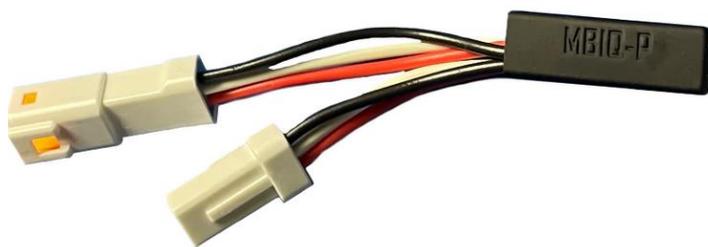




Operating instructions



MBIQ-P / MBIQ-S

Compatible with:

- Yamaha PW-...
- AEG (e.g. SportsDrive)
- Giant SyncDrive
- Bafang (Mxxx)

As of 11/2022

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1 Important safety instructions

Use the replaceable "tuning module" only for the purpose described in this manual. Otherwise, you may endanger yourself or damage parts of your e-bike.

You endanger yourself and others if you install or operate the replaceable equipment incorrectly, or if you fail to follow the safety instructions or warnings. Serious injury or significant property damage may result.

1.1 Signal words used

All safety and warning information in this manual has been clearly highlighted. The following symbols and signal words are used for warnings.

WARNING

Warns you of hazards that could result in death or serious injury if you ignore these instructions.

CAUTION

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

DANGER

Warns you of situations that may result in property damage and malfunctions during use if you do not follow these instructions.

IMPORTANT **for your safety**

Indicates safety-relevant descriptions and instructions.

1.2 Signs and symbols used

Mandatory symbols used in this operating manual:



Observe operating instructions



Wear protective goggles



Wear protective gloves

Other symbols used in this manual:



Tip

Reference to useful information when handling the interchangeable equipment.



Cross-references

Cross-references in this operating manual or references to other applicable documents are marked with this symbol or in italics.



Request to make entries

This symbol is always used when the operator or the user is asked to enter or document the results obtained in the operating instructions.

► **Call to action**

Individual requests for action, e.g. in safety and warning instructions, are marked with this symbol.

- a) **Action step**
- b) **Action step**
- c) ...

Step-by-step instructions are listed in lowercase letters according to the order of action.

✓ **Intermediate or final result of an action or series of actions**

The information makes it easier to determine whether the step-by-step procedure has been successfully completed.

■ **Bullets**

indicate lists in descriptive and instructive parts of the operating instructions.

2 Comply with the requirements for safe use

To use the tuning module in your Pedelec mountain bike safely, it is essential that you first read and understand this manual completely.

This operating manual

- informs you about the intended use,
- the installation and usage requirements,
- important restrictions on use,
- Obligations of the owner and the user,
- Warranty and liability conditions and
- guides you step by step to correct installation and safe use and
- warns you of potentially unsafe or dangerous situations and uses with conspicuous safety and warning notices.

IMPORTANT

Know and observe all contents of the operating instructions

- ▶ Please take the time to read this manual carefully before you begin installing the tuning module.
- ▶ Keep this manual in a safe place yet within easy reach so that you can access the important and safety-relevant information for use at any time, even after installation.
- ▶ Please also make this manual available to any other person who is permitted to ride your tuned Pedelec mountain bike.
- ▶ Ensure that every person who is permitted to ride your tuned Pedelec mountain bike has read and understood this manual before each use.
- ▶ Before you allow other people to use your tuned Pedelec mountain bike, instruct the user in the safe use of the tuned Pedelec mountain bike using this manual.
- ▶ Be sure to pass this manual on to the future owner if you ever want to sell the tuning module or your tuned Pedelec mountain bike.

2.1 Know the intended use

The tuning module shifts the switch-off threshold of the motor support of your Pedelec mountain bike.

By installing the tuning module, higher speeds can be achieved with electric motor support.

However, proper use also includes strict compliance with all of the following

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

Intended use of the “interchangeable equipment”

According to European Union product regulations, the tuning module is placed on the market as “interchangeable equipment” within the meaning of Directive 2006/42/EC on machinery, Article 2 b).

Know the meaning

The tuned Pedelec mountain bike remains even after the installation of the Tuning modules within the scope of the European Machinery Directive. Provided the intended use is strictly observed, a “non-essential modification” of the “machine” can be assumed.

This means that the applicable safety requirements of the Pedelec mountain bike “machine” were examined by the manufacturer of the tuning module within a risk assessment and were assessed as still being complied with even with the use of the tuning module.

Safety and protective devices

The safety and protective features of the Pedelec mountain bike remain unaffected by the installation of the tuning module.

2.2 Know and comply with usage restrictions

IMPORTANT Strictly adhere to usage restrictions

Installing the tuning module in your Pedelec mountain bike is subject to restrictions on use.

