

BIKESPEED-*REAL* *S*PEED 

OPTIONAL WITH BIKESPEED DISPLAY

Instructions for the installation and description of the functions for *Bosch Smart System* mid- motor design



WWW.BIKESPEED.DE



„Einfach schneller“

Note about this printed manual

Congratulations on the purchase of your bikespeed-RS. (Optional with bikespeed Display) You are holding the original manual for the bikespeed-RS and bikespeed-RSc for Bosch mid-mounted motors in your hands.

Printed manuals may not always be up to date for technical, logistical, and economic reasons. This applies, for example, to the listed compatible motors, displays and model years. You can find a current version of the manual for download on our homepage (<https://www.bikespeed.de>) If you are unsure, please feel free to contact us.

Product description

The bikespeed-RS is a simple and compact kit to bypass the speed limit of 25 km/h of Bosch pedelec drives. The installation is completely invisible.

The bikespeed-RS for bikes with the Bosch Smart System is available in different versions: for bikes with a rim magnet on different motors and for bikes with spoke or brake disc magnets. Please take note of this when placing your order or check before installation whether you have ordered the correct version for your bike. The tunings differ in hardware, connectors, and software, and therefore cannot be converted.

The bikespeed-RS is also available in a customizable version, called bikespeed-RSc (custom). You can find more information about this on page 14 of this manual. For the sake of simplicity and a better overview, the bikespeed-RSc is the same as the bikespeed-RS except for the personalization and therefore only the term bikespeed-RS is used in these instructions.

Important: With the Bosch Smart System, we offer an optional display on which you can read all values correctly while riding. This is not possible with the original display (e.g. Kiox 300, Kiox 500, Intuvia 100 or Purion 200) or with an app connected via Bluetooth (e.g. Bosch Flow). If you use a Bosch Display on your bike, this will only show all values wrong.

The tuning removes the speed limit at 25 km/h, that means the terminal velocity is only limited by the power of the drive and the muscular strength invested.

We designed the installation as simple as we could. All the necessary connections are pluggable. The bikespeed display can simply be clipped onto the original mounting bracket for the Bosch Kiox 300 / 500.

Deactivation of the speed limit at 25 km/h is possible with the help of a key sequence on the Bosch Remote (see page 9, paragraph “Description of the functions”).

The tuning will adapt to your pedelec when the bike is switched on. During this process the motor (if listed in the compatibility list), the wheel size, etc. will be recognized automatically.

Compatibility list

Please note that the following list may not be up to date. At the time of printing this manual, the bikespeed-RS is compatible with the following motors and displays. If updates are made to your pedelec, it is also possible that compatibility may no longer be given. You can find an up-to-date list on our homepage (<https://www.bikespeed.de>).

This bikespeed-RS is compatible with the following mid-range motors and displays:

- Bosch CX 4. Generation motor with Bosch Smart-System from year 2022 to 2024 (BDU37__)
- Bosch CX 5. Generation motor with Bosch Smart-System from year 2024 (BDU38__)
- Bosch Active- or Performance-Line 4. Generation motor with Bosch Smart System from year 2023 to 2024
- Bosch SX motor with Bosch Smart System from year 2024
- Bosch LED-Remote from year 2022 to 2024
- Bosch System-Controller with Mini-Remote from year 2022 to 2024
- Optional with Kiox 300, Kiox 500 or Intuvia 100, if they are not installed during the use of the tuning function.
- Limited with Purion 200 and Purion 400 (further information's about this on page 76 and 78)

Important: If your bike is equipped with a Bosch Connect Module, it must be removed before installing the tuning.

Safety instructions, product liability and exclusion of liability

By using the bikespeed-RS on your pedelec, a relevant safety feature (the speed-dependent limitation of the motor power) is overridden. You must assume that your pedelec is not suitable for this and e.g., frame, brakes, chassis, tires, etc. are not designed for the higher speed. The conversion must be carried out by a specialist (e.g., the manufacturer of the pedelec or an authorized specialist workshop) who will also check other components on your pedelec accordingly and convert them if necessary.

Tuning an ordinary pedelec with a maximum speed of 25 km/h is not recommended for the ordinary user, as S-pedeles are intended for reaching higher speeds with the corresponding legal requirements, in particular the approval of the Federal Motor Transport Authority of your country (in Germany KBA/Kraftfahrtbundesamt).

We have not been able to conclusively clarify whether operation with the bikespeed-RS installed but deactivated is permitted on public roads. Therefore, we expressly point out that the mere presence of the tuning can constitute an offence in the sense of the Road traffic regulations or riding without insurance, §6 Compulsory Insurance Act!

A modified bicycle may only be used by an authorized, trained and instructed person. We assume the following level of training:

Function	User
Operator	Only persons trained and instructed about the special dangers
Maintenance personnel / technicians	Only the manufacturer of the pedelec or an authorized specialist workshop by persons with the appropriate expertise
Trainees or apprentices	the use is prohibited
General public	the use is prohibited

Trained users should be made aware of the increased risk when using the modified pedelec:

Increased risk of impact: Due to the increased speed, obstacles are reached more quickly, and reaction time may not be sufficient to brake or swerve in time.

Increased braking distance: The increased speed also increases the braking distance. Furthermore, it must be checked before use whether the installed brake system is designed for the increased speed.

Increased risk of discomfort / neurological disorders: Due to the increased speed, vibrations can increase, which can lead to discomfort. Furthermore, due to the increased speed, more concentration is required from the user. This can lead to increased stress during use. Therefore, only persons who do not have any physical, mental, or neurological disorders may be users.

Possible loss of control: The increased speed can make it easier to lose control of the pedelec. The user must therefore be of age and equipped

with suitable protective clothing (helmet, protectors, etc.) to be adequately protected from injury in the event of a fall.

Modified bicycles may only be used on fenced private property. Furthermore, it must be ensured before use that there is sufficient space to obstacles on the route. (e.g., stones, trees, water areas, etc.).

No other persons are allowed on the fenced off area during use and precautions must be taken to ensure that no other person can enter the area during use.

The converted pedelec must be equipped with a warning notice that is clearly visible before the pedelec is used. The warning notice must prohibit the use by untrained persons and outside the fenced private area.

Operation on public roads is expressly prohibited by the Road traffic regulations!

The bikespeed-RS is installed and operated at your own responsibility; any liability for damage or consequential damage, as well as legal consequences for bikespeed or the manufacturer of the pedelec are excluded in any case.

Before using the system, please enquire about the legal consequences that may arise for you because of the installation.

We expressly point out that the use of bikespeed RS will result in the loss of the manufacturer's warranty. Furthermore, the manufacturer and bikespeed have no product liability for your pedelec.

Bikespeed or the manufacturer of your pedelec cannot guarantee that brakes, frame, chassis, tires, etc. are designed for the use of the tuning part.

Before use, the more highly stressed components of the pedelec (e.g., frame, brakes, tires, bearings, and suspension, etc.) must be tuned by the manufacturer or tested and approved by a suitable testing Centre (e.g., TÜV or Dekra). If the speed is doubled, it must be considered that the acting forces are quadrupled. In accordance with EN 15194, it must therefore be checked that the modified pedelec still meets the requirements. It is to be assumed that the higher stress is permanently given.

If a component of the pedelec cannot withstand the higher stress, it must be upgraded by the manufacturer of the pedelec or by an authorized specialist workshop, or the bikespeed-RS must not be installed.

Description of functions

The bikespeed-RS removes the speed limit at 25 km/h of your pedelec. All other features and functions of your bike remain as usual. This also includes the protective measures installed by the manufacturer (e.g., short circuit, overcurrent, power, torque, temperature, etc.), except for the safety device for limiting the maximum speed.

