Owner's manual

ELECTRIC BICYCLE



HPR50 drive system

TREK

EN

WELCOME

WELCOME TO OUR BIKE FAMILY

Thank you for purchasing your new bicycle.
We believe in bicycles. We make high quality bicycles that are built to last.
That is why each bicycle we make comes with a limited warranty.
We wish you many carefree and enjoyable rides with your new bicycle.

However, if you experience any problems with your bicycle, do not hesitate to contact your local retailer. If the problem persists, please call our customer care team for a solution (Refer to page "CONTACT" on page 99 for contact information).

CONTENT

Welcome..... 3

Important to read before the first ride..... 5

Display V02 & Remote V02..... 9

Drive Unit.....33

Battery V01 360 Wh.....45

Battery V05 580 Wh.....57

Range Extender V01 160 Wh..... 69

Charger.....87

Contact..... 99

IMPORTANT TO READ BEFORE THE FIRST RIDE

Supplemental Product Information

The most important points for you to do

1. **Even if you have ridden a bicycle for years, it is important for every person to read the general "Bicycle Owner's Manual" and the specific "E-Bike Owner's Manual" carefully before you ride on the new e-bike**
   - Both manuals contain detailed information and useful suggestions about your new bicycle.
   - Make sure that you understand the proper use, maintenance, and disposal of the components of the electrical system of your new e-bike.
2. **Think about safety. Your safety and that of other road users is very important**
   - Check your bicycle for normal operation, loose parts and defects before riding. If you find any problem, visit your authorized bike shop for repairs before riding.
   - Be aware that other road users (cars, trucks, motorcycles) do not expect that an e-bike can ride faster than a normal bicycle. Riding faster also increases the risk of accidents. Distances will close much faster, and braking distances will become longer.
   - Do not ride abusively. Only ride in the use conditions specified for your bicycle. Please refer to the Use conditions table in the general Bicycle Owner's Manual.
3. **The electric system of your new bicycle needs special attention**
   - Do not clean your e-bike with a high pressure washer. Any electrical system is sensitive to moisture. High pressure water might enter connectors or other parts of the electric system.
   - Do not allow a Li-Ion battery (separately or integrated in the down tube) to suffer any mechanical or physical impacts or make any internal modifications. In an extremely rare case, a battery that has been severely impacted or otherwise mishandled could potentially catch fire. If you suspect damage to your battery, visit your local authorized bike shop immediately for inspection.
4. **Maintain the battery as instructed in this E-Bike Owner's Manual**
   Failure to follow these instructions may result in damage to your battery and may require battery replacement:
   - Only charge the battery with the included charger.
   - Charge the battery indoors or in a garage at room temperature to avoid exposure to rain or wind.
   - When you do not use the e-bike for an extended period of time, charge the battery to approx. 30% to 60% before storage.
   - Check the battery every 6 months and recharge it to approximately 30% to 60%.
   - Once charging the battery is complete, unplug the battery from the charger and unplug the charger from the wall socket.

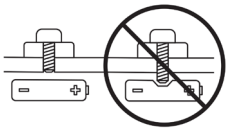
- Your e-bike has a built-in Li-Ion battery. Any Li-Ion battery will self-discharge over time. If the battery is left uncharged, then stored without charging, it may discharge to such a low state that the battery can no longer be charged and must be replaced.
- Store the e-bike in a dry, well-ventilated location. Protect the battery against moisture and water.
- Store the battery at room temperature (approx. 10°C to 20°C / 50°F to 68°F) and do not expose it to direct sunlight.

5. Be careful when transporting an e-bike

- An e-bike is heavier than a normal bicycle. If transporting on a vehicle, be aware of the maximum load capacity of the vehicle's roof, towing hitch and/or the bicycle carrier. Refer to the manuals of the vehicle and bicycle carrier for details.
- Always respect local laws about transportation of an e-bike.
  Because Li-Ion batteries of this size and power are considered 'Dangerous goods, class 9' when transporting, regulations may restrict the transport of separate Li-Ion batteries in some places. Before booking your trip, make sure to check ahead with your airline or carrier if it is allowed to travel with your complete e-bike.

