

**Instructions for the installation and description  
of the functions for TQ HPR120S mid-motor  
design on Haibike Flyon bikes**



## Note about this printed manual

Congratulations on the purchase of your bikespeed-RS. 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 Haibike Flyon bikes with TQ HPR 120S drives. The installation is completely invisible.

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.

In contrast to other commercial tuning kits for pedelecs the bikespeed-RS displays the "real" speed on the tachometer instead of the half value. The data of the cycled distance, average/maximum speed, calculated range, ... are usable without any limitations. The levels of support as well as any special profile will be certainly maintained. Light activation is also

unnecessary, and you can use the tuning if you have an additional lighting system powered by the battery.

The tuning makes the final speed void, 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 and consequently they can be removed without any traces.

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

The tuning will adapt to your pedelec when it is activated. During this process the drive, the display and the size of the tires will be recognized automatically. The tuning is thus universally applicable, and you don't have to adjust anything.

## 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:

- TQ HPR 120 motors from year 2019 up to 2022
- Haibike HMI & System Control from year 2019 up to 2022

## 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 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.

After activating your pedelec the display will show an animation of the battery's capacity. If the capacity runs from empty (1 bar) to full (10 bars) your pedelec will support you with motor power even if you exceed 25 km/h. If the capacity runs from full to empty the support will end at 25 km/h.

To switch on or off the support above 25 km/h please change the level of support down, up, down and up again. If the procedure was successful, you will see the animation of the battery's capacity once more just like when you activate your pedelec and this way you are informed about the current setting.

Here is an example beginning on the "mid" level":

Pushbutton down (new level: "low")

Pushbutton up (new level: "mid")

Pushbutton down (new level: "low")

Pushbutton up (new level: "mid")

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 of 3 seconds between two keys. Repeat the procedure, if necessary, to obtain the desired setting.

Furthermore, please note that you must switch the stages to enter the combination. For example, you cannot enter a combination that starts with the "down" key from the "off" level (or a combination that starts with the "up" key from the highest level). If the combination consists of several keys in one direction, you must therefore start the input at a sufficiently low or sufficiently high level.

**Hint:** A switched off bikespeed-RS cannot be switched on with the combination for service-mode (see on page 12)!

## Hint for the odometer

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

Please note this primarily when selling your bike.

## Hint to Haibike eConnect

In the Haibike eConnect app and also in the web portal, not all values of recorded routes are display correctly if a bikespeed-RS is installed.

## 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 TQ- or Haibike-system with a customer service, **please first have a look on bikespeed** and check on our website [www.bikespeed.de](http://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 TQ- or Haibike-system you must uninstall the bikespeed-RS. Alternatively, there is the service mode on the bikespeed-RS that needs to be activated at your retailer.

Therefore, change the level of support 3x down and then 3x up. Please enter the combination continuous without a pause longer than 3 seconds between two keys. Begin on the highest level. In case of success the entire battery index will blink 3x and meanwhile the software version of the bikespeed-RS will be shown on the speed indicator. Now the tuning is in service mode and maintenance as well as software updating can be executed.

Please note that the software version as just described is only displayed correctly if you have set the display in metric units and therefore km/h.

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

This state is maintained even after deactivating the system. That is why there will not be an animation of the battery's capacity informing about the state of the tuning.

For the deactivation of the service-mode please use the same key-combination as for the activation or the combination you chose for activating and deactivating the tuning. Please keep in mind that in service-mode the support of the drive ends at 25 km/h.

### **Hints:**

- If you are not sure, whether the service-mode is activated, please uninstall the bikespeed-RS before you update!
- Please activate the service-mode only for updates on your pedelec!
- A switched off bikespeed-RS cannot be switched on again with the combination for service-mode!

After activating the service mode, we recommend switching off the bike without moving it again. If a speed is displayed it could change the trip, avg- or max-speed.

## 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.

## Help in case of problems

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

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

<b>Problem</b>	<b>Solution</b>
- bicycle does not start or deactivates itself immediately	- Please check whether the battery is properly engaged in the bracket. - Please check the 5-pole connector from the tuning to the motor and to the display.
- no animation visible when starting the bicycle	- Please check if the service-mode is activated as by entering the combination. - Check the 2-pole connector from the tuning to the motor.
- no support or rather only briefly when starting - no speed-indication (0 km/h)	- Please check the 2-pole connector from the tuning to the motor and to the speed-sensor
- support only until up to 25 km/h are reached - miles are missing	- Check if the tuning is activated and service-mode is off.

Continue next page.