To turn the support above 25 km/h on or off please change the support by one level down, up, down, and up again. If a bikespeed display is installed, you can see the status on it. Read more about this on page 62.

Here is an example beginning on the support level 3 (purple):

Pushbutton down: new level: 2 (blue)

Pushbutton up: new level: 3 (purple)

Pushbutton down: new level: 2 (blue)

Pushbutton up: new level: 3 (purple)

If you have a bikespeed-RSc you use the combination you chose beforehand. (see page 14, paragraph „Description of the custom-variant“)

Please enter the combination quickly without a pause longer than 3 seconds between two keys. Repeat the procedure, if necessary, to bring it to the desired setting.

When using the bikespeed display, you can see the tuning status indicated by the bar at the top of the display. If it's colored, the tuning is enabled, and you have assistance above 25 km/h. If the bar is gray, the tuning is disabled.

Without the bikespeed Display you are not able to see the state of the tuning.

Important hint when visiting the repair-shop or software-updates on your pedelec

Important: If you have in mind to update your pedelec software or wish to perform the Bosch Smart system with a customer service, **please first have a look on bikespeed** and check on our website www.bikespeed.de, whether the tuning continues to work with a later software or not. You can find out the software approved for your tuning by checking the line with the purchase date for your tuning, as well as your motor and display.

We would like to point out that the warranty for your tuning is not valid if you install an update on your bike that has not been approved by us for your bikespeed-RS!

For a software-update to your Bosch-system you **must uninstall** the bikespeed-RS.

Hints for switching off the bike or the removal of battery or display

We recommend leaving your bike switched on until it switches itself off. Furthermore, we recommend charging the battery (if this is possible for you) in the pedelec.

Please always deactivate your bicycle before removing the battery or display. If battery or display are removed in operating state, there could be interferences with your bikespeed-RS and the mileage is no longer correct.

Hint for the odometer

Please note that after the deinstallation of the bikespeed-RS your odometer may show a slightly different value under certain circumstances like you have traveled with your bike. This behavior is caused by the design and not a fault.

Please note this primarily when selling your bike.

Hint for tamper detection

Bosch has introduced a significantly sharper detection of tuning manipulation in their 4th generation motors. A standard tuning is typically detected within a very short time, causing the motor to indicate manipulation and switch to a limp-home mode with reduced motor power or completely shut down motor assistance.

This state can be reset by riding without tuning. According to Bosch, this may require up to 90 minutes of driving. Alternatively, the error memory can be cleared by the bicycle dealer.

We have developed an algorithm to prevent this detection. During the development of our tunings, we have extensively tested them over several thousand kilometers to ensure that you can enjoy your pedelec without any restrictions or error messages. Despite all our efforts, there remains a small residual risk that under certain circumstances, manipulation may still be detected. Therefore, please take note of the following system-specific changes:

With the Bosch Smart System, it is possible that after a long ride at a high speed, you may enter a critical area where the tuning can be detected. If our tuning detects this situation, the motor assistance will be limited to 30 km/h. This limitation will be automatically removed as soon as the technical conditions allow. This limit is additionally indicated on the bikespeed display by a yellow bar at the top edge.

Description of the *custom-variant* (bikespeed-RSc)

After many requests of our customers, we offer a new feature of the bikespeed-RS additionally. The individual customer configuration gives you the opportunity with you selectable personal setting to protect your tuning for discovering.

With your individual key combination, you can decide if the tuning should be displayed its status with an animation above the battery indicator or not. The tuning can be switched on/off at any time, and you can control the behavior (tuning on/off) after on switching your bike.

The configuration options can be found in the shop on our website. There all possibilities are described with many tips and videos.

If you are interested to upgrade your standard bikespeed RS on a custom version, you can feel free to contact us. Simply reply to one of our e-mails (e.g. the order confirmation) or use the contact form on our homepage.

Help in case of problems

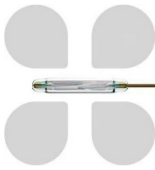
If your bikespeed-RS does not work correctly at any given time, please check the following steps to help yourself.

Should you still have problems please write an email before sending back the bikespeed-RS.

Problem	Solution
<ul style="list-style-type: none">- bicycle does not start or deactivates itself immediately- LED Remote from Bosch flashes orange	<ul style="list-style-type: none">- Please check whether (optional the display) and battery are properly engaged in the bracket.- Please check the 4-pole connector from the tuning to the motor and to the display. Important: The pins are very delicate and bend easily. Therefore, please also check whether they are straight.- Press and hold the On/Off button on the Bosch LED Remote for at least 8 seconds
<ul style="list-style-type: none">- No battery indicator on the LED-Remote, System-Controller or the bikespeed Display	<p>This can occur directly after installation of the bikespeed-RS. After a short time, the System has synchronized again and the problem no longer occurs.</p>
<ul style="list-style-type: none">- bikespeed display blurred, too dark or with "scratches"	<ul style="list-style-type: none">- Please remove the protective film on the display pane
<ul style="list-style-type: none">- bikespeed-RS (c) cannot switched on or off	<ul style="list-style-type: none">- Keep in mind you must switch the stages to enter the combination. Please start in a sufficient high or low stage.

Continue next page.

Help in case of problems (continue)

Problem	Solution
<ul style="list-style-type: none">- no support or rather only briefly when starting up- no speed-indication (0 km/h)- Message “calibrate error” on the bikespeed Display- Message “electro magnet error” on the bikespeed Display- Message “sensor error” on the bikespeed Display	<p><u>Spoke- or brake disc magnet:</u></p> <ul style="list-style-type: none">- Please check the 2-pole connector from the tuning to the motor and to the speed-sensor- Check the magnet on the sensor and align it- Test the sensor by holding another magnet against the sensor and remove it again every second. <p><u>Rim magnet:</u></p> <ul style="list-style-type: none">- Please check the position of the electromagnet on the motor. This must be placed exactly.- It can help to pedal with light pressure immediately when the bike is switched on if the tuning does not automatically calibrate to the bike.- Please check the position of the magnet on the rear wheel relative to the speed sensor. The sensor is most sensitive at the edge or slightly beyond: 

Continue next page.

Help in case of problems (continue)

Problem	Solution
- support only until up to 25 km/h are reached	- Check if the tuning is activated (see chapter "Description of functions " on page 9).

According to our experience a frequent cause for failure is a plug connection that is not plugged in correctly. Therefore, please always check if they are set correctly and plugged in the correct socket. Please insert the connectors so far that the seals are no longer visible. If that is not possible, please apply some Vaseline onto the seals for lubrication. The plugs are coded and only fit in one direction. Please do not use force!

Notes on installation, removal, storage, maintenance, and use

Installation, repair, commissioning, and decommissioning may only be carried out by the manufacturer of the pedelec or an authorized specialist workshop.

During installation, ensure that the ergonomic principle and functionality of the pedelec are not changed or impaired.

The protection class of the bikespeed-RS is IP64. The bikespeed-RS does not require a separate power source. It is supplied with energy from the battery of the pedelec in which the tuning is installed. This battery is charged via the power supply unit provided by the manufacturer of the pedelec.

No maintenance or service is required on the bikespeed-RS. After decommissioning, no special precautions need to be taken to put the product back into operation.

If the product is stored in a dismantled state, this must be done in a dry place between 0 and 40 degrees Celsius and 30 to 70 % relative humidity.

Use in the installed state may only be carried out by specially trained and adult users without physical and physical limitations.

The use is not limited in time but may only take place as long as the physical and mental condition of the user allows to operate the pedelec under full concentration.

Example installation for spoke or brake disc magnet on a Cube Reaction Hybrid EXC 750

The installation and, most importantly, the connection of the bikespeed-RS for bikes with a spoke or brake disc magnet is the same for all currently compatible motor variants. Simply follow the instructions on the following pages.

