FLAVIAspeed E-Bike Tuning

Bosch Active Line
Bosch Performance Line
V3

Operating manual
Installation guide

Tuning chip for permanent installation in e-bikes / pedelecs with Bosch drive Active Line, Active Line Plus, Performance Line (CX) all model years, also for the new Bosch model CX 2020!

Read these instructions completely before using the device, keep the instructions and passt 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:

- Individual activation code adjustable
- Speed limit adjustable via handlebar control buttons
- Adjustable dynamic mode with reduced “wall effect”
- Correct display of speed and distance
- Correct mileage after removal of the tuning module
- Optimized range calculation with active tuning
- Battery indication in percent alternating with the range when tuning is active
- Workshop mode.

All settings are made via the handlebar control buttons on the E-Bike. No smartphone or notebook it required.

The electronic is cast into the housing and thus safely protected against moisture.

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 specifications:

• Housing dimensions: 37mm x 19mm x 9mm
• Cable length: approx. 180mm
• Weight: 0.025kg
• Power consumption: 0.2W
• Supply voltage: 12VDC.

Installation example Cube Reaction Hybrid Pro 500 / Bosch Performance CX 2020

Required tools:

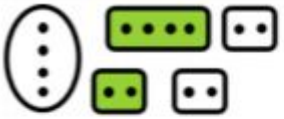
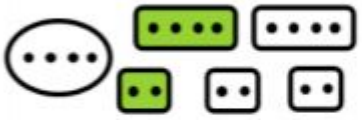
- Allen key 4mm

Procedure

1. Remove the battery
2. Remove the motor cover (Allen key 4mm)

Depending on the bike model, the engine cover can also be attached with Torx or Philips screws.
With many covers it is also necessary to remove the crank. A suitable crank puller is required for this.

3. Disconnect the cables at the green marked two sockets. Also, use the following sketch as a guide for different motors. Remove the green marked connectors.

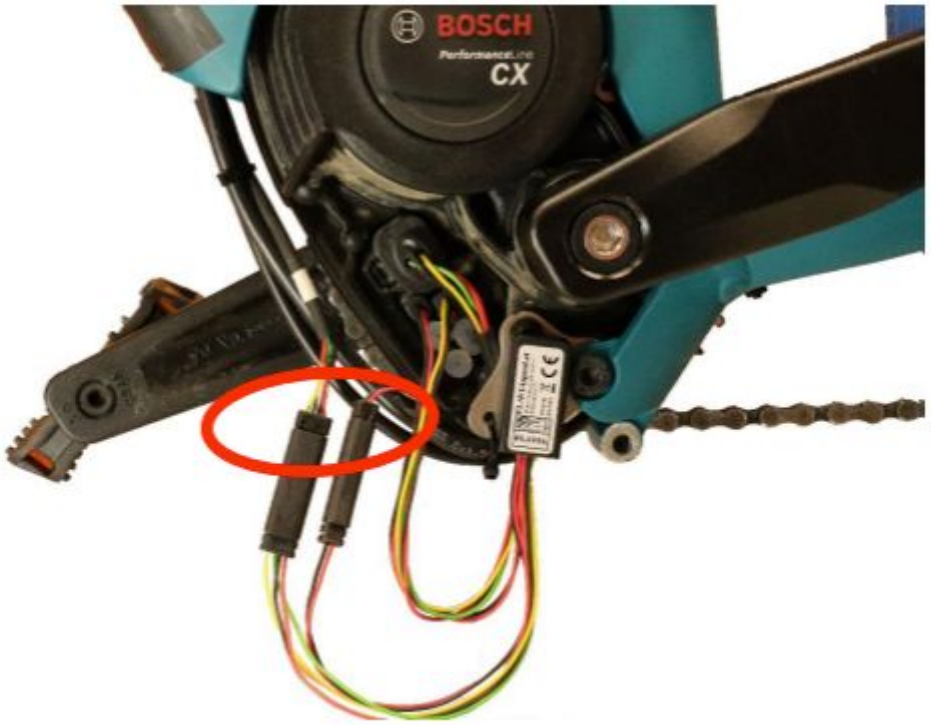
Motor Gen2: - Active Line - Performance Line (CX) bis 2019	
Motor Gen3: - Active Line Plus ab 2018 - Performance Line ab 2020	
Motor Gen4: - Performance CX ab 2020	

Attention!

Also pay attention to the color of the small connector.

4. Connecting the tuning module to the free sockets on the engine. Connect the previously disconnected cables to the other connections of the tuning module.