## Help in case of problems (continue)

<ul style="list-style-type: none"><li>- bikespeed-RS (c) cannot switched on or off</li></ul>	<ul style="list-style-type: none"><li>- Keep in mind you have to switch the stages to enter the combination.</li><li>- Please start in a sufficient high or low stage.</li><li>- Please enter the combination continuous with a pause from one to three seconds between two keystrokes.</li></ul>
<ul style="list-style-type: none"><li>- The bike is not activated by pushing it</li></ul>	This feature is not available with installed bikespeed-RS or -RSc.

In our experience, the cause for problems most often are connectors which are not correctly plugged in. Therefore, please always check if they are set correctly and plugged in the correct socket. Please insert the connectors as far as you cannot see the seals anymore. If that is not possible, please apply some Vaseline onto the seals for greasing. 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 on a Haibike Flyon ADVENTR 5.0 (2019)

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 installation example. 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 access the connectors for connecting the bikespeed RS, the motor must be removed, and cables pulled through the frame. Please follow the instructions on the following pages.

Required tools:

- Allen key size 4
- Torx T30 or T40
- Underlay blocks for the handlebars  
(e. g. 2 squared timbers 10 x 10 cm)

**The installation may only be carried out by an expert!**

**All statements without guarantee!**

1. For the installation of the bikespeed-RS, it is best to turn the bike upside down. Please place under the handlebar grips spacer blocks before, so that the bike does not rest on the display, the brake or shift levers. In our example we use squared timbers measuring 10 x 10 cm.



2. First you have to remove the battery. Turn the bike upside down. It is best to have a second person help you to avoid damage to the display or the levers. Then open the battery cover according to the instructions on the clip fastener marked with the arrow.



- 3.** Open the lock of the battery, remove the lock cover and pull the battery out of the frame.



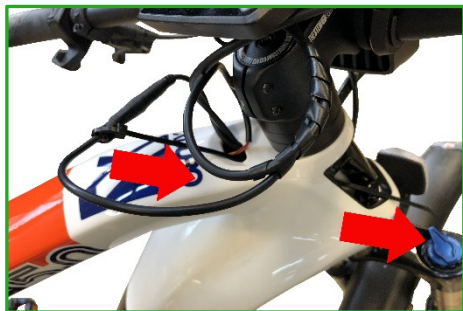
- 4.** Remove the cover of the cable inlet cover in front of the frame of the handlebar. Depending on the model, this is fixed with a screw or simply pushed in.



5. Remove the cover of the cable inlet cover for the cables of the display (1) on the top tube. Then locate the round black 5-pin connector to the display (2) in the top tube and pull it out of the opening. Then attach the supplied cable tie (3) as a retraction feeder help aid.



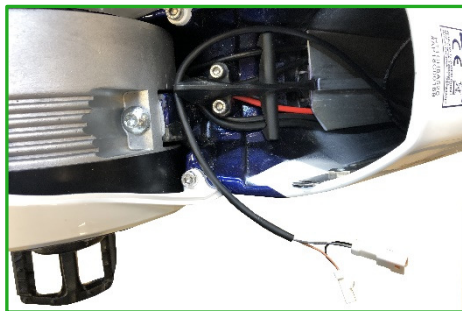
6. Thread the cable tie through the two cable openings opened in steps 4 and 5, and then pull it forward along with the connector.



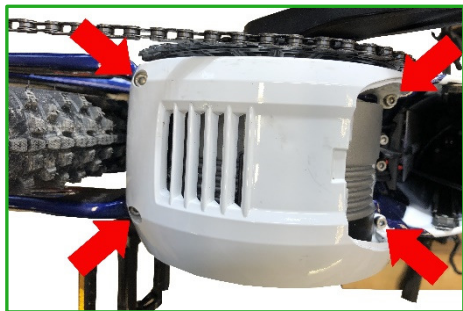
- 7.** When the plug connection to the display is pulled out of the front opening, disconnect it and connect the bikespeed RS to the corresponding counterparts. The cable tie can be removed afterwards.



- 8.** Pass the longer cable of the bikespeed-RS through the battery compartment down to the motor. Be careful not to pull too hard on the white connectors to prevent them from tearing off. Please lead the cable through the large opening. Then it can be pushed behind the retaining plate.



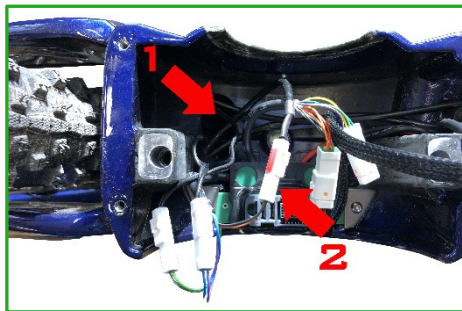
- 9.** Loosen the 4 screws of the motor cover with a size 4 Allen key. Then remove the cover and set it aside. Please note that the radio module is installed in the cover and connected to the bike with a cable.