6. Mounting accessories on an e-bike

An electric bike has hidden wiring through frame and has other critical e-bike parts like the drive unit and battery pack.
When mounting accessories (e.g. a bottle cage), be sure not to impact the wiring or battery pack, e.g. by using too long or pointed bolts. This might cause a short circuit to the electric system and/or damage to the battery.



⚠ WARNING. A short circuit in the electric system and/or damage to the battery might lead to over-heating. In an extremely rare case, a battery pack that has been severely impacted could potentially catch fire.

7. Obey local regulations

In most countries the regulations for the use of an e-bike are the same as those for a standard bicycle. However, there may be local differences such as where you can ride, minimum rider age, or required equipment and registration.
It is the rider's responsibility to know the local regulations that apply to an e-bike and to obey them.

8. Visit your bike shop on a regular basis for maintenance of your new bicycle

Your bike shop has the right knowledge and equipment to maintain your e-bike.
If you have questions about your new e-bike, ask your local authorized bike shop.

Compliance
Your bicycle has been designed, tested, and produced in accordance with the applicable European Directives and Harmonised Standards. Therefore, all electric bicycles are in compliance with CE. For more detailed compliance information, please refer to the Declaration of Conformity (DoC) which was included along with your bicycle.
If you have misplaced your DoC, a new one can be furnished upon request, by the bicycle shop at which you purchased your electric bicycle.

The A-weighted emission sound pressure level at the driver ears is less than 70 dB(A).

Limited warranty
Your bicycle is covered by a Limited Warranty.
Please visit our website for details.

HPR Display V02 &
HPR Remote V02





User Manual

EN

1 Safety



These instruction contains information that you must observe for your personal safety and to prevent personal injury and damage to property. They are highlighted by warning triangles and shown below according to the degree of danger.

- ► Read the instructions completely before start-up and use. This will help you to avoid hazards and errors.
- ► Keep the manual for future reference. This user manual is an integral part of the product and must be handed over to third parties in case of resale.

NOTE

Also observe the additional documentation for the other components of the HPR50 drive system as well as the documentation enclosed with the e-bike.

1.1 Hazard classification

⚠ DANGER

The signal word indicates a danger with a **high** degree of risk which will result in death or serious injury if not avoided.

⚠ WARNING

The signal word indicates a danger with a **medium** level of risk which will result in death or serious injury if not avoided.

⚠ CAUTION

The signal word indicates a danger with a **low** level of risk which could result in a minor or moderate injury if not avoided.

NOTE

A note in the sense of this instruction is important information about the product or the respective part of the instruction to which special attention is to be drawn.

1.2 IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING

When using this product, basic precautions should always be followed, including the following:

- Read all the instructions before using the product.
- Do not put fingers or hands into the product.
- Do not be distracted by the information shown on the Display while riding, concentrate exclusively on the traffic. Otherwise there is a risk of an accident.
- Stop your e-bike when you want to perform actions other than changing the assistance level.
- The walk assist that can be activated via the Remote must only be used to push the e-bike. Make sure that both wheels of the e-bike are in contact with the ground. Otherwise there is a risk of injury.
- When the walk assist is activated, make sure that your legs are at a safe distance from the pedals. Otherwise there is a risk of injury from the rotating pedals.
- To reduce the risk of injury, close supervision is necessary when the product is used near children.
- Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 15.
- This equipment is not intended to be used at ambient temperatures less than -5°C (23°F) or above ambient temperatures of 40°C (104°F).
- Only use this product within following temperature limits:
  Operation: -5°C to 40°C / 23°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F.