If you have the version for bicycles with a rim magnet, please continue reading on page 24.

Since we cannot provide detailed installation instructions for every bike available on the market with this motor and display, we have decided to use this example installation. This example will give you an overview of the work to be done and you can transfer it to your bike. If you still have questions, please feel free to contact us at any time.

To get to the necessary connectors for the connection of the bikespeed-RS the gravel deflector of your motor must be removed. Please follow our pictured instruction manual for this procedure.

Required tools:

Allen key (size 4)

The installation may only be carried out by an expert!

All statements without guarantee!

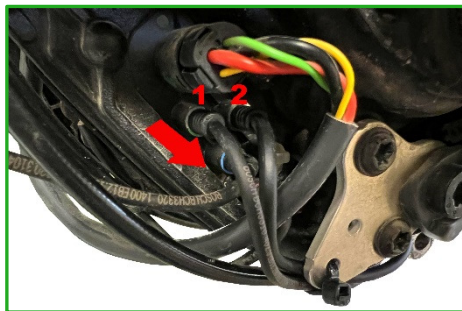
1. Please remove the battery before working on your bicycle!

Loosen and remove the fastening screw (1) of the gravel deflector using a size 4 Allen key. After that you can simply remove the cover downwards.

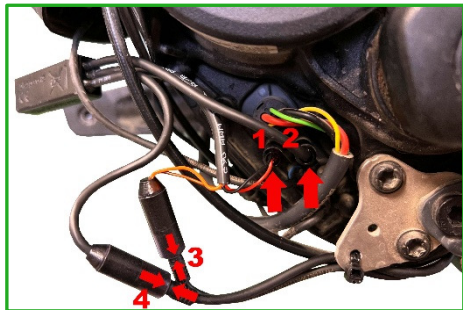


2. Disconnect the connectors for the speed sensor (1) and the display (2).

If you are not sure which ones they are, just follow the cables to the sensor and display or ask us.



3. Connect the two connectors that have just been disconnected with the corresponding sockets on the bikespeed-RS (3 + 4) and then connect the connectors of the bikespeed-RS with the sockets on the bike vacated (1 + 2).



The bikespeed-RS can be seen as a kind of "extension cable" when connected.

Please note that the connectors are coded and only fit into the matching counterparts and only in the correct direction. Please just connect according to the coding and do not use force when connecting the connectors.

It is helpful to shine a flashlight into the connectors to better to better identify the coding.

Important: Please do not rotate the connectors when connecting them. The pins are very thin and could bend or break off in the process!

The original connectors must noticeably engage in the mating parts of the bikespeed-RS. Some force is required for this. However, please do not apply this force until the seal is barely visible and it is therefore ensured that the connector is correctly aligned:



4. You can stow the bikespeed-RS in the frame in the position shown.



5. Then stow away all the cables so that they can once again be accommodated under the gravel deflector. It may be helpful to remove the marked cable tie to obtain more cable length.



6. Replace the gravel deflector and screw it back in place.

Optionally, you can now replace the original Kiox 300 display with the bikespeed display. To remove a display from the holder, you must pull it down slightly and can then remove it from the holder.

Then reinsert the battery and perform a function test.

All statements without guarantee!

Example installation for rim magnet on a CX motor of 4. Generation (BDU37__) on the Stevens E-Inception AM 8.7.1 GTF

If you have the version for bicycles with a spoke or brake disc magnet, please continue reading on page 20. If you have the CX motor of 5. Generation from fall 2024 (BDU38__), please read on page 33. If you have a rim magnet and an Active- or Performance-Line motor, please continue reading on page 43. The manual for SX motors is found on page 53.

Since we cannot provide detailed installation instructions for every bike available on the market with this motor and display, we have decided to use this example installation. This example will give you an overview of the work to be done and you can transfer it to your bike. If you still have questions, please feel free to contact us at any time.

The rim magnet must be removed, and a sensor and new magnet has to be installed. Additionally, an electromagnet is attached to the motor. To get to the necessary connectors the gravel deflector of your motor must be removed. Please follow our pictured instruction manual for this procedure.

Required tools:

Allen key (size 4)
Phillips Screwdriver
Side Cutters

Required accessories (included):

Sensor + Retaining Clip
Magnet
Electromagnet
Clamp Wedge, Cable Ties

- 1.** The installation may only be carried out by an expert!
All statements without guarantee!
Please remove the battery before working on your bicycle!

Remove the rim magnet. It is attached to the valve with a knurled nut.

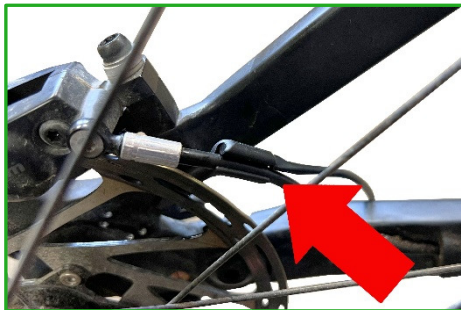


- 2.** Screw the valve back onto the rim with the knurled nut. Please tighten it only slightly by hand.

Keep the rim magnet. If you want to uninstall the tuning again, it will be needed.



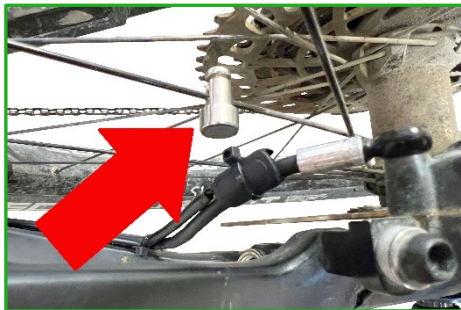
- 3.** Attach the provided sensor to the brake line using the included retaining clip. Position the sensor towards the wheel hub, as far away from the motor as possible. Be careful with the placement to ensure that a spoke of the rear wheel is close to the sensor.



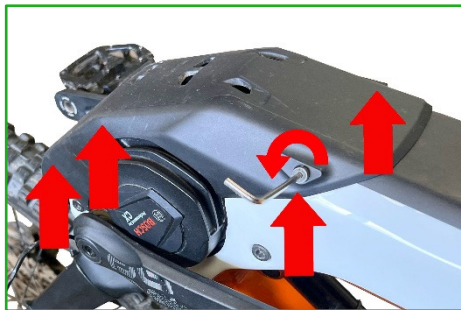
- 4.** Route the sensor cable to the motor and secure it to the frame using cable ties. Ensure that the cable cannot come into contact with moving parts such as spokes, suspension, brakes, crankset, etc. Trim the excess ends of the cable ties with side cutters.



5. Attach the provided magnet at the height of the sensor to a spoke using a Phillips screwdriver. It's best to choose a spoke that passes the magnet as closely as possible to the sensor. You can optionally secure the sensor with another cable tie.



6. Remove the gravel deflector. It is fastened with 4 Allen screws, size 4. It's best to turn the bike upside down for this task. Make sure not to damage any handlebar accessories (e.g., the LED remote). Using spacers under the handlebar grips can be helpful in this regard.



- 7.** The supplied electromagnet must be placed at an exact position on the motor. It is equipped with a groove over the central ridge on the motor and another groove for locking it at the correct height.



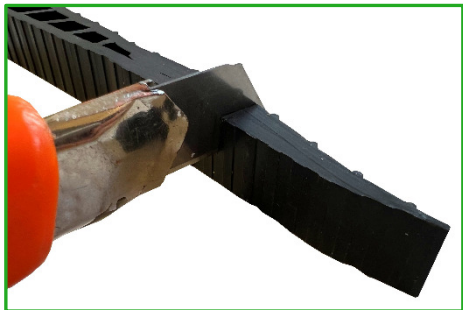
The magnet "snaps" exactly into this position and is then pressed onto the motor using the supplied clamping wedge.



