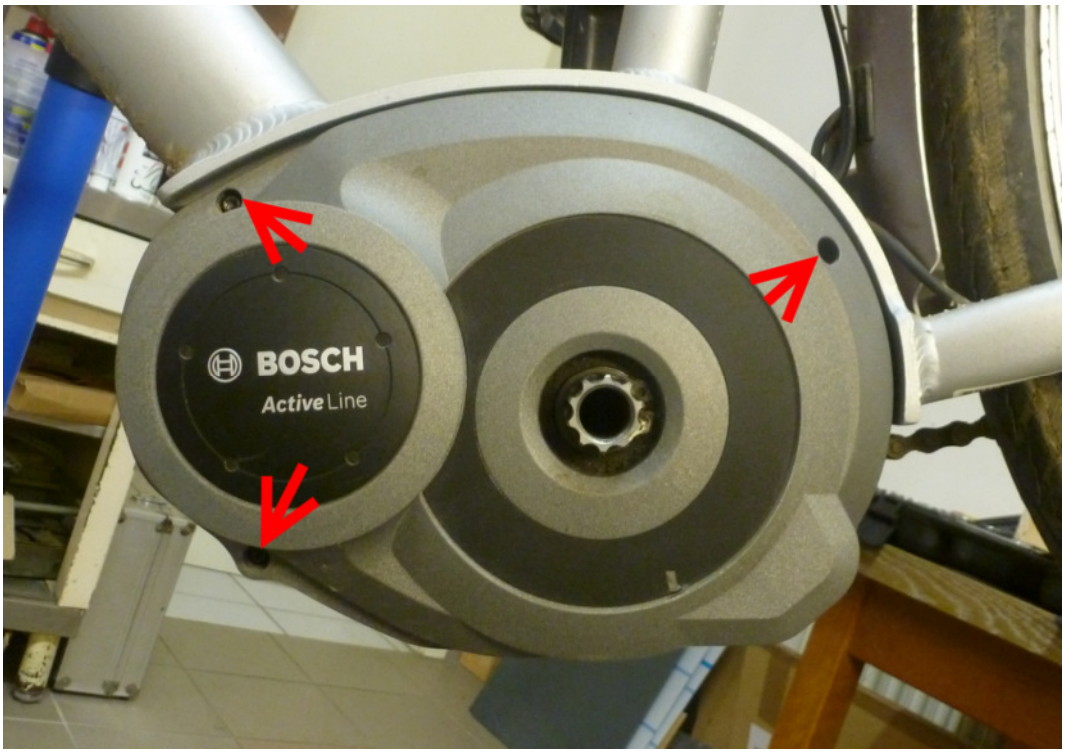
- Torx TX20 key
- ISIS crank puller

Procedure:

1. Remove Battery
2. Disassemble left crank with puller

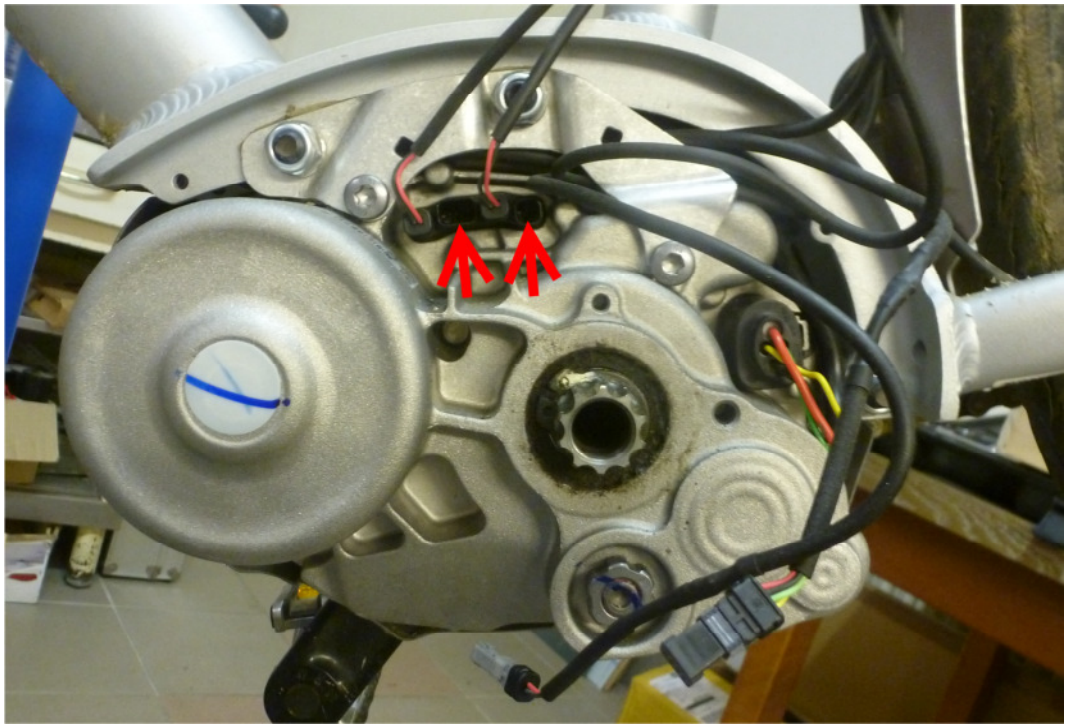
Some covers can be removed without disassembling the crank.