The “machine” of the electric-assisted bicycle is being modified. While there is no increase in performance, the achievable speed of more than 25 km/h means that

- the use on public roads or public paths is no longer permitted,
- the use without appropriate protective clothing and helmet can release accident insurance companies from their obligation to pay benefits after a fall resulting in injuries,
- the permitted group of users, taking into account physical and mental suitability, must be further restricted by the owner of the vehicle before the Pedelec mountain bike is handed over to other persons,
- the owner of the tuned Pedelec must always prevent misuse and abuse, even by other persons, and
- necessary maintenance and inspection intervals according to the original manufacturer's specifications and usual or manufacturer-specified battery charging cycles can be significantly shortened.
- Due to the operating principle, the displayed speed may not correspond to the actual speed when driving at speeds greater than 25 km/h. Therefore, the total mileage displayed by your system will not correspond to the actual distance traveled when driving above this speed. Diagnostics/calculated values based on this will follow accordingly!

2.2.1 Do not use in public areas

Pedelecs for use on public roads or public paths with a permitted speed of > 25 km/h are subject in Europe to Regulation 168/2013/EU, the Vehicle Regulation.

Further approval requirements in non-European countries may apply.

Purchasing the tuning module does not grant any approval for operation in public areas. Therefore, participation in public road traffic and driving on public roads is prohibited after installing the tuning module.

This also applies despite the "non-significant change" to the "machine" Pedelec mountain bike recognized by the tuning module manufacturer when used as intended.

IMPORTANT

Prevent misuse and abuse

Due to the higher speeds with electric motor support, you lose the permission to use the tuned Pedelec on public roads or public paths without further legal authorization.

2.2.2 Use only with protective clothing and helmet

After installing the tuning module, a Pedelec mountain bike can reach speeds of up to 45 km/h with electric motor support.



WARNING

Reduce increased risk of accidents

Reaching such speeds increases the risk of a fall even with suitable vehicle strength and design.

Using the tuned Pedelec mountain bike without appropriate protective clothing and a helmet can release accident insurance companies from their obligation to pay benefits in the event of a fall resulting in injuries.

- ▶ Always wear suitable protective clothing and a helmet while using your tuned Pedelec mountain bike to protect yourself from increased risk of accidents.
- ▶ Insist that every user of your tuned Pedelec mountain bike always wears suitable protective clothing and a helmet while using it.

2.2.3 Restrict user group

After installing the tuning module, a Pedelec mountain bike can reach speeds of up to 45 km/h with electric motor support. Reaching such speeds may result in the permissible group of users determined by the pedelec manufacturer having to be further restricted. Such a restriction must be determined by the owner of the tuned Pedelec, taking into account the physical and mental suitability of the persons to whom the tuned Pedelec is made available for use.

IMPORTANT

Also consider the terrain to be driven on

An important factor in determining the permitted users should also be the consideration of the terrain to be traveled.

- ▶ Clearly state permission for use before handing it over to other people.
- ▶ Always lock your tuned Pedelec mountain bike when you park it.

This will prevent misuse and abuse by other people.

2.2.4 Prevent abuse and misuse

IMPORTANT

Use on public roads constitutes misuse

Due to the higher speeds with electric motor support, you lose the permission to use the tuned Pedelec on public roads or public paths without further legal authorization.

- ▶ Only use your tuned Pedelec mountain bike on private, secured property or race tracks.
- ▶ Never drive on public roads or areas that you have not previously been able to safely block off entry by other people.
- ▶ Also prevent anyone else from using your tuned Pedelec mountain bike on public roads or public paths.
- ▶ Always lock your tuned Pedelec mountain bike when you park it.

This will prevent misuse and abuse, even by other people.

2.2.5 Observe shortened maintenance and inspection intervals

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

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

IMPORTANT

Define and implement shortened inspection and maintenance cycles

Shortened inspection and maintenance cycles must be determined independently by the owner of the tuned pedelec, taking into account the conditions of use.

- ▶ Before each use of your tuned Pedelec mountain bike, carry out a thorough inspection of the vehicle.
- ▶ Be sure to check the condition and function
 - the brakes and their functional components,
 - of the vehicle frame,
 - the steering and its functional components,
 - of the drive and its functional components as well as
 - of the saddle and its functional components.
- ▶ Please also observe all inspections not listed here that are prescribed by the manufacturer of your e-bike before each use. This list does not replace the e-bike manufacturer's original operating instructions.
- ▶ Specify further inspection and maintenance cycles according to the manufacturer's instructions for your Pedelec mountain bike.
- ▶ Shorten these according to your operating conditions.
- ▶ If necessary, coordinate this with your specialist company that will carry out the inspection and maintenance work.

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

2.2.6 Note shortened battery charging cycles

The "machine" of the electric-assisted bicycle is being modified. While there is no increase in performance, the achievable speed of more than 25 km/h means that the maximum possible power is drawn from the battery regularly and over extended periods.