1.2.1 Riding safety instructions

Observe the following points to avoid injuries due to a fall when starting with high torque:

- We recommend that you wear a suitable helmet and protective clothing every time you ride. Please observe the regulations of your country.
- The assistance provided by the drive system depends firstly on the selected assistance mode and secondly on the force exerted by the rider on the pedals. The higher the force applied to the pedals, the greater the Drive Unit assistance. The drive support stops as soon as you stop pedaling.
- Adjust the riding speed, the assistance level and the selected gear to the respective riding situation.

⚠ CAUTION

Risk of injury

Practice the handling of the e-bike and its functions without assistance from the drive unit at first. Then gradually increase the assistance mode.

1.2.2 Safety instructions for working on the e-bike

Make sure that the HPR50 drive system is no longer supplied with power before doing any work (e.g. cleaing, chain maintenance, etc.) on the e-bike:

- Switch off the drive system at the Display and wait until the Display has disappeared.

Otherwise, there is a risk that the drive unit may start in an uncontrolled way and cause serious injuries, e.g. crushing, pinching or shearing of the hands.

All work such as repair, assembly, service and maintenance be carried out exclusively by a bicycle dealer authorized by TQ.

1.2.3 Safety instructions for the HPR Display V02 and HPR Remote V02

- Do not be distracted by the information shown on the Display while riding, concentrate exclusively on the traffic. Otherwise there is a risk of an accident.
- Stop your e-bike when you want to perform actions other than changing the assistance level.

⚠ The walk assist that can be activated via the Remote must only be used to push the e-bike. Make sure that both wheels of the e-bike are in contact with the ground. Otherwise there is a risk of injury.

⚠ When the walk assist is activated, make sure that your legs are at a safe distance from the pedals. Otherwise there is a risk of injury from the rotating pedals.

1.2.4 Safety instructions for using Bluetooth® and ANT+

⚠ Do not use Bluetooth® and ANT+ technology in areas where the use of electronic devices with radio technologies is prohibited, such as hospitals or medical facilities. Otherwise, medical devices such as pacemakers may be disturbed by the radio waves and patients may be endangered.

⚠ People with medical devices such as pacemakers or defibrillators should check with the respective manufacturers in advance that the function of the medical devices is not affected by the Bluetooth® and ANT+ technology.

⚠ Do not use Bluetooth® and ANT+ technology near devices with automatic control, such as automatic doors or fire alarms. Otherwise, the radio waves may affect the devices and cause an accident due to possible malfunction or accidental operation.

1.2.5 FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

No changes shall be made to the equipment without the manufacturer's permission as this may void the user's authority to operate the equipment.

This equipment complies with the RF exposure limits in FCC § 1.1310.

1.2.6 ISED

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with the RF exposure evaluation requirements of RSS-102.

Le présent appareil est conforme aux CNR d' ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) le dispositif ne doit pas produire de brouillage préjudiciable, et

(2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Cet équipement est conforme aux exigences d'évaluation de l'exposition aux RF de RSS-102.

1.2.7 ICASA

Certified Product: TA-2022/2021

SAVE THESE INSTRUCTIONS

1.3 Intended Use

The HPR Display V02 and the HPR Remote V02 of the drive system are intended exclusively for displaying information and operating your e-bike and must not be used for other purposes.

Any other use or use that goes beyond this is considered improper and will result in the loss of the warranty. In case of non-intended use, TQ-Systems GmbH assumes no liability for any damage that may occur and no warranty for proper and functional operation of the product.

Intended use also includes observing these instructions and all information contained therein as well as the information on intended use in the supplementary documents enclosed with the e-bike.

Faultless and safe operation of the product requires proper transport, storage, installation and operation.