3. Remove the motor cover (Torx TX20).

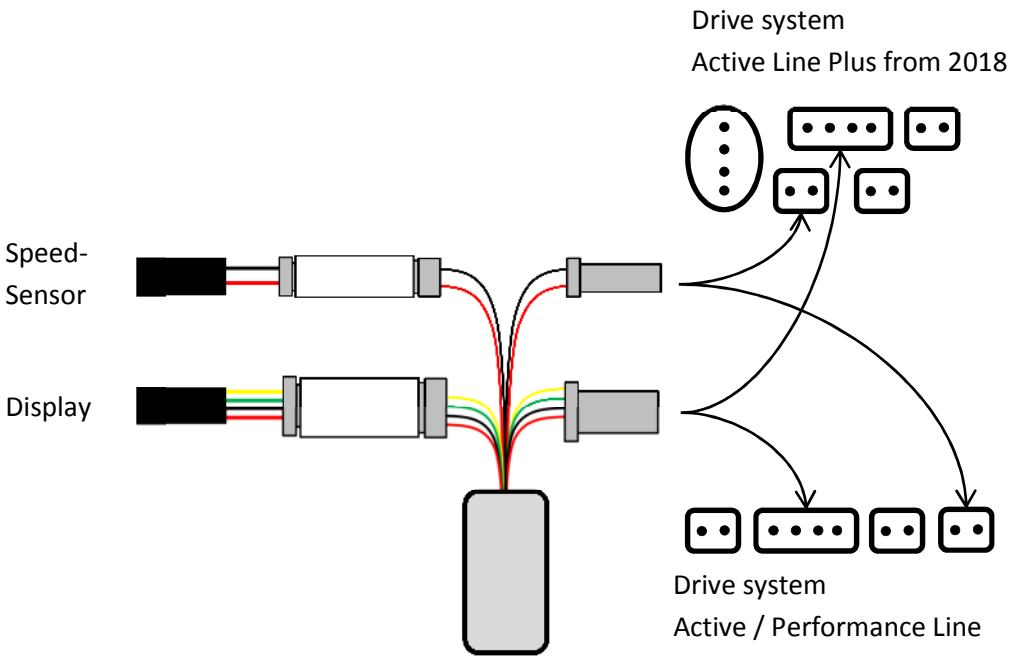


	The motor cover may also be secured with Allen screws or Phillips screws.