This will result in the available battery capacity being discharged earlier than you are used to with your Pedelec or than the manufacturer of the Pedelec mountain bike has specified in the operating instructions.

- ▶ Please take this into account when planning your trips.

2.3 Know and comply with installation requirements

Meet requirements regarding strength and design as well as the drive system

For safe use of the tuning module in your Pedelec mountain bike, your vehicle must also meet certain requirements.

City or tracking bikes are generally not equippable

City or tracking bikes often do not meet the requirements for strength and construction, or the requirements cannot be checked due to a lack of manufacturer information.

IMPORTANT

Prevent abuse and misuse

Furthermore, it cannot be assumed that tuned city or trekking bikes are actually only used on private, secured properties or race tracks.

Abuse and misuse contrary to the provisions under point 2. The intended use and restrictions mentioned would be feared.

For these reasons, the installation of the tuning module is only permitted for Pedelec mountain bikes that demonstrably meet the following requirements according to their manufacturer's specifications.

2.3.1 Check and confirm strength and design requirements

Requirements for strength and design are regulated by EN 15194 and EN ISO 4210-2 and must be confirmed as applied by the manufacturer of your Pedelec mountain bike.

WARNING

Prevent increased accident risks due to insufficient strength

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

Increased accident risks due to part breakage and failure of the entire vehicle can only be largely ruled out for vehicles that are demonstrably designed and built in accordance with both product standards.

- ▶ Check the EC declaration of conformity from the manufacturer of your Pedelec mountain bike.
- ▶ Only install the tuning module in your Pedelec mountain bike if the manufacturer of your Pedelec mountain bike states that the two product standards EN 15194 and EN ISO 4210-2 are applied.

This ensures that the necessary requirements for strength and construction are met.



Normative requirements met?

- ▶ Before installation, confirm the references in the EC Declaration of Conformity of the manufacturer of your Pedelec mountain bike:
 - Does the EC declaration of conformity demonstrably apply to the vehicle to be equipped?
 - EN 15194 mentioned in the declaration of conformity?
 - EN ISO 4210-2 mentioned in the declaration of conformity?
- ✓ Only if both standards are mentioned as being applied can it be assumed that the requirements for strength and design are met.
 - ▶ Never use the tuning module in vehicles for which you cannot clearly determine these requirements and prove them with the EC declaration of conformity from the Pedelec manufacturer.

2.3.2 Check and confirm drive system requirements

DANGER
Prevent damage and malfunctions

The tuning module is designed for specific drive systems. Use in vehicles with unsuitable drive systems will result in malfunctions or damage to the pedelec or the tuning module.

- ▶ Check the equipment of your Pedelec mountain bike.
- ▶ Only install the tuning module in your Pedelec mountain bike if you can determine that your Pedelec equipment is compatible with the drive systems listed below.

Drive system:	Remark:
Yamaha – PW- SE / -ST / -TE / -X / -X2	
Giant - SyncDrive	
AEG – e.g. Silent Drive	Checking the connector is necessary!
Bafang - Mxxx	Checking the connector is necessary!


Requirements for the drive system and display met?

- ▶ Confirm the equipment of your Pedelec mountain bike before installation.

The Pedelec mountain bike to be equipped is equipped with a

- the above-mentioned drive systems and
- equipped with the above-mentioned display type suitable for the drive system?

- ✓ Only if you can confirm both requirements can you assume that the application will work and be safe.
 - ▶ Never use the tuning module in vehicles for which you cannot clearly determine and prove that both requirements are met.

This manual describes four products for use with the described drive system. The MBIQ-P module can be used regardless of the speed sensor used in the system. When selecting a sensor solution, it is important to check which type is installed beforehand.

- ▶ Use the illustrations to check which sensor type you are using.

Tuning:	Variant:	Picture:	Description:
MBIQ-P	3-pin (JST)		Module for integration into the current path of the existing speed sensor.
MBIQ-S	3-pin (JST)		Is installed instead of the existing speed sensor and mounted in the same way.

MBIQ-S	4-pin (JST)		Is installed instead of the existing speed sensor and mounted in the same way.
MBIQ-S	4-pin (HIGO)		Is installed instead of the existing speed sensor and mounted in the same way.

2.4 Owner's obligation

Each user must be instructed by the owner of the tuned Pedelec mountain bike using this manual and be informed about the special restrictions of use and increased risks due to the increased speed.

The owner of the tuned Pedelec mountain bike ensures that

- all requirements for safe use
- and for the intended use and
- This operating manual is always readily available to every user.

The owner of the tuned Pedelec mountain bike undertakes to

to make the tuned Pedelec mountain bike available only to persons who

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

2.5 Obligation of each user

Each user is obliged

- to read and follow these operating instructions completely and
- to follow all safety and warning instructions without exception,
- to use the tuned Pedelec mountain bike only in technically perfect condition and as intended, with due regard for safety and dangers and in compliance with this operating manual and
- Any damage or malfunctions that may affect safety must be rectified immediately, or if necessary, have them rectified.