2 Technical data

2.1 HPR Display V02

Screen diagonal	2 inch
State of charge indication	Seperate for Battery and Range Extender
Connectivity	Bluetooth, ANT+ (Radio network standard with low power consumption)
Frequency Transmitting power max.	2.400 Ghz – 2.4835 Ghz 2.5 mW
Dimension	74 mm x 32 mm x 12.5 mm / 2.91" x 1.26" x 0.49"
Weight	35 g / 1.23 oz
Operating temperature Storage temperature	-5°C to +40°C / 23°F to 104°F 0°C to +40°C / 32°F to 104°F

Tab. 1: Technical data – HPR Display V02

Declaration of Conformity

We, TQ-Systems GmbH, Gut Delling, Mühlstr. 2, 82229 Seefeld, Germany, declare that the HPR Display V02 bicycle computer, when used in accordance with its intended purpose, complies with the essential requirements of RED Directive 2014/53/EU and RoHS Directive 2011/65/EU. The CE statement can be found at: www.tq-ebike.com/en/support/manuals/.

2.2 HPR Remote V02

Weight with cable	25 g / 0.88 oz
Operating temperature Storage temperature	-5°C to +40°C / 23°F to 104°F 0°C to +40°C / 32°F to 104°F

Tab. 2: Technical data – HPR Remote V02

3 OPERATION

⚠ WARNING

- ▶ Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 15.
- ▶ Only use this product within following temperature limits:
  Operation: -5°C to 40°C / 23°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F.
- ▶ Further safety warnings regarding Injury to persons can be found in the section "1.2 Important Safety Instructions" on page 11.

3.1 Overview HPR Display V02

Pos.	Description
1	State of charge Battery (max. 10 bars, 1 bar corresponds 10%)
2	State of charge Range Extender (max. 5 bars, 1 bar corresponds 20%)
3	Display panel for different screen views with riding information (see section "3.5 Riding information" on page 20).
4	Assist mode (OFF, I, II, III)
5	Button

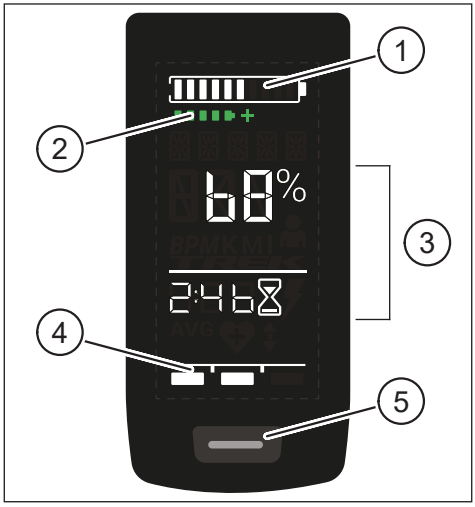


Fig. 1: Operation and indicaton components on Display

3.2 Overview HPR Remote V02

Pos.	Description
1	UP Button
2	DOWN Button

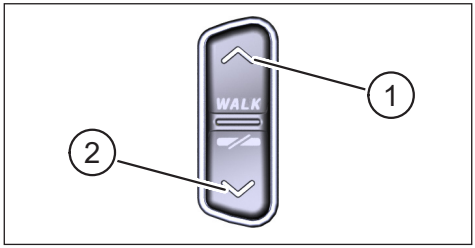


Fig. 2: Operation on the Remote

3.3 Functions

► Make sure that the Battery is sufficiently charged before operation.

3.3.1 Switch on drive system:

► Switch on the drive unit by **shortly** pressing the button (see Fig. 3) on the Display.

3.3.2 Switch off drive system:

► Switch off the drive unit by **long** pressing the button (see Fig. 3) on the Display.