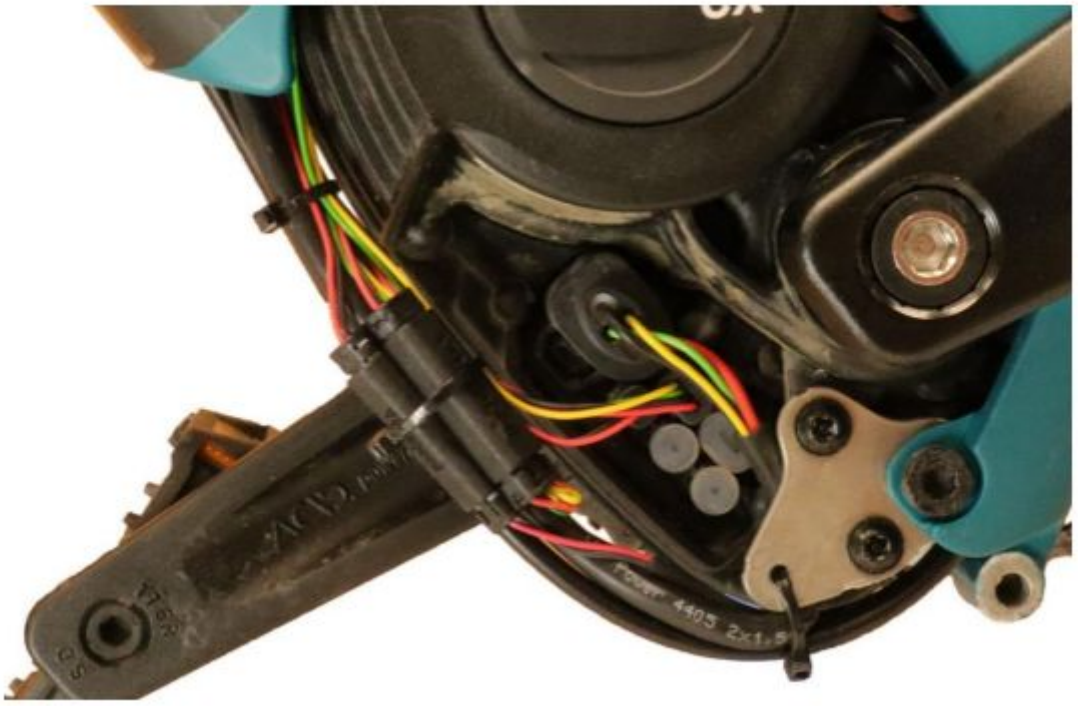
5. Ensure that all connectors are fully inserted.



6. Insert the battery and carry out the initialization, see separate point “Setup”.
7. If an individual activation code is to be set protect the tuning from unauthorized use, set it now, see point “Activation code”, otherwise continue in the next step.

This point is optional.
If you don’t want to set a code, go to the next step.

8. Remove the battery again.
9. Place the tuning module in a suitable place and route the cable so that the cover can be reassembled. In the picture the module was pushed into the down tube.



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

Setup

Before the first use of the tuning module or after conversion to another bike, the setup always 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 pictures show the Purion display. For the Nyon, Kiox or Intuvia press the corresponding buttons on the control unit.

If an activation code is set, enter it now, otherwise continue.
Input example:
Code 32: press 3x “minus”, afterwards 2x “plus”.
Code 3: press 3x “plus”.

No code is set when new. Code is not displayed when entering. Enter the code quickly and proceed immediately to the next step.
If you make a mistake, wait 5 seconds before trying again.

Press “Minus” for 3 to 5 s and release button.

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

Speed 11.1km/ 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%.

If the display changes from 11.1 directly to 0.0, the wiring of the module is faulty. The 2-pin connector to the motor is connected to the wrong socket.

Selection of eBike type / workshop mode. S-Pedelec: 45km/ h, normal pedelec: 25km/ h, Workshop mode: 1km/ h. If necessary, change within 5 seconds with “Plus” and “Minus” buttons.
Possible values: 25.0, 45.0 and 1.0. Default value: 25.0.

Set here only 45km/ h if your bike supports up to 45km/ h ex works.

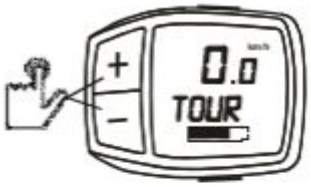
As soon as setup displays 0.0km / h, the setup is finished.