3 Warranty and liability

Warranty and liability of the manufacturer of the tuning module

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

- Increased wear or breakage of components of the Pedelec mountain bike, especially parts of the braking system and/or drive,
- Failure to follow these operating instructions or
- improper use of the tuning module or the Pedelec mountain bike with integrated tuning module or
- Failure to observe the operating restrictions in this manual or
- Use or operation with operating conditions that do not comply with these operating instructions or
- improper installation, commissioning, maintenance or repair or installation not specified in these operating instructions or
- after unauthorized structural, hardware or software changes to the tuning module itself or to the Pedelec approved for the tuning module or its equipment.

IMPORTANT

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

The manufacturer of the tuning module assumes no liability for damages related to the operation or installation of the tuning module.

The technical and legal consequences mentioned may be incomplete

In addition to the technical and legal consequences mentioned in these operating instructions, further requirements may apply depending on the place of operation.

- ▶ Before installing the device, inform yourself about possible further technical and legal consequences and requirements that you must comply with for the operation of the tuned Pedelec mountain bike.

Guarantee, warranty and liability by the manufacturer Pedelec mountain bikes

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

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

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

3.1 Personal injury – Further exclusions to be considered

After installing the tuning module, a Pedelec mountain bike can reach speeds of up to 45 km/h with electric motor support.

WARNING Reduce increased hazard risks

Reaching such speeds increases the risk of a fall and resulting injury to persons, even if the vehicle is of suitable strength and design.

Using the tuned Pedelec mountain bike without appropriate protective clothing and a helmet can release accident insurance companies from their obligation to pay benefits in the event of a fall resulting in injuries, or can significantly reduce their liability.

- ▶ Always wear suitable protective clothing and a helmet while using your tuned Pedelec mountain bike to protect yourself from increased risk of accidents.
- ▶ Insist that every user of your tuned Pedelec mountain bike always wears suitable protective clothing and a helmet for the entire duration of use.

Reduce accident risk financially

- ▶ Precisely determine your operating conditions and the user groups to be insured.
- ▶ Take out insurance for your tuned Pedelec mountain bike that is appropriate to the conditions of use and the user group.

This helps you prevent financial risks from injuries caused by falls.

3.2 Property damage – Further exclusions of liability to be considered

After installing the tuning module, a Pedelec mountain bike can reach speeds of up to 45 km/h with electric motor support.

Damage caused in connection with the operation of a tuned pedelec may no longer be covered by private liability insurance. It is therefore advisable to take out insurance specifically designed for this purpose.

DANGER Reduce increased liability risks

Reaching such speeds increases the risk of causing property damage.

Monetarily reduce the risk of property damage

- ▶ Precisely determine your operating conditions and the user groups to be insured.
- ▶ Take out liability insurance for the use of your tuned Pedelec mountain bike that is appropriate to the conditions of use and the user group.

This way you can prevent monetary risks in case of damage to other people's property while using the tuned Pedelec mountain bike.

4 Functional description

After installation, the tuning module offers the following operating modes:

- Tuning permanently activated
- Tuning permanently deactivated
- Tuning according to switch-on condition

Other adjustable functions:

- Adjustable speed limit ("v-max")



Setting options

All settings are made via the display in combination with wheel movements on the e-bike. (See chapter 8)
No smartphone or notebook is required.

Protected electronics

The electronics are encapsulated in the housing and are therefore safely protected from moisture.

Safety and protective devices

The safety and protective features of the Pedelec mountain bike remain unaffected by the installation of the tuning module.

When delivered, the device is in the mode:

**"Tuning permanently active"
with the highest support speed limit.**

5 Technical data and connection values

Dimensions and weight	
Housing dimensions:	MBIQ-P: <ul style="list-style-type: none"> • approx. 25 mm x 8 mm x 8 mm MBIQ-S: <ul style="list-style-type: none"> • approx. 47 mm x 15 mm x 13 mm (ws, 3p. JST) • approx. 40 mm x 21 mm x 7 mm (ws, 4p. JST) • approx. 40 mm x 21 mm x 7 mm (bl, 4p. HIGD)
Cable length:	MBIQ-P: <ul style="list-style-type: none"> • approx. 50 mm MBIQ-S: <ul style="list-style-type: none"> • approx. 650 mm (white, 3-pin JST) • approx. 650 mm (white, 4-pin JST) • approx. 650 mm (bl, 4p. HIGD)
Weight:	MBIQ-P: <ul style="list-style-type: none"> • approx. 6 g MBIQ-S: <ul style="list-style-type: none"> • approx. 25g (white, 3p. JST) • approx. 25g (white, 4p. JST) • approx. 25g (bl, 4p. HIGD)

Electrical data	
Supply voltage:	No separate power supply required
Protection class of the housing:	IPX4 according to EN 60529
Display	Manipulated values from approx. 22 km/h (Display remains < 25km/h up to v-max)

6 Install

IMPORTANT

Before you start installation

- ▶ Confirm that you have carefully and completely read and understood all previous chapters of this operating manual before you begin installation.