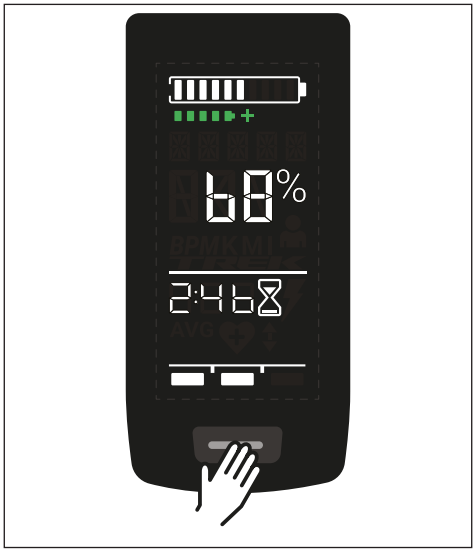


Fig. 3: Button on Display

3.4 Setup-Mode

3.4.1 Setup-Mode activate

- ► Switch **on** the drive system.
- ► Press and hold the button on the Display (Pos. 5 in Fig. 1) and the DOWN button on the Remote (Pos. 2 in Fig. 2) for at least 5 seconds.

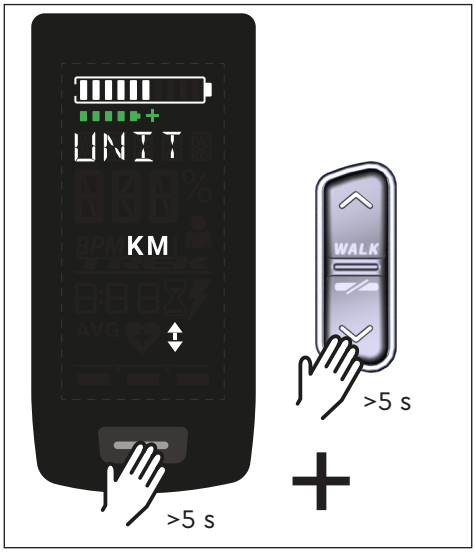


Fig. 4: Setup-Mode activate

3.4.2 Settings

The following settings can be made in the setup-mode:

Setting	Default value	Possible values
Measure	Metric (km)	Metric (km) or angloamerican (mi)
Acoustic acknowledge signal	ON (sounds with each buttonpress)	ON, OFF
Walk assist	ON	ON, OFF

Tab. 3: Settings in Setup-Mode

- ► Use the buttons on the Remote to scroll through the respective menu.
- ► Confirm the selection made with the button on the Display.
  The next selection is then displayed or the setup mode is terminated.
- ► The Display screen can be changed by pressing the Remote button (>3 s) if the walk assist function is deactivated due to country-specific laws and regulations.

3.5 Riding information

In the center of the Display, riding information can be shown on 4 different screen views. Regardless of the currently selected view, the state of charge of the Battery and optional Range Extender is Displayed at the top edge and the selected assistance mode is Displayed at the bottom edge.

► With a **short** press on the button on the Display (Pos. 5 in Fig. 1) you switch to the next screen view.

Screen view	Riding information
	— Battery state of charge in percent (68% in this example). — Remaining time for drive unit support (in this example 2 h and 46 min).
	— Riding range in kilometers or miles (37 km in this example), the range calculation is an estimate that depends on many parameters (see section "3.10.3 Riding range" on page 28). — Remaining time for drive unit support (in this example 2 h and 46 min).

Screen view	Riding information
	— Current rider power in watt (163 W in this example). — Current drive unit power in watts (203 W in this example).
	— Current speed (36 km/h in this example) in kilometers per hour (KPH) or miles per hour (MPH). — Average speed AVG (19 km/h in this example) in kilometers per hour or miles per hour.
	— Current rider cadence in revolutions per minute (61 RPM in this example).

Screen view	Riding information
	— Activated light (LIGHT ON). — Switch on the light by pressing the UP button and DOWN button at the same time. Depending on wheter the e-bike is equipped with light and TQ smartbox (please see the smartbox manual for more information).
	— Deactivated light (LIGHT OFF). — Switch off the light by pressing the UP button and DOWN button at the same time.

Tab. 4: HPR Display V02 – Riding information

3.6 Select assist mode

You can choose between 3 assist modes or switch off the assist from the drive unit. The selected assist mode I, II or III is shown on the Display with the corresponding number of bars (see Pos. 1 in Fig. 5).

— With a **short** press on the button UP of the Remote (see Fig. 6) you increase the assist mode.