8. The motor does not need to be removed for the installation of the electromagnet. It can easily slide between the frame and the motor. If this is not possible in your case, you will need to remove the screws on the motor and lift it briefly for the installation.



9. Shorten the supplied clamping wedge to a suitable length so that it can be slid into the gap between the electromagnet and the frame without protruding. The magnet must be firmly pressed against the motor in this process.



- 10.** Slide the cut wedge into the gap to secure the electromagnet in place.
If you do not have enough space here, you can also use double-sided adhesive tape for fastening.



- 11.** Disconnect the 4-pin connector to the display from the motor. Both the socket on the motor and the connector are marked with a white stripe.



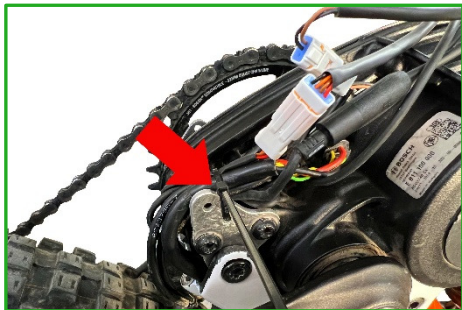
- 12.** Insert the connector of the bikespeed-RS into the freed socket on the motor. Connect the cable to the display into the counterpart on the tuning. The connectors are coded and fit into the correct slot only in one direction. Please do not use force when connecting.



- 13.** Connect the two white connectors of the bikespeed-RS with the sensor routed in steps 3 to 5 and the electromagnet installed in steps 7 to 10.



- 14.** Arrange all cables in such a way that the gravel deflector from step 6 can be reinstalled. Cable ties can be helpful in keeping the cables in position. The position of the bikespeed-RS is shown in the next picture.



- 15.** Mount the gravel deflector from step 6 and tuck the bikespeed-RS underneath at the indicated location. The installation is now complete.

All statements without guarantee!



Example installation for rim magnet on a CX motor of 5. Generation (BDU38__ from fall 2024) on the Cube Reaction ONE 750

If you have the version for bicycles with a spoke or brake disc magnet, please continue reading on page 20. If you have the CX variant of 4. Generation (till fall 2024, BDU37__), read on page 24. If you have an Active- or Performance-Line motor, please continue reading on page 43. The manual for SX motors is found on page 53.

Since we cannot provide detailed installation instructions for every bike available on the market with this motor and display, we have decided to use this example installation. This example will give you an overview of the work to be done and you can transfer it to your bike. If you still have questions, please feel free to contact us at any time.

The rim magnet must be removed, and a sensor and new magnet has to be installed. Additionally, an electromagnet is attached to the motor. To get to the necessary connectors the gravel deflector of your motor must be removed. Please follow our pictured instruction manual for this procedure.

Required tools:

Allen key (size 3), Torx T40
Phillips Screwdriver
Side Cutters

Required accessories (included):

Sensor + Retaining Clip
Magnet
Electromagnet with mounting brackets
Cable Ties

- 1. The installation may only be carried out by an expert!
All statements without guarantee!
Please remove the battery before working on your bicycle!**

Remove the rim magnet. It is attached to the valve with a knurled nut.



- 2.** Screw the valve back onto the rim with the knurled nut. Please tighten it only slightly by hand.

Keep the rim magnet. If you want to uninstall the tuning again, it will be needed.



- 3.** For the next steps, it is easiest to turn the bike upside down. Please ensure that displays and control units may be mounted on the handlebars. You may need to place something under the handlebar grips to create the necessary clearance.

- 4.** Remove the chain from the chainring. To do this, lift it at the point marked by the arrow. You can move the chain tensioner forward to relieve the tension on the chain.



- 5.** Remove the gravel deflector. It is secured with a screw. Loosen this screw using a size 3 Allen key, then remove the screw and the deflector.



6. Disconnect the connectors on the motor. Depending on the bike's configuration, there may be 2 to 5 connectors. These are color-coded, so they can't be reconnected incorrectly later. Then, loosen the 2 motor screws using a T40 Torx and remove the screws.



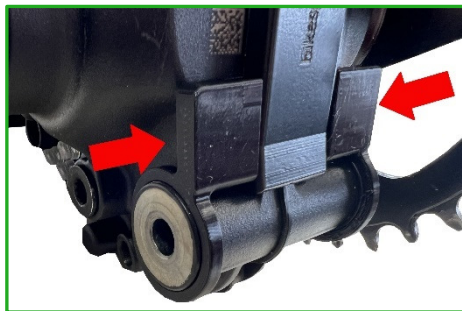
7. **Hint:** On the opposite side, there are lock nuts within the frame that can easily fall out.

Lift the motor out of the frame and place it on a clean, stable surface to attach the electromagnet.

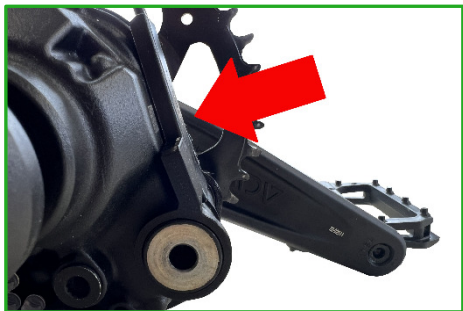
8. The electromagnet is installed on the side of the motor facing the rear wheel. Place the electromagnet with its groove on the central ridge of the motor, positioning it towards the rounded area for the motor screw.



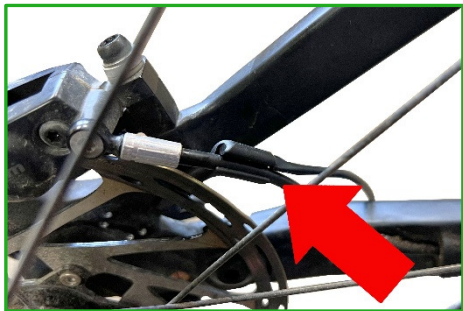
9. Slide the provided brackets for the electromagnet onto the motor and electromagnet from the outside.



- 10.** Ensure that the electromagnet is flat and in full contact with the motor housing. If this is not the case, you can slightly adjust the brackets attached in step 9 by rotating them as needed.



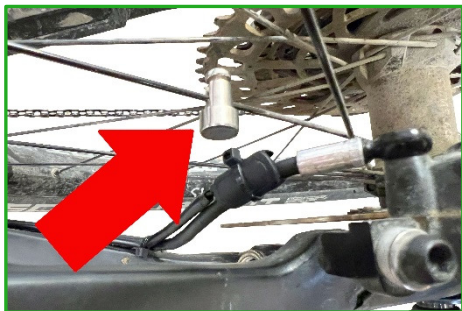
- 11.** Before reinstalling the motor, attach the provided sensor to the brake line using the holding clip. Position the sensor towards the wheel hub, as far away from the motor as possible. Be careful with the placement to ensure that a spoke of the rear wheel is close to the sensor.



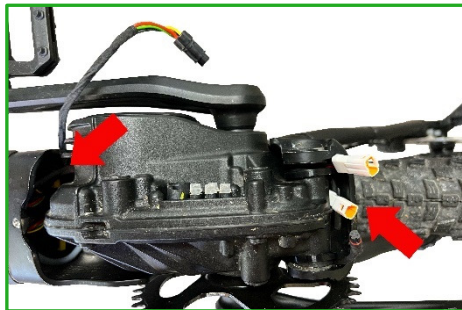
- 12.** Route the sensor cable to the motor and secure it to the frame using cable ties. Ensure that the cable cannot come into contact with moving parts such as spokes, suspension, brakes, crankset, etc. Trim the excess ends of the cable ties with side cutters.