This is the only way to ensure that you use the interchangeable equipment "Tuning Module" exclusively for the purpose described in these instructions and as intended.



Have you read and understood all previous chapters and their subsections?

- *1 Important safety instructions*
- *2 Comply with the requirements for safe use*
- *2.1 Know the intended use*
- *2.2 Know and comply with usage restrictions*
- *2.3 Know and comply with installation requirements*
- *3 Warranty and liability*
- *4 Functional description*
- *5 Technical data and connection values*

- ▶ Do not begin installation until you have read and understood all chapters and subsections.

6.1 Know installation example

In this operating manual, the installation can only be shown using an example vehicle and its equipment.

The installation described below and all associated instructions refer to the installation example:

Yamaha PW-SE

6.2 Know the tools you need

- Hexagon socket 6 mm



Additional tools may be necessary

Depending on the vehicle model, the engine cover can also be

- Torx or
- another Phillips screw.

Many covers also require disassembly of the crank.

- In such a case, a suitable crank puller is required.

6.3 Remove engine protection cover

⚠ WARNING

Prevent unexpected start-up

If the drive starts unexpectedly, hands and fingers can be sheared, crushed or pulled in.

- ▶ Turn off the Pedelec mountain bike and remove the battery.

This prevents any electric motor-assisted movement.

Parts may have sharp edges, protective particles may spray out

- ▶ Wear protective gloves and goggles when removing the engine cover or loosening the engine block.



illustration1: Engine mounting screws

Remove engine protection cover / loosen engine

- Ensure that your Pedelec mountain bike stands firmly and securely.
 - Remove the battery.
 - Loosen the red marked screw and remove the 2 blue screws from the engine block.
 - Turn the engine block slightly downwards.
- ✓ The engine block can now be turned to the side, the cables are visible.

With other systems, access to the connector may be as simple as loosening the motor cover or carefully pulling it out through a cable duct.

Example:



illustration2: Access to the sensor connector via the engine cover



illustration3: Access to the sensor connector via cable entry

6.4 Unplug cable

- a) Pull the marked plug out of the marked socket.

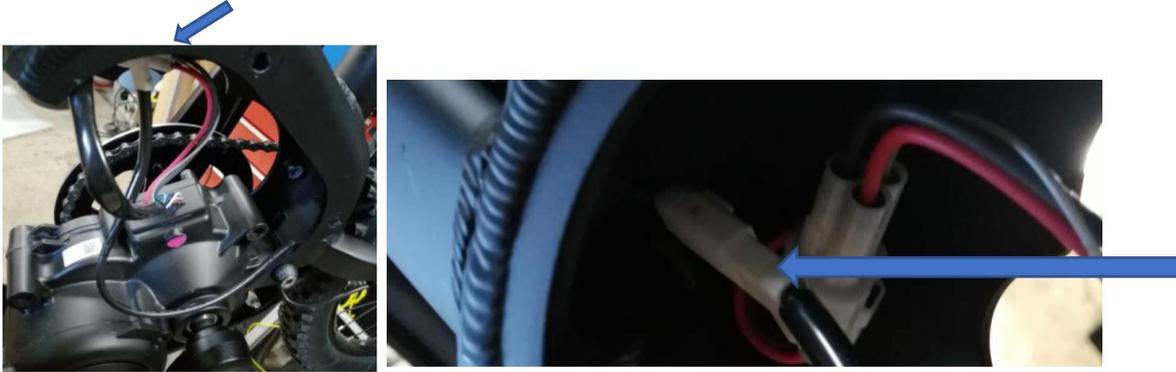


illustration4: Find the speed sensor connector.

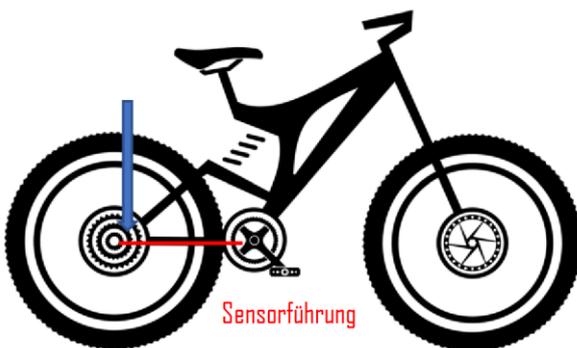
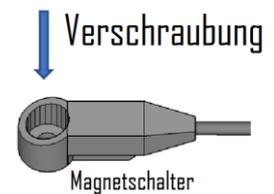


illustration5: Hexagon socket screw of the engine cover

Remove sensor (MBIQ-S only)

- b) Loosen the speed sensor mounting screws.



Cable routing (MBIQ-S only)

It can be helpful to pull a suitable pull wire through when removing the old sensor, along which you can thread the tuning!