— With a **short** press on the button DOWN of the Remote (see Fig. 6) you decrease the assist mode.

— With a **long** press (>3 s) on the DOWN button of the Remote (see Fig. 6), you switch off the assist from the drive system.

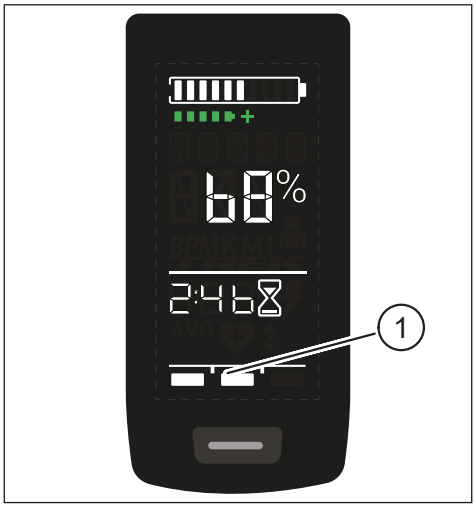


Fig. 5: Visualization of the selected assist mode



Fig. 6: Select assist mode on the HPR Remote V02

3.7 Set connections

3.7.1 Connection e-bike to smartphone

NOTE

— You can download the Trek Connect app from the Appstore for IOS and the Google Play Store for Android.

— Download the Trek Connect app.
— Select your bike (you only need to pair your smartphone the first time).
— Enter the numbers shown on the Display in your phone and confirm the connection.

Artwork courtesy of Trek Bicycle Company.



Fig. 7: Connection E-Bike to Smartphone

3.7.2 Connection e-bike to bicycle computers

NOTE

— To make a connection with the bicycle computer, the e-bike and bicycle computer must be within radio range (maximum distance approx. 10 meters).

— Pair your bicycle computer (Bluetooth or ANT+).
— Select at least the three shown sensors (see Fig. 8).
— Your e-bike is now connected.

Artwork courtesy of Trek Bicycle Company.

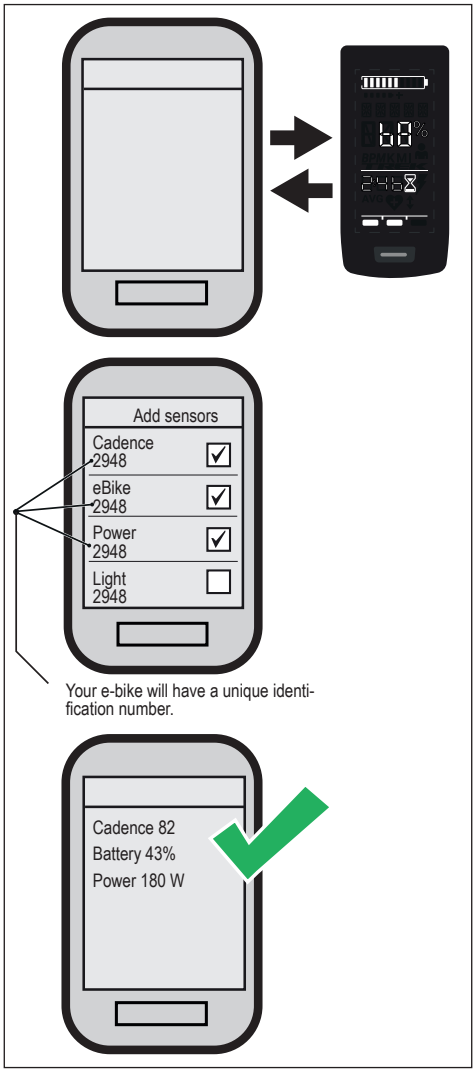


Fig. 8: Connection e-bike to bicycle computer

3.8 Walk assist

The walk assist makes it easier to push the e-bike, e.g. off-road.