- 13.** Attach the provided magnet at the height of the sensor to a spoke using a Phillips screwdriver. It's best to choose a spoke that passes the magnet as closely as possible to the sensor. You can optionally secure the sensor with another cable tie.



- 14.** Carefully place the motor back into the frame, making sure not to pinch any cables. The connectors should be positioned as shown in the following photo:



- 15.** Connect the 4-pin connector on the bikespeed-RS to the white socket on the motor. Then, connect the cable previously disconnected from this socket to the corresponding counterpart on the tuning device.



- 16.** Connect the two white connectors from the sensor and electromagnet to the corresponding counterparts on the bikespeed-RS.



- 17.** Then connect any additional connectors if they are present on your bike.

Finally, plug the largest connector from the battery back into the motor.

Screw the motor back into the frame with the mounting screws. Make sure the nuts on the opposite side are correctly placed in the frame.

After that, store all the cables and the bikespeed-RS in a way that allows the gravel deflector to be closed again. Cable ties can help keep the cables and tuning in place.

Lastly, attach the gravel deflector, screw it in place, and place the chain back onto the chainring.

Example installation for rim magnet on an Active- or Performance-Line motor on the Victoria Tresalo 7

If you have the version for bicycles with a spoke or brake disc magnet, please continue reading on page 20. If you have a CX motor from 4. Generation (BDU37__), please continue reading on page 24, or for the BDU38__ of the 5. Generation on page 33. The manual for SX motors is found on page 53.

Since we cannot provide detailed installation instructions for every bike available on the market with this motor and display, we have decided to use this example installation. This example will give you an overview of the work to be done and you can transfer it to your bike. If you still have questions, please feel free to contact us at any time.

The rim magnet must be removed, and a sensor and new magnet must be installed. Additionally, an electromagnet is attached to the motor. The motor must be uninstalled for this. Please follow our pictured instruction manual for this procedure.

Required tools:

Allen key (size 4)
Phillips Screwdriver
Crank puller, Spider-Tool
Side Cutters

Required accessories (included):

Sensor + Retaining Clip
Magnet
Electromagnet, Cable Ties

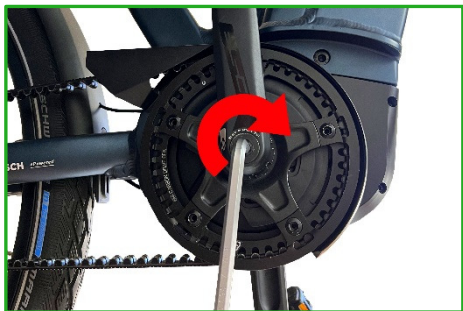
**The installation may only be carried out by an expert!
All statements without guarantee!**

1. Please remove the battery before working on your bicycle!

Remove the rim magnet and install the supplied sensor with the magnet. Follow the procedure outlined in the section on the rim magnet for CX motors, steps 1 to 5. (Starting from page 25).



2. Remove both pedals. To do this, first loosen the fastening nut with a suitable Allen key.



- 3.** Make sure to remove all washers along with the screw.

If a washer remains in the pedal, the thread may be damaged by the crank puller.



- 4.** Screw the crank puller into the pedal until it stops. Then, remove the crank from the motor axle by turning the puller screw clockwise.

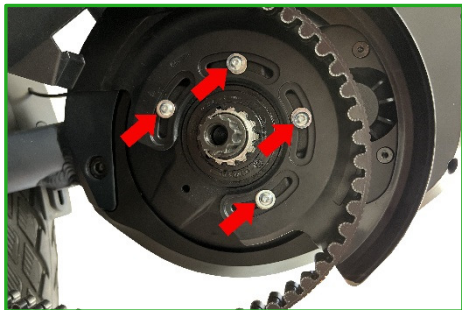


5. Loosen the nut of the belt pulley using a suitable spider tool. It is a left-hand thread.

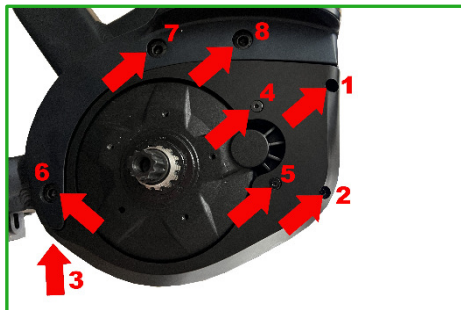
Then, remove the belt pulley from the motor axle using both hands.



6. Loosen the 4 Allen screws of the belt guard and then remove it.



7. Loosen the Allen screws (No. 1 to 5) of the right gravel deflector of the motor. Screw No. 3 is inserted from below. Then, remove the cover. It is still connected at the bottom to the other side with a clip. After that, remove the 3 motor screws (No. 6 to 8).



8. Loosen the 3 Allen screws of the left gravel deflector and remove it. One of the screws is also inserted from below.



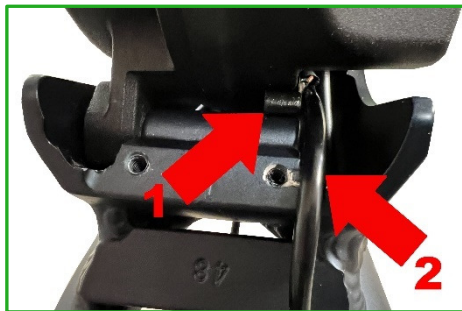
9. Disconnect all connectors to the motor. Afterward, loosen the remaining 2 mounting screws of the motor and remove it from the frame.



10. An electromagnet is placed on the motor. It is attached to the shown round elevation. When the motor is screwed back into the frame, the magnet's holder is automatically secured using the "flag".



- 11.** Place the motor back into the frame. At arrow 1, you see the electromagnet. Arrow 2 indicates the cable of the sensor installed in step 1. Guide this cable, along with the electromagnet cable, between the motor and the frame to the connections on the motor.



- 12.** The bikespeed-RS is placed below the motor within the gravel deflector. Plan this installation location and route all cables, except for the display cable, to the connections on the motor as well.



- 13.** Secure the motor in the frame again with its of 5 screws.
On the following photo, you can see the necessary cable routing.
All cables must be routed between the motor and the frame so
that the covers can be reinstalled later.



- 14.** Connect all connectors back to the motor except for the
one to the display (white-marked). Instead, insert the connector
of the bikespeed-RS into the motor. Also, connect the white
connectors of the sensor and electromagnet with their
counterparts on the bikespeed-RS as shown in the photo above.



- 15.** Connect the still free connector to the display with the corresponding counterpart on the bikespeed-RS. On this photo, you can also see from below where the bikespeed-RS is placed within the cover.



- 16.** Reattach both gravel deflectors. Stow the bikespeed-RS into the position shown in step 12 while doing so.

Then, reinstall the belt guard cover from step 6.

- 17.** Before putting the belt pulley back on the axle, make sure that the O-ring is still on the axle. Ideally, place the belt pulley back on the axle together with the belt. It will be easier to tension the belt later at the rear wheel.



- 18.** Tighten the belt pulley with the spider tool (left-hand thread). Additionally, both pedals can be reinstalled using the fastening nuts on the axle. Some force is required for this.

The belt is placed on the rear wheel belt pulley as much as possible, and then it is completely tensioned by carefully pedaling.

Caution: There is a risk of pinching fingers during this process!

All statements without guarantee!

Example installation for rim magnet on a SX motor with upper mounting (BDU3142 and BDU 3143) on the Cube Editor Hybrid SLX 400X



If you have a SX motor with diagonal mounting (BDU3144 and BDU3145), please read on page 64.