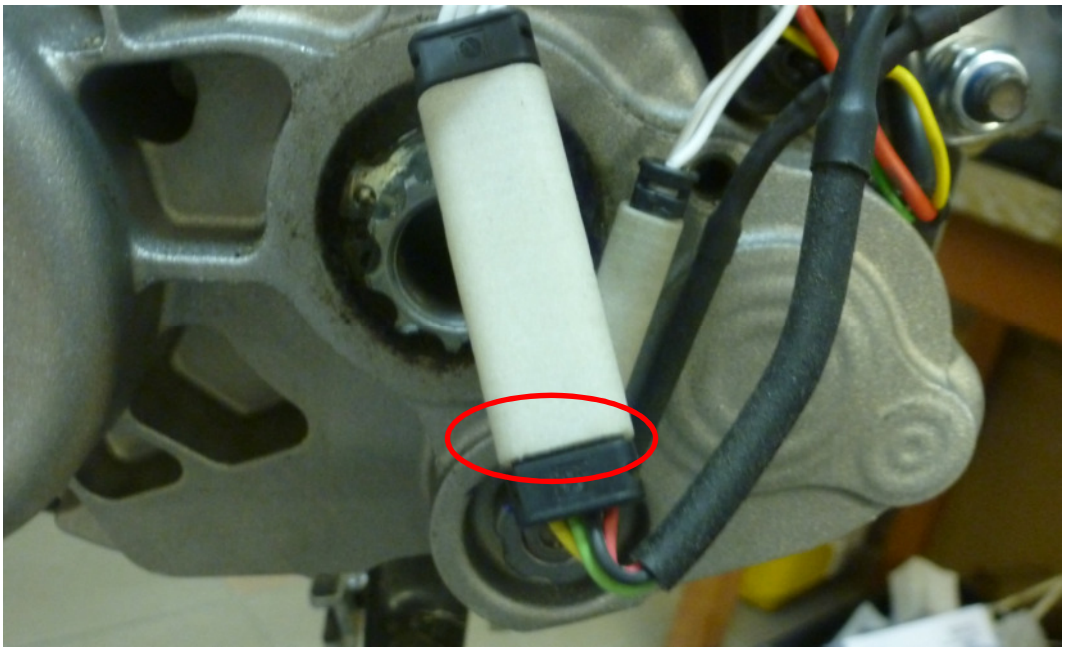
4. Disconnect the cables at the marked two connectors. Also refer to the sketch in point 5.



5. Connect the tuning module as shown. Also orient yourself to the conductor colors. Do not forcibly insert the plug in the wrong orientation!



6. Ensure that all connectors are fully inserted.



7. Insert the battery and carry out the initialization, see separate point setup.

8. If setup succeeds, remove the battery again.

9. Place the tuning module in a suitable location and route the cable so that the cover can be reassembled.

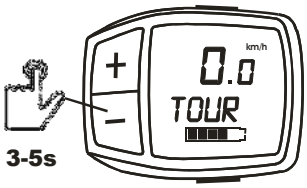
Due to the large number of different drive systems and covers, it is not possible to define a fixed installation location. Often a placement of the module directly in the connection area of the motor is possible. A placement in the frame tube is also possible, but in this case the motor must mostly be dismounted from the frame.

10. Reassemble cover and crank.

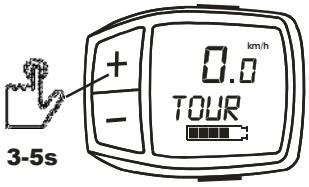
Setup

Before the first use of the tuning module or after conversion to another bike the setup must always be carried out first. Even in the case of malfunctions, a defined state of the module can be restored by executing the setup.

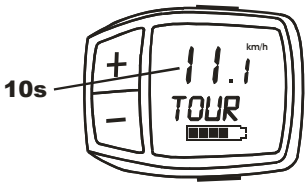
	The following illustrations show the Purion display. For the Nyon or Intuvia, press the corresponding buttons on the control unit.



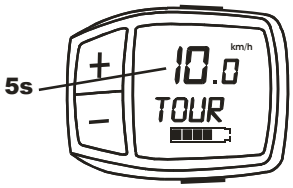
Press "minus" for 3 to 5 seconds and release button.



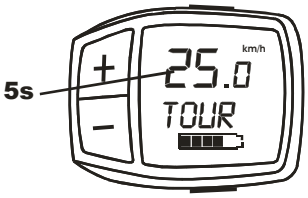
Release “minus” button and within one second, press "plus" for 3 to 5 seconds.



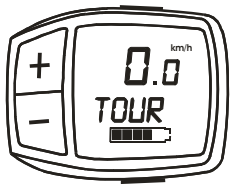
Speed 11.1 km/h is displayed for 10 seconds.