NOTE

— The availability and characteristics of the walk assist are subject to country-specific laws and regulations. For example, the assistance provided by the push assist is limited to a speed of max. 6 km/h in Europe.

— If you have locked the use of the walk assist in setup mode (see section "3.4.2 Settings" on page 19), the next screen with riding information is Displayed instead of activating the walk assist (see chapter "3.5 Riding information" on page 20).

3.8.1 Activate walk assist

⚠ CAUTION

Risk of injury

► Make sure that both wheels of the e-bike are in contact with the ground.

► When the walk assist is activated, make sure that your legs are a sufficient safety distance from the pedals.

► When the e-bike is at stand-still, press the UP button on the Remote for longer than 0.5 s (see Fig. 9) to activate the walk assist.

► Press the UP button again and keep it pressed to move the e-bike with the walk assist.

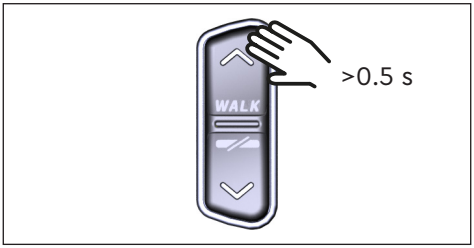


Fig. 9: Activate walk assist

3.8.2 Deactivate walk assist

The walk assist is deactivated in the following situations:

— Press the DOWN button on the Remote control (Pos. 2 in Fig. 2).

— Press the button on the Display (Pos. 5 in Fig. 1).

— After 30 s without actuation of the walk assist.

— By pedaling.

3.9 Reset to factory settings

- ► Switch **on** the drive system.
- ► Press and hold the button on the Display and the DOWN button on the Remote for at least 10 s, the Setup-Mode is indicated first and RESET is followed (see Fig. 10).
- ► Make your choice with the buttons on the Remote and confirm it by pressing the button on the Display.

When resetting to factory settings, the following parameters are reset to the factory settings:

- — Drive Unit tuning
- — Walk assist
- — Bluetooth
- — Acoustic acknowledge sounds

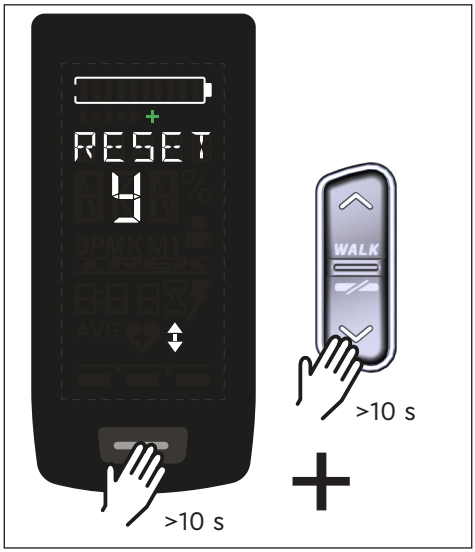


Fig. 10: Reset to factory settings

3.10 General riding notes

3.10.1 Functionality of the drive system

The drive system supports you when riding up to a speed limit permitted by law which may vary depending on your country. The precondition for Drive Unit assistance is that the rider pedals. At speeds above the permitted speed limit, the drive system turns off the assistance until the speed is back within the permitted range.
The assistance provided by the drive system depends firstly on the selected assistance mode and secondly on the force exerted by the rider on the pedals. The higher the force applied to the pedals the greater the Drive Unit assistance.
You can also ride the e-bike without Drive Unit assistance, e.g. when the drive system is switched off or the Battery is empty.

3.10.2 Gear shift

The same specifications and recommendations apply for shifting gears on an e-bike as for shifting gears on a bicycle without Drive Unit assistance.

3.10.3 Riding range

The possible range with one Battery charge is influenced by various factors, for example:

— Weight of e-bike, rider and baggage
— Selected assist mode
— Speed
— Route profile
— Selected gear
— Age and state of charge of the Battery
— Tire pressure
— Wind
— Outside temperature

The range of the e-bike can be extended with the optional Range Extender.