If you have the version for bicycles with a spoke or brake disc magnet, please continue reading on page 20. If you have a rim magnet and a CX motor, please continue reading from page 24 and for the variant for Active- or Performance-Line motor on page 43.

Since we cannot provide detailed installation instructions for every bike available on the market with this motor and display, we have decided to use this example installation. This example will give you an overview of the work to be done and you can transfer it to your bike. If you still have questions, please feel free to contact us at any time.

The rim magnet must be removed, and a sensor and new magnet must be installed. Additionally, an electromagnet is attached to the motor. The motor must be uninstalled for this. Please follow our pictured instruction manual for this procedure.

Required tools:

Allen key (size 4)
Torx T40
Phillips Screwdriver
Side Cutters

Required accessories (included): Sensor + Retaining Clip

Magnet
Electromagnet
Mounting brackets
Cable Ties

**The installation may only be carried out by an expert!
All statements without guarantee!**

1. Please remove the battery before working on your bicycle!

Remove the rim magnet. It is attached to the valve with a knurled nut.



- 2.** Screw the valve back onto the rim with the knurled nut. Please tighten it only slightly by hand.

Keep the rim magnet. If you want to uninstall the tuning again, it will be needed.



- 3.** For the next steps, it is easiest to turn the bike upside down. Please ensure that displays and control units may be mounted on the handlebars. You may need to place something under the handlebar grips to create the necessary clearance.

4. Remove the chain from the chainring. Afterwards remove the gravel deflector at the bottom of the motor. It is secured with a screw. Use an Allen wrench size 4 to loosen the screw, then remove the screw and the cover.



5. Loosen the two motor screws with a Torx T40. Then, remove the screws.

Note: On the opposite side, there are nut inserts in the frame that may fall out easily.



6. Lift the motor out of the frame.

Caution: There are still two or three (depending on your bike configuration) cables connected via connectors. Therefore, carefully lift the motor first and disconnect all the connectors.



7. Place the motor on a clean and stable surface. Then position the electromagnet on the motor. It must be placed on the side of the motor facing the rear wheel. The motor has two ribs that fit precisely into the grooves of the electromagnet.



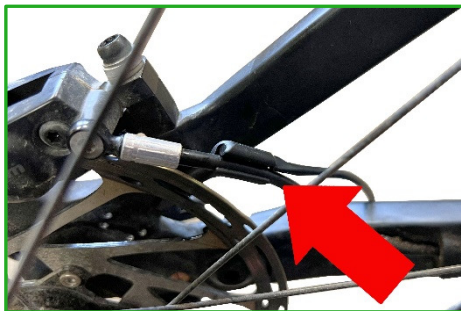
8. Ensure that the electromagnet is flat and in full contact with the motor housing.



9. Secure the electromagnet with the two holders. These are simply slid into place.



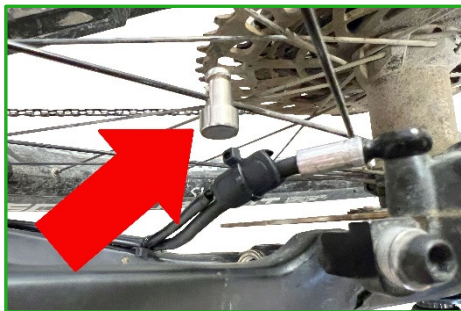
- 10.** Attach the provided sensor to the brake line using the included retaining clip. Position the sensor towards the wheel hub, as far away from the motor as possible. Be careful with the placement to ensure that a spoke of the rear wheel is close to the sensor.



- 11.** Route the sensor cable to the motor and secure it to the frame using cable ties. Ensure that the cable cannot come into contact with moving parts such as spokes, suspension, brakes, crankset, etc. Trim the excess ends of the cable ties with side cutters.



- 12.** Attach the provided magnet at the height of the sensor to a spoke using a Phillips screwdriver. It's best to choose a spoke that passes the magnet as closely as possible to the sensor. You can optionally secure the sensor with another cable tie.



- 13.** Connect the two white connectors of the bikespeed-RS to the sensor and the installed electromagnet, as routed in the previous steps.



- 14.** Connect the 4-pin connector from step 6, which was detached from the display to the corresponding counterpart on the bikespeed-RS.



- 15.** Connect the last remaining free connector of the bikespeed-RS to the motor and reconnect the battery cable. After that, you can place the motor back into the frame.



- 16.** Screw the motor back in place, reattach the gravel deflector, and place the chain back onto the chainring.

Caution: Risk of pinching your fingers!

All statements without guarantee!

Example installation for rim magnet on a SX motor with diagonal mounting (BDU3144 and BDU 3144) on the KTM Macina Race SX LFC



If you have a SX motor with upper mounting (BDU3142 and BDU3143), please read on page 54.

If you have the version for bicycles with a spoke or brake disc magnet, please continue reading on page 20. If you have a rim magnet and a CX motor, please continue reading from page 24 and for the variant for Active- or Performance-Line motor on page 43.

Since we cannot provide detailed installation instructions for every bike available on the market with this motor and display, we have decided to use this example installation. This example will give you an overview of the work to be done and you can transfer it to your bike. If you still have questions, please feel free to contact us at any time.

The rim magnet must be removed, and a sensor and new magnet must be installed. Additionally, an electromagnet is attached to the motor. The motor must be uninstalled for this. Please follow our pictured instruction manual for this procedure.

Required tools:

Torx T20
Torx T40
Phillips Screwdriver
Side Cutters

Required accessories (included): Sensor + Retaining Clip

Magnet
Electromagnet
Mounting bracket
Cable Ties

**The installation may only be carried out by an expert!
All statements without guarantee!**

1. Please remove the battery before working on your bicycle!

Remove the rim magnet. It is attached to the valve with a knurled nut.



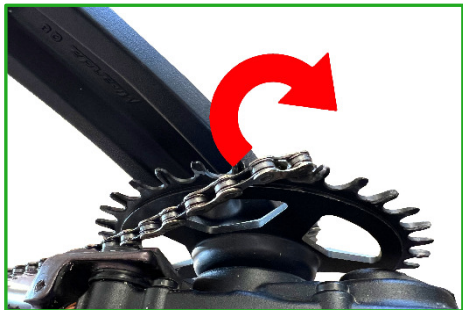
- 2.** Screw the valve back onto the rim with the knurled nut. Please tighten it only slightly by hand.

Keep the rim magnet. If you want to uninstall the tuning again, it will be needed.

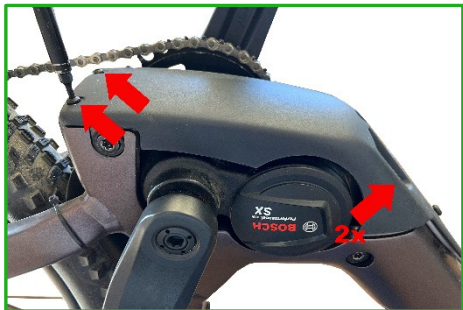


- 3.** For the next steps, it is easiest to turn the bike upside down. Please ensure that displays and control units may be mounted on the handlebars. You may need to place something under the handlebar grips to create the necessary clearance.