The sensor is located on the rear frame and works in conjunction with the magnet attached to the rear wheel. On some models, this may also be located at the height of the quick-release axle. This requires removing the rear wheel.

6.5 Connect tuning module

MBIQ-P:

- a) Insert the end of the speed sensor into the socket (2) of the tuning.
- b) The cable end (2) of the MBIQ goes into the socket on the motor side.

MBIQ-S:

- a) Thread the MBIQ-S cable in the same way as the previously removed sensor.
- b) The end of the cable goes into the socket on the motor side.

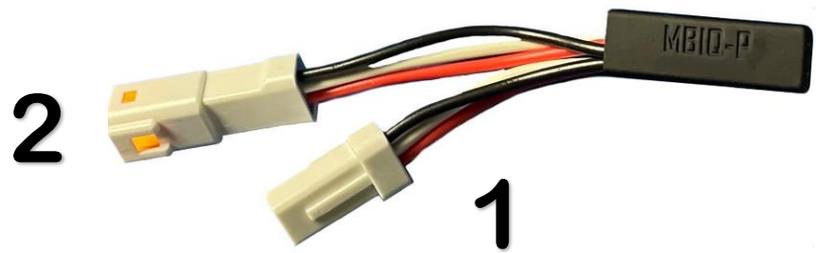


illustration6: Connect tuning module

Check plug

- c) Check that the connectors are correctly inserted into the corresponding socket



Plugging correctly

Some pressure is required, the plugs usually snap into place with a "click"!

WARNING

Cable guide MBIQ-S

If the cable is not routed or secured properly, it may become entangled in rotating parts, resulting in accidents.

- ▶ Attach/route the MBIQ-S cable in the same way as the previously installed, original sensor.

6.6 Complete installation

Place tuning module and lay cables (MBIQ-P)

- Find a suitable place to house the module.
- Place the tuning module in a suitable location.
- Route the cables so that the engine protection cover can be reinstalled without hindrance.



No uniform installation location can be defined

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

It is often possible to place the module directly in the connection area of the motor.

It is also possible to install it in the frame tube, although this usually requires the motor to be removed from the frame.



illustration7: Reinstall the engine cover / secure the engine

Reinstall the engine protection cover / secure the engine

- Reinstall the engine cover/engine as before using the specified tightening torques.
- Make sure that no cables rub against it or are even crushed.
- If necessary, screw the motor protection cover back on.

WARNING

Engine mounting

If the motor is not properly secured, it may come loose while driving, causing accidents.

- ▶ Please strictly observe the specified tightening torques of the fastening screws.

This is the only way to ensure secure fastening.



Tightening torques:

- ▶ If you are unsure or the values are not specified, please ask the manufacturer.

7 Commissioning

IMPORTANT

Initial commissioning

Before using the module for the first time, it is recommended to check that it is functioning correctly.

- ▶ Ensure a secure footing
- ▶ Reinsert the battery into the system and start it.
- ▶ If the rear wheel is now set in motion (without pedaling!), a speed display should appear on the display.



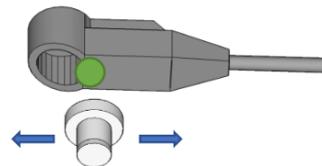
If the display remains at 0.0:

If the display remains at 0.0, the module wiring is faulty or the magnet position to the MBIQ-S is not optimally aligned.



If this is the case:

- ▶ Check your wiring.
- ▶ To do this, follow the instructions in chapter 6 *Instal*//this operating manual.
- ▶ Then repeat the setup.
- ▶ For MBIQ-S: Check the magnet position:



The module can only function properly if a speedometer is present. Do not start a journey beforehand. Otherwise, your system will diagnose an error.

8 Operating modes

You can choose between three operating modes:

1. Permanent tuning activated

In this mode, the speed limit is permanently suspended. Above approximately 25 km/h, the actual speed no longer corresponds to the displayed speed. Manipulated values of ≤ 25 km/h are generated for the motor firmware.

2. Permanent tuning deactivated

The speed limit is not overridden. The actual speed corresponds to the displayed speed. Assistance up to 25 km/h.

3. Tuning according to switch-on condition

To activate tuning, the magnet must be in front of the sensor for at least 4 seconds during boot-up. Otherwise, tuning is deactivated. (The time is approximately the same as the time it takes for the display to be ready to start.)

**In the delivery state, the device is in the mode: "Tuning permanently active"
with the highest support speed limit.**



Do you have chapters 7 successfully completed?

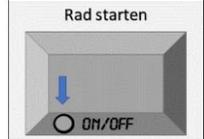
- *Speed display during rotation.*

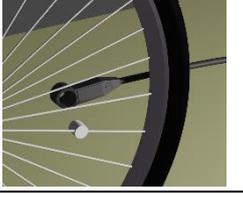
- ▶ Only then can the operating mode be reprogrammed if necessary.