Adjustment factor speed limit. Only adjust if there are problems, see FAQ. If necessary, change within 5 seconds using the "plus" and "minus" buttons. Possible values: 7.0..13.0 (= 70..130%). Default value: 100%.



Selection eBike type / workshop mode. S-Pedelec 45 km/h, normal pedelec 25km/h, workshop mode 1 km/h. If necessary, change within 5 seconds using the "plus" and "minus" buttons. Possible values: 25.0, 45.0 and 1.0. Default value: 25.0.



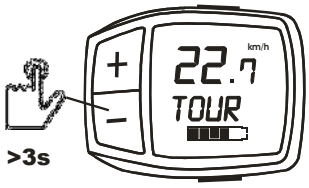
As soon as 0.0 km/h is displayed, the setup is finished.

Speed Mode

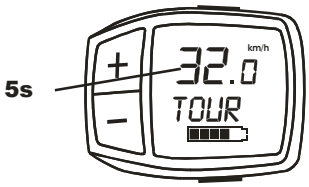
When speed mode is activated, the speed limit for the motor assistance is increased. The limit can be set from 25 to 99 km/h.

Turning off the eBike automatically turns off speed mode and must be reactivated after the bike is turned on.

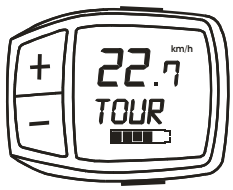
Activation



Press "minus" for > 3 seconds while standstill or while driving.

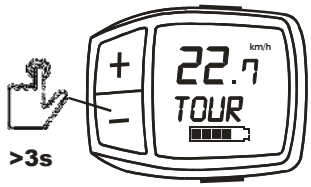


Speed limit is displayed for 5 seconds. If desired, use the "plus" and "minus" keys to change. Possible values: 25 to 99 km/h, S-Pedelec 45 to 99km/h. Default value: 32 km/h, S-Pedelec 52km/h.

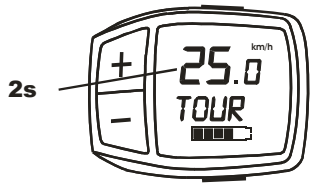


Display shows the normal driving speed again. Speed mode is active.

Deactivation



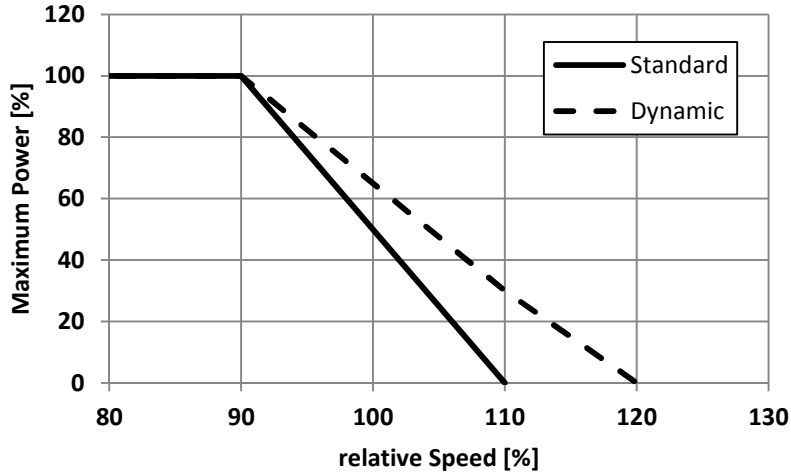
Press "minus" for > 3 seconds

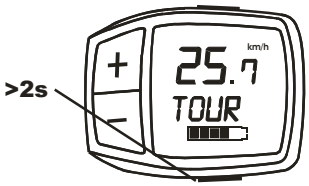


Display shows 25.0km/h for 2 seconds, for S-Pedelec 45.0km/h. Speed mode is off.

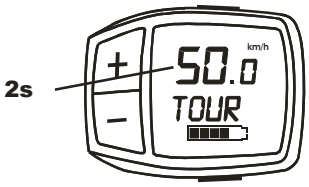
Dynamic Mode

Exceeding the speed limit the motor power is reduced by default very much. A higher pedal force then results no longer in a higher speed, but in a lower motor assistance. For a more natural driving emotion in the dynamic mode the reduction is spread over a larger speed range, the so-called "wall effect" is significantly reduced and it can be driven with much more constant pedal force. The dynamic mode can only be activated when the speed mode is activated.