4. Remove the chain from the chainring.



5. Loosen the 4 screws of the gravel deflector using a Torx T20. Then, remove the rock gravel deflector.

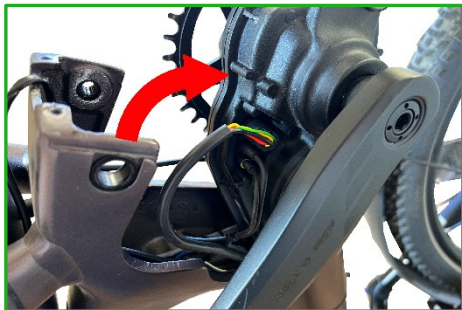


6. Loosen the two motor screws with a Torx T40. Then, remove the screws.

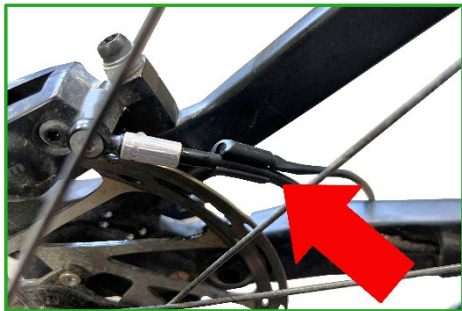
Note: On the opposite side, there are nut inserts in the frame that may fall out easily.



7. Remove the motor from the frame. Be careful, as the motor is connected to cables. It is best to tilt the motor slightly and then disconnect all connectors (up to 3, depending on the equipment of your bike).



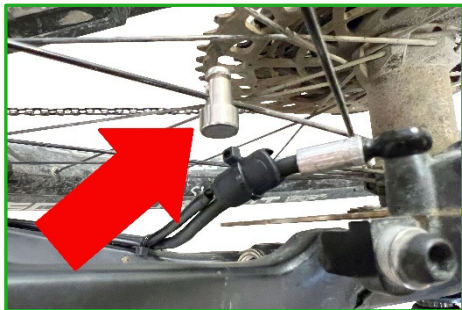
8. Attach the provided magnet at the height of the sensor to a spoke using a Phillips screwdriver. It's best to choose a spoke that passes the magnet as closely as possible to the sensor. You can optionally secure the sensor with another cable tie.



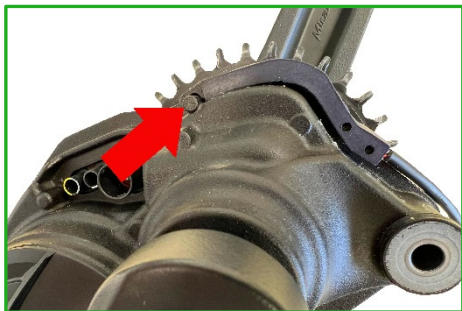
9. Route the sensor cable to the motor and secure it to the frame using cable ties. Ensure that the cable cannot come into contact with moving parts such as spokes, suspension, brakes, crankset, etc. Trim the excess ends of the cable ties with side cutters.



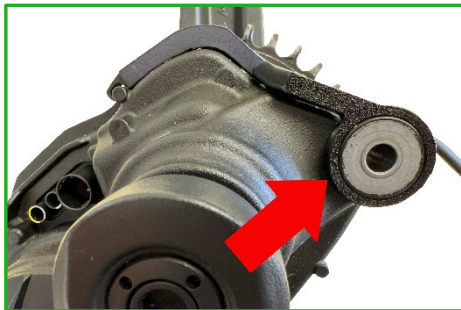
- 10.** Attach the provided magnet at the height of the sensor to a spoke using a Phillips screwdriver. It's best to choose a spoke that passes the magnet as closely as possible to the sensor. You can optionally secure the sensor with another cable tie.



- 11.** Attach the electromagnet to the motor. For orientation: The electromagnet is mounted on the side of the motor that faces the rear wheel when installed. First, "hook" the electromagnet into the shown position. Then, slide it until it reaches the center ridge of the motor.



- 12.** Secure the electromagnet additionally with the supplied bracket using the motor's mounting screw hole.



- 13.** Reinstall the motor in the frame. Connect the two white connectors of the speed sensor and the electromagnet to their corresponding counterparts on the bikespeed-RS.



- 14.** Reconnect the connectors that were disconnected in step 7 to the motor, except for the white-marked one. Connect the connector of the bikespeed-RS to this socket on the motor.



- 15.** The remaining free connector from the white-marked socket of the motor should now be connected to the corresponding counterpart of the bikespeed-RS.



16.

Re-Install the motor in the frame and secure it with the mounting screws.

Reattach the gravel deflector and fasten it with the corresponding screws.

Place the chain back onto the chainring.

Caution: Risk of pinching your fingers!

All statements without guarantee!

bikespeed Display

For technical reasons, it is not possible to display correct values with an original Bosch display or a Bluetooth-connected app. This is only possible with the bikespeed display.

For the correct view of all relevant values during the ride with your bikespeed-RS on the Bosch Smart-System, you can snap the bikespeed-Display onto the original bracket for the Bosch Kiox 300.

If you do not have this bracket on your pedelec, you can easily retrofit it. It is available with the cable outlet at the front (top) or rear (bottom) and for handlebars with a diameter of 31,8 mm and 35 mm. You can find them in our shop or at your bike dealer. You also need a short cable from the display mount to the LED remote if you have one. In the bracket in our shop this cable is included.



Hint: The display is delivered with a protective film on the screen. Please remove it before use.

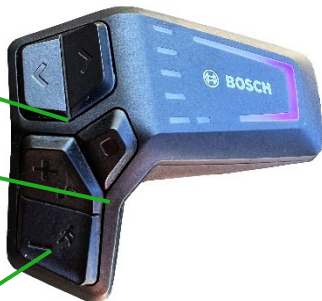
Operation of the bikespeed Display with the LED Remote

The features of the display are operated best with the Bosch LED Remote control unit:

left/right to scroll the different views

The function of this key depends on the current view and the duration of operation. Details on the next pages

up/down to change the motor support and to switch tuning on and off (see page 9, Description of functions)



Operation of the bikespeed Display with the System-Controller and Mini-Remote

If you have a Bosch System Controller, the Display can also be operated with the optional available Mini-Remote. However, there are slight limitations compared to the LED Remote. Operation is not possible with just the System Controller.

When this button is short pressed, the current view or setting is scrolled. With a long press, the current view or setting is selected or confirmed.

"The up/down buttons still change the motor support level and are used to turn the tuning on and off (see page 9, Description of functions).

If you are already in the highest level and press up (or in the lowest level and press down), you can also scroll through the current view or setting.



Operation of the bikespeed Display with the Purion 200 and Purion 400

Operating the bikespeed display is also possible with the Purion 200. Please note that the same limitation applies here as with all other Bosch displays: the Purion 200 will display incorrect data. Therefore, please use only the bikespeed display to read ride data. The operation of the bikespeed display is like the Mini-Remote but slightly limited compared to the LED-Remote.

To operate the bikespeed display with the Purion 200, the mode must be changed. The buttons on the Purion 200 are not only used to control the bike but also for internal menu navigation within the Purion 200, which is why simple operation (such as with the LED-Remote) is not possible without unintentionally changing something on either of the two displays.

Please use the following button sequence via the assist level buttons to switch the operating mode: down, down, down, down, up, up, up, up. If successful, the new setting will be displayed on the bikespeed display. This setting is saved and therefore only needs to be done once.

When Purion 200 mode is active, you can scroll through the current view or setting on the bikespeed display by pressing up again when you are already in the highest assist level (Turbo) or by pressing down again when you are already in the lowest level (Off).

By pressing and holding the left or right buttons, the current setting on the bikespeed display can be selected or activated. If the button is pressed briefly, the corresponding function of the Purion 200 will be executed.

Long Press = Operation of the bikespeed Display

Short Press = Operation of the Purion 200



The up/down buttons change the motor assistance and are used to turn the tuning on and off (see page 9, Description of functions).

If you are already in the highest level and press up further (or in the lowest level and press down further), you can also scroll through the current view or setting.