4 TRANSPORT AND STORAGE

— Store the Display and Remote in a dry place, protected from direct sunlight.

5 USER MAINTENANCE

5.1 Maintenance and Service

All service, repair or maintenance work performed by a TQ authorized bicycle dealer. Your bicycle dealer can also help you with questions about bicycle use, service, repair or maintenance.

5.2 Cleaning

— The components of the drive system must not be cleaned with a high-pressure cleaner.

— Clean the Display and the Remote only with a soft, damp cloth.

6 Environmentally friendly disposal

The components of the drive system and the batteries must not be disposed of in the residual waste garbage can.



— Dispose of metal and plastic components in accordance with country-specific regulations.

— Dispose of electrical components in accordance with country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE).

— Dispose of batteries and rechargeable batteries in accordance with the country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Battery Directive 2006/66/EC in conjunction with Directives 2008/68/EC and (EU) 2020/1833.

— Observe addtitonally the regulations and laws of your country for disposal.

In addition you can return components of the drive system that are no longer required to a bicycle dealer authorized by TQ.

7 Error codes

The drive system is continuously monitored.
In the event of an error, a corresponding error code is shown on the display.

For the latest error code list and solutions, please refer to TQ's website https://www.tq-ebike.com/en/support/manuals/error-codes/ (no login required) for detailed information about any displayed error code and steps to solve the error.

Contact your TQ dealer if the error still occurs and you can't solve the defect yourself.

These are the first easy steps to try yourself:

Error	Corrective measures
► Drive system	• Restart the system. • Let the drive system cool down in case of overheating, and next, restart the system. • Avoid unintended use to prevent overheating.
► Battery ► Range extender (if present) ► Charger	• Check the charger cables for damage. Replace the charger if necessary. • Check the charger's power cable for damage. Replace the power cable if necessary. • Check the Range extender (and connection cable) for damage. • If the battery won't charge, unplug the charger from wall socket and battery, reconnect the charger again to see if the charger starts charging the battery. • Check the charging port for dirt. • Be sure the wall socket has power (no blown fuse).
► Motor ► Mechanical	• Check for obvious defects, e.g. damaged cables or loose connectors. • Check for a wedged chainring or chain. • Check if anything else is stuck.
► Speed indication ► Speedsensor	• Check the distance between magnet and speedsensor (refer to "3.2 Mounting position Speedsensor" on page 41. Check for tampering, or dirt between magnet and speedsensor.

► Contact your TQ dealer if you can't solve the error or if you are not confident to solve the error yourself.

NOTE

For more information and TQ product manuals in various language, please visit www.tq-ebike.com/en/support/manuals or scan this QR-Code.

We have checked the contents of this publication for conformity with the product described. However, deviations cannot be ruled out so that we cannot accept any liability for complete conformity and correctness.

The information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Art.-No.: HPR50-DISV02-UM
Rev0300 2023/09

Drive Unit HPR50



User Manual

EN

1 Safety



These instruction contains information that you must observe for your personal safety and to prevent personal injury and damage to property. They are highlighted by warning triangles and shown below according to the degree of danger.

- ► Read the instructions completely before start-up and use. This will help you to avoid hazards and errors.
- ► Keep the manual for future reference. This user manual is an integral part of the product and must be handed over to third parties in case of resale.

NOTE

Also observe the additional documentation for the other components of the HPR50 drive system as well as the documentation enclosed with the e-bike.

1.1 Hazard classification

⚠ DANGER

The signal word indicates a danger with a **high** degree of risk which will result in death or serious injury if not avoided.

⚠ WARNING

The signal word indicates a danger with a **medium** level of risk which will result in death or serious injury if not avoided.

⚠ CAUTION

The signal word indicates a danger with a **low** level of risk which could result in a minor or moderate injury if not avoided.

NOTE

A note in the sense of this instruction is important information about the product or the respective part of the instruction to which