8.1 Programming the operating mode

To enter programming mode, you must perform the following procedure:

Before you start, turn off the bike and wait a moment...

<p>Make sure that the spoke magnet is at the same height as the sensor before turning on the system.</p>	
<p>Then turn on the system. Important: What counts for the further process is the start of the system (e.g. LED turns on), not the complete booting of the display!</p>	
<p>Leave the magnet positioned in front of the sensor for approximately 4 seconds.</p>	

<p>Remove the magnet from the sensor for about 1 second</p>	
<p>Hold the magnet in front of the sensor again for at least 4 seconds to access the operating mode menu. If you want to change the maximum supported speed, please wait at least 8 seconds!</p>	
<p>If the magnet is now removed, the tuning sensor jumps into programming mode.</p>	
<p>If the process has been carried out correctly, the display will now show the set operating mode or v-max by outputting different speeds (explanation follows on the next page) on the respective display of your bike.</p> <p>To navigate through the different operating modes or adjust speeds, simply rotate the wheel once. Each rotation (moving the magnet past the sensor) advances the setting by one point/level.</p> <p style="text-align: center;">Make sure that the magnet is not in front of the sensor after rotation!</p>	



Displayed values

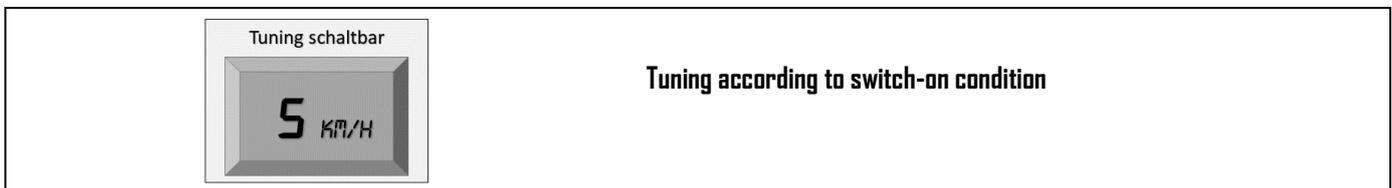
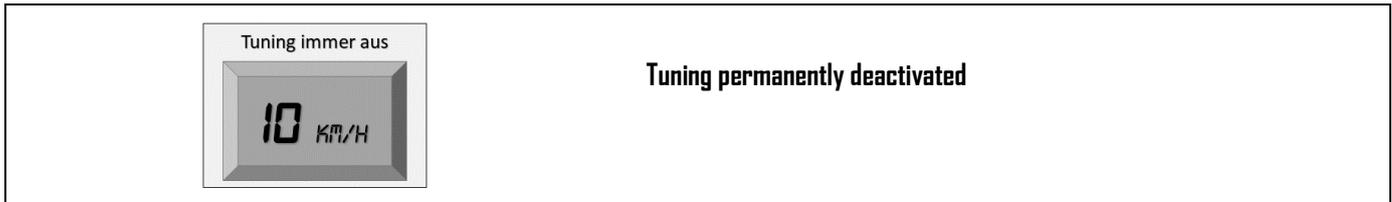
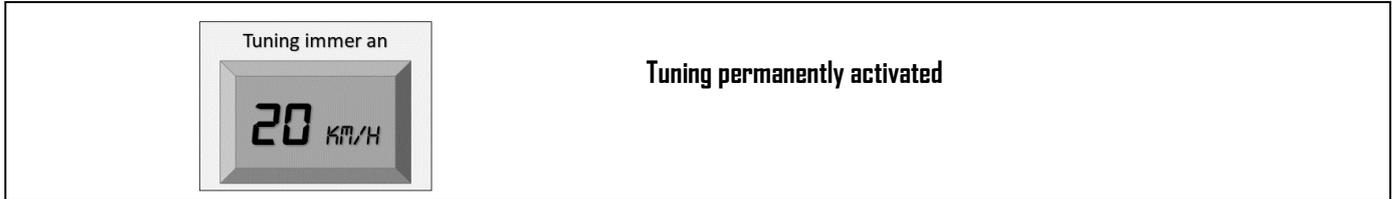
What is crucial for setting the operating mode is not the exact value (this varies depending on the wheel circumference), but the order!



Systems with immobilizer

- ▶ If your system has an immobilizer using a transponder, this must be deactivated for the duration of the programming.

8.2 Selection of operating mode



Displayed values

What is crucial for setting the operating mode is not the exact value (this varies depending on the wheel circumference), but the order!

If you do not want to save any changes, simply switch off your system; the last selected operating mode / v-max will then be retained.

If you want to save a change, place the magnet in front of the sensor for at least 4 seconds.

After saving, the display shows 0 km/h and remains in this state.

Restart the system afterwards!

8.3 Selection of the maximum support speed

Setting the speed limit for assistance is done using the same procedure as for setting the operating mode. The displayed values correspond to the speed limit.