Speed mode

When the speed mode is activated, the speed limit for the motor assistance is increased.
The limit can be set from 25 to 99km/ h.
Turning off the e-Bike automatically turns off speed mode and must be reactivated after the bike is turned on.

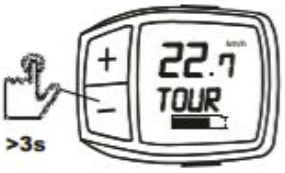
If the limitation is not removed despite activated speed mode, the wrong motor type was set in the setup. For pedelecs that support up to 25km/ h ex works, the motor type must also bes et to “25”.

Activation



If an activation code is set-enter it now-otherwise continue.
Input example:
Code 32: press 3x “minus”, afterwards 2x “plus”.
Code 3: press 3x “plus”.

Code is not displayed when entering. Enter the code quickly and proceed immediately to tje next step. If you make a mistake, wait 5 seconds before trying again.

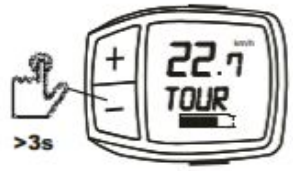


Press “Minus” for > 3 seconds while standstill or while driving.

Speed limit is displayed for 5 seconds. If desired, use the buttons “Plus” and “Minus” to change. Possible values: 25 to 99km / h, S-Pedelec 45 to 99km / h. Default value: 32km/ 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 45km/ h.
Speed mode is off.

Activation code

With the activation code set, the “Speed mode” and “Setup” functions can only be activated after entering this code. This prevents unauthorized activation of the tuning. The code consists of 0 to 3 key presses of the minus button, followed by 1 to 3 key presses of the plus button.

Preparation set / Delete code

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 illustration.

Set code

Switch on the bike and set the code with the plus and minus buttons.
The display shows the number of keystrokes as speed.
Possible values: minus → 0...3, plus → 1...3
Default value: 0

If a code was previously defined, it will be deleted. Unauthorized reading of the code is therefore not possible.

A code can only be set if a setup has already been carried out successfully.

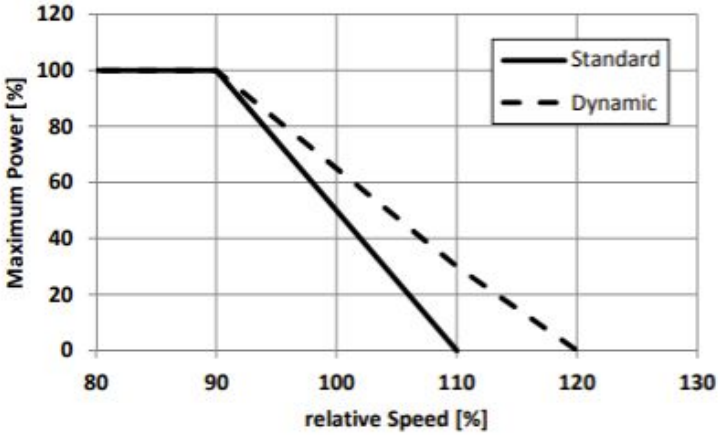
Note the set value and switch off the bike. This stores the code.
Then bring the wiring back to its original state and check whether it is possible to activate the speed mode with the code before assembling.

Delete code

Turn on the bike.
0.0 km/ h is displayed. switch the bike off again. This will delete the code. Then restore the wiring to its original condition.

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.

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 11.1 km/h.

An activation code may also be set.If this is known, you must first enter the activation code. If you have forgotten it, delete the code as described in the “Activation code”.

Everything works as described, but motor supports only up to 25km/ h despite activated speed mode.

Presumably the bike type “S-Pedelec” (=45) was incorrectly set during setup, although it is a normal pedelec that supports up to 25km/ h ex works. Start the setup again and set “Pedelec” (=25) as the bike type.

The motor output fluctuates at low speed or it is not possible to reach the full motor power.

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 * 00% = 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, Kiox or Nyon operating manual, or have the value changed by your dealer (Purion). Then run the setup again.

Must the tuning 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 mileage 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 can be found on our website or write us an email.

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.

Is there anything to consider when change to another display, e.g. from Purion to Kiox?

Yes. You should run the setup again after installing the new display. If this is not carried out again, key presses may no longer be correctly recognized by the tuning module. If the setup can no longer be started and an activation code has been set, first delete the code, run the setup again and then set the code again.

Technical Support

For questions, suggestions or problems please email or phone.

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Mail: kontakt@flaviaspeed.at

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.