Hints on the use of the Purion 400

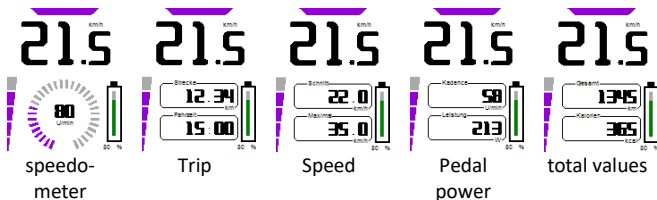
If a Purion 400 is installed, the Purion 200 mode must also be activated to operate the bikespeed display. (see page 76)

However, there are further limitations in operation: Only the views can be switched using the up / down buttons. Accessing the settings menu or resetting the trip distance, etc., is not possible.

Since the Purion 400, like all other Bosch displays, shows incorrect data, we recommend uninstalling it when a bikespeed display is installed.

Views of the bikespeed Display

After switching on your pedelec, a welcome screen is displayed for a few seconds. Then the display automatically switches to the speedometer view. In this view, all relevant data of your ride can be read: current speed, status of the bikespeed-RS (switched on or off), selected motor assistance level, cadence, pedaling power (full circle = 380W) and battery status. By pressing the left/right buttons on your LED remote or the scrolling function described above on the Mini-Remote or Purion 200, you can then choose between the following views:



The important information's are retained in all views. Depending on the view, other values are then added instead of the cadence and pedaling power.

The colored bar at the top of the display shows the status of the bikespeed-RS. If it is in the color of the selected assistance level, the bikespeed-RS is switched on and you have motor assistance above 25 km/h. If this bar is gray, your pedelec behaves as it would without tuning. If the bar is yellow, the tuning is in anti-tamper protection mode. (see page 13).

bikespeed Display Trip view

In the trip view, you can see the distance traveled and the travel time of your current ride.

If you hold down the function key on the LED-Remote or Mini-Remote for approx. 2 seconds (or the left/right buttons on the Purion 200) in this view, you can reset the trip meter. There is still a query which can be confirmed by briefly pressing the function key on the LED-Remote or a long press on the Mini-Remote or long press on left/right on the Purion 200 again. You can cancel the reset by scrolling the view.

The trip meter also includes values such as average speed, average cadence, average pedaling power, and calories. These values are also reset when the trip meter is reset.

bikespeed Display Speed view

The speed view shows the average speed of the current trip and the maximum speed ever driven. (Independent of the current tour) To reset the average speed, please refer to the trip view chapter.

If you hold down the function key for approx. 2 seconds on the LED-Remote or Mini-Remote or the left/right button on the Purion 200 in this view, you can reset the maximum speed. There is still a query which can be confirmed by briefly pressing the function key on the LED-Remote or a long press on the Mini-Remote or long press on left/right on the Purion 200 again. You can cancel the reset by scrolling the view.

bikespeed Display Pedal Power view

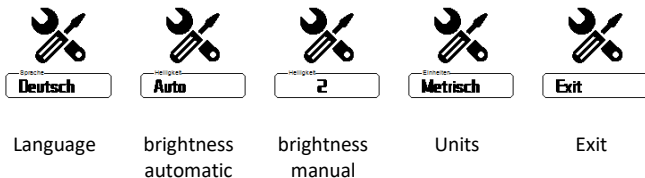
The power values show the average value for cadence and pedaling power. These values can be reset by resetting the Trip view.

bikespeed Display total values view

This view displays the total odometer of the pedelec as well as the calories consumed during the trip meter period. The calories can be reset by resetting the Trip view.

bikespeed Display Setup view

If the function key is pressed and held for approx. 2 seconds on the LED-Remote or Mini-Remote or the left/right button on the Purion 200 in the speedometer view, a settings menu is shown:



The left/right keys on the LED-Remote, or the scrolling function describe above on the Mini-Remote or Purion 200 can be used to scroll through the different setting options. A short press on the function key on the LED-Remote changes the setting. With the Mini-Remote, this is done by a long press of the function key or the left/right button on the Purion 200. The following setting options are available:

Language	German, English, Dutch, French, Spanish and Italian
brightness	automatic, Level 1, Level 2, Level 3
Units	Metrisch, Imperial
Software Support	The installed software in Display and tuning shows an QR-Code with debug information's

When the automatic brightness is selected, it is controlled via a built-in light sensor. In dark environments, the illumination is dimmed to avoid glare, and in bright environments, the illumination is increased to achieve better readability.

Care of the bikespeed Display

The bikespeed display can be wiped with a damp, synthetic microfiber cloth without any chemical additives. If the screen is more heavily soiled, clean it as follows:

- Moisten a synthetic microfiber cloth without chemical additives with a solution of 30% IPA (isopropanol) and 70% distilled water.
- Clean the surface by wiping from the center outward to the corners (damp).
- Immediately polish with a dry cloth.
- Use circular motions from the center outward. This should completely remove any remaining streaks and spots.
- Repeat the procedure, damp wiping and dry polishing, if necessary.
- Do not wash the cloths with fabric softener or detergent.
- Do not polish the surface with abrasive additives (glass/ceramic cleaners).
- Do not use standard kitchen towels/wipes, as they can cause scratches.
- We recommend non-woven polishing cloths similar to Katrin 45591 or ABSOMAT.
- Do not use "miracle" products that promise to improve surface quality (e.g., silicone sprays and lotus effect sprays).

Hint for disposal

Electric and electronic devices that have become waste are called old devices. Owners of such old devices must bring these to recycling facilities, where these are handled and recorded separately from urban solid waste. Old devices must not end up in the household refuse. In fact, they must be collected in special collecting and recycling systems.

Owners of old devices from private households can dispose these at the public waste disposal authorities or bring them to producer or seller related disposal locations. You can find these disposal locations online:

<https://www.ear-system.de/ear-verzeichnis/sammel-und-ruecknahmestellen.jsf>

The labelled symbol showing the „crossed out waste container“ on electric and electronic equipment indicates that the concerning equipment has to be disposed separately from urban solid waste.



As a producer in terms of the German ElektroG we are registered with the German registration authority Stiftung Elektro-Altgeräte-Register (Benno-Strauß-Str. 1, 90763 Fürth), having been granted the following WEEE registration number: **DE 87104747**

As well at the Elektro Recycling Austria (ERA) GmbH with contract number: **40624**

EG Konformitätserklärung / EU Declaration of Conformity

Wir, die Firma

We, the company

bikespeed GmbH

Huberstr. 17

97084 Würzburg

erklären in eigener Verantwortung, dass das weiter unten aufgeführte Produkt

declare under our sole responsibility that the following product

Geräteart / Type of Product:

Tuningkit

Modell

bikespeed-RS

weitere Angaben

für Bosch Motoren

die grundlegenden Anforderungen der aufgeführten EU-Richtlinien erfüllt:

2014/30/EU

Richtlinie über die elektromagnetische
Verträglichkeit

2011/65/EU

Richtlinie zur Beschränkung bestimmter
gefährlicher Stoffe in Elektro- und Elektronikgeräten

2006/42/EG

Maschinenrichtlinie

meets the essential requirements of the following EU-Directives:

2014/30/EU	Directive on Electromagnetic Compatibility
2011/65/EU	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment
2006/42/EC	Machinery directive

angewandte Standards und Verordnungen / applied standards and regulations:

EN 15194:2017
EN 12100:2011
EN 62321:2009
EN 61000-3-2:2014
EN 61000-3-3:2013

Bevollmächtigter zur Zusammenstellung der technischen Unterlagen:

Authorized person for technical documentation:

Name/Name, Position:

Matthias Braun, CEO

Würzburg,

01.05.2014



Datum / Date

Unterschrift / Signature