The tuning will provide assistance up to approximately this displayed speed and increment the displayed speed.



If the limitation is not removed despite the speed mode being activated:

In this case, the wrong bike type was selected in the setup. For pedelecs that support up to 25 km/h ex works, "25" must also be set under Bike Type.

- ▶ In such a case, repeat the setup according to the instructions in chapter *Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden*.this operating manual.

9 Check before each use

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

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

IMPORTANT

Before each use

- ▶ Before each use of your tuned Pedelec mountain bike, carry out a thorough inspection of the vehicle.
- ▶ Be sure to check the condition and function
 - the brakes and their functional components,
 - of the vehicle frame,
 - the steering and its functional components,
 - of the drive and its functional components as well as
 - of the saddle and its functional components.
- ▶ Please also observe all inspections not listed here that are prescribed by the manufacturer of your e-bike before each use. This list does not replace the e-bike manufacturer's original operating instructions.
- ▶ Only use your tuned Pedelec mountain bike if you can determine and confirm that it is in perfect condition.

10 Riding the tuned Pedelec mountain bike

To use the tuning module in your Pedelec mountain bike safely, it is essential that you first read and understand this manual completely.

This operating manual

- informs you about the intended use,
- important restrictions on use,
- Obligations of the owner and the user,
- Warranty and liability conditions and
- warns you of potentially unsafe or dangerous situations and uses with conspicuous safety and warning notices.

IMPORTANT

Know and observe all contents of the operating instructions

- ▶ Please take the time to read this manual carefully before setting off on your tuned Pedelec mountain bike.
- ▶ Please also make this manual available to any other person who is permitted to ride your tuned Pedelec mountain bike.
- ▶ Ensure that every person who is permitted to ride your tuned Pedelec mountain bike has read and understood this manual before each use.
- ▶ Before you allow other people to use your tuned Pedelec mountain bike, instruct the user in the safe use of the tuned Pedelec mountain bike using this manual.



Intended use and restrictions of use must be strictly observed

- ▶ Strictly adhere to the intended use and restrictions of use.
- ▶ Please pay particular attention to the points
 - 2.1 Know the intended uses as well as
 - 2.2 Know and comply with usage restrictions and its subsections in this operating manual.

11 Dispose



Know the rules and regulations for disposal

- ▶ In any case, comply with the regional and internal regulations for waste disposal.
- ▶ If in doubt, ask your local waste disposal officer where you can properly dispose of electronic waste.



Disposal instructions

- ▶ Never throw electronic components into household waste.
- ▶ Dispose of electronic waste only in designated collection containers provided by a waste disposal company or your local authority.

The device must not be disposed of with household waste. This device is labeled in accordance with European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE). This directive sets the framework for the EU-wide return and recycling of old devices. Please use the return and collection systems available to you to return your old device.

You can also return the tuning kit to your dealer after use.

12 EC/EU declaration of conformity

in the sense of

EC Machinery Directive 2006/42/EC, Annex II I A for interchangeable equipment according to Articles 1 b) and 2 b) and

EU official L 157/24 from June 9, 2006

EMC Directive 2014/30/EU,

EU official L 96/79 of February 26, 2014

RoHS Directive 2011/65/EU,

EU official L 174/88 from July 1, 2011

We, as manufacturer and under our sole responsibility, hereby declare that the interchangeable equipment mentioned below, in its design and construction as well as in the version placed on the market by us, complies with the relevant provisions and harmonization legislation of the above-mentioned directives.

Product name

Tuning module, AEG/Bafang/Yamaha compatible

Article number

MBIQ-P / 7141236536932
 MBIQ-S (ws, 3p. JST) / 0767523734019
 MBIQ-S (ws, 4p. JST) / 0792971181863
 MBIQ-S (bl, 4p. HIGO) / 7141236536901

Date of manufacture

from 11/2022

Interchangeable equipment exclusively for

Pedelec mountain bikes

with the standards stated in the Pedelec manufacturer's declaration of conformity

EN 15194 EN ISO 4210-2(Mountain bikes)

Manufacturer and address



Elektronikdesign
Markus Bender

Dipl.-Ing. (FH)
 FS Eng. TÜV Rheinland
 Markus Bender
 Langgasse 20
 D-35435 Wettenberg

Documentation representative

Markus Bender

Applied harmonized standards, in particular:

EN ISO 12100:2010
 Risk assessment and risk reduction
 EN 15194:2017
 Bicycles - electric motor-assisted bicycles - EPAC
 EN ISO 4210-2:2015
 Bicycles - Safety requirements for bicycles Part 2: Requirements for city and trekking bicycles, youth bicycles, off-road bicycles (mountain bikes) and racing bicycles

Further regulations applied:

UNECE Regulation No. 78
 Brake requirements

Place and date of exhibition:

Wettenberg 28.11.2022



Legally binding signature, Markus Bender