- 10.** Take the chain off the front chainring. Then loosen the two motor screws with a Torx T30 or T40 (depending on your model) and lift the motor vertically up out of the bike.



- 11.** Carefully pull all connectors out of the opening (1) and look for the 2-pin white connector to the speed sensor. Caution: There may be 2 more of these connectors to the lights.

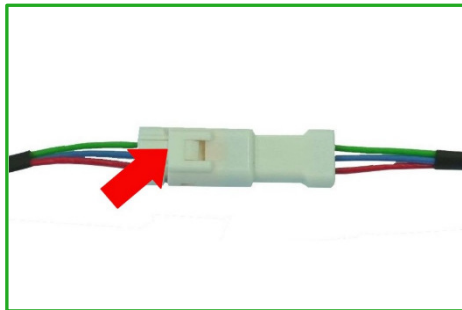


The cables to the lights usually have the core colors green and grey as well as blue and violet. After the connector, these change into a kind of black 2-pin speaker wire and go to the lamps. These two connectors are not required for the installation of bikespeed-RS.

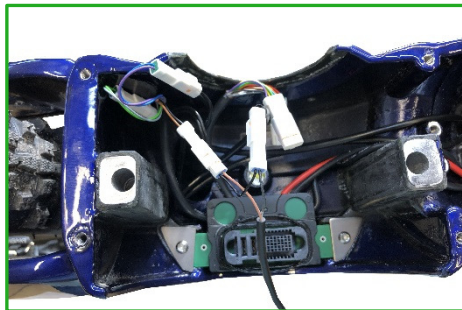
The speed sensor connector is usually marked in red and has black and brown colored wires colors. After the connector, the cable changes to a round black one.



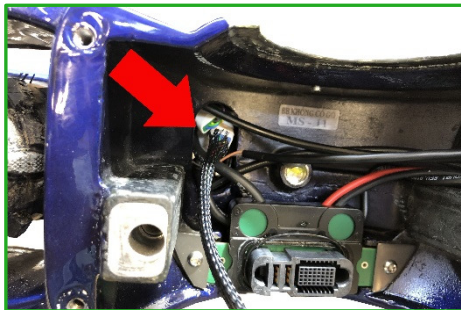
- 12.** Disconnect the just determined 2-pin connector for the speed sensor. To do this, press with a thin slotted screwdriver or with your fingernail on the unlocking part marked with the red arrow and pull the connectors apart.



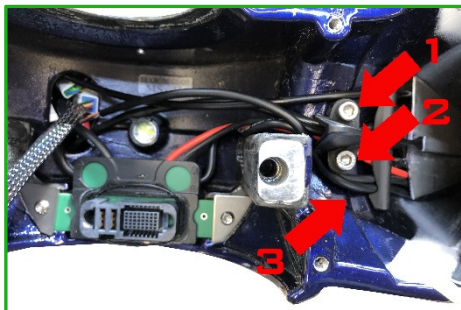
- 13.** Connect the just disconnected connectors to their corresponding counterparts of the long bikespeed RS cable.



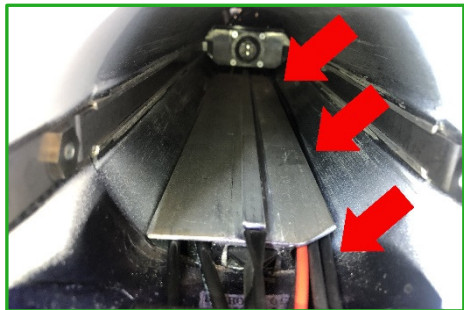
- 14.** Carefully stow all connectors into the hole marked with the red arrow shown in the image below.



- 15.** Loosen the two fixing screws of the cable holder (1 + 2) with a size 4 Allen key. Then insert the additional cable of the bikespeed-RS under the cable holder (3) and tighten it again.



- 16.** Guide the cable of the bikespeed-RS behind the shielding plate of the battery upwards. Make sure that the cable will not be in the way when inserting the battery.



- 17.** Store the bikespeed RS with all connectors and cables in the opening shown. The installation is complete, and the bike must be reassembled in reverse order. You can use the following bullet list for this.



To re-assemble the wheel, proceed in the following order:

- Place the engine vertically. Please be careful and do not use force to avoid bending the pins of the motor connector. Make sure the seal on the connector is correctly inserted (see photo below)
- Tighten the motor with the two Torx T30 screws.
- Place the chain on the front chainring.
- Place the motor cover and screw tighten with the 4 Allen screws.
- Push the battery into the frame tube and fix it with the lock cover and lock it.
- Close the battery cover and lock it in place.
- Mount back the two removed the cable inlet covers on the display and on the front of the frame.

**All statements without guarantee!**



## 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 TQ 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



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**Datum / Date**

**Unterschrift / Signature**