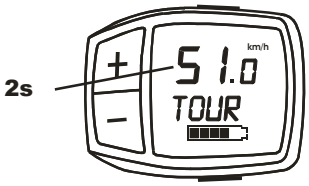


While driving (> 10km/h), push the WALK button for 2 seconds.



Dynamic mode off: 50 km/h is displayed for 2 seconds.

Or:



Dynamic mode on: 51 km/h is displayed for 2 seconds.

When push assistance is activated via the plus button:
While driving (> 10km/h) press the WALK-Button briefly and then press the PLUS-button until 50 or 51 km/h is shown in the display.

Range / Charge Status

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

Alternating to the range, the battery charge level is displayed in percent. This is done for one second, the display of the charge, then again for 4 seconds, the display of the range.

FAQ

The setup cannot be activated although I follow the steps described. What can I do?

To prevent accidental activation of the setup, the time slots for the keystrokes to activate the setup are deliberately narrow. Failure to meet the timetable is therefore the most common reason why the setup does not start. For assistance, use a clock with seconds indication to help and press the “minus” key for as exactly 4 seconds as possible, release it and then immediately press the “plus” key until the display shows 11.1km/h.

In spite of the activated speed mode, motor does not support up to the set speed limit, the motor output fluctuates at low speed or it is not possible to reach the full motor power. What can I do?

The motor control presumably limits at a too low speed. Run the setup again and reduce the adjustment factor speed limit to a smaller value. If necessary, repeat the process until the limiting behavior is correct.

Reduce the adjustment factor speed limit, e.g. to 92%, if the bike without tuning limits at 23km/h instead of 25km/h → 23 / 25 * 100% = 92%.

Speed mode cannot be activated.

Setup did not run or did not run correctly. Start setup again. If the display does not show 11.1km/h or the display jumps from 11.1km/h directly to 0.0km/h, check the speed sensor wiring (2-wire cable).

The displayed distance (Odometer, Trip) or the speed is not correct. What can I do?

The measurement of the traveled distance and the speed takes place in the motor control, which uses the wheel circumference stored there. Adjust it as described in the Intuvia or Nyon operating manual, or have the value changed by your dealer (Purion). Then execute the setup again.

Does the tuning module have to be removed for software updates of the motor control or the display?

No. However, you must activate workshop mode, see Setup. As a result, the tuning module is completely deactivated and no longer intervenes in the data traffic between engine control and display. After the workshop visit, you must run the setup again to deactivate the workshop mode.

Before activating workshop mode, first switch the bike on and activate the speed mode. Wait until the wheel shuts off by itself. Here, the kilometer distance of the engine control is adjusted with that of the tuning module.

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

In principle, it is possible that the functionality of the module is impaired by software updates. A list of tested software versions can be found on our website.

Is the total mileage correct even after removing the module?

Yes. The total km measured by the motor control unit are not changed by the tuning. This is ensured by a continuously working compensation function in the tuning module. However, before removing the module, the bike should remain switched on at standstill with activated speed mode until it shuts off by itself. This will ensure that the compensation function has correctly adjusted the mileage.

Technical Support

For questions, suggestions or problems please email or phone.
TLI Elektronik GmbH
St.-Martin-Str. 11
86676 Ehekirchen
info@volspeed.de
phone: +49 (0) 8253 / 9279902

In addition to your request for support inquiries, please include the following information:

- Serial number and purchase number of the tuning module (S/N, P/N)
- eBike manufacturer, type and year of manufacture
- Display type (e.g. Nyon)
- Software version of display
- Drive unit type (e.g. Active Line)
- Software version of drive unit
- Speed limit drive unit (e.g. 25km/h)

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

Purchase number (P/N): _____

Serial number (S/N): _____

Disposal

The tuning module should be disposed of in an environmentally correct manner.

For EC countries:

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

Dispose of the product at the end of its life in accordance with applicable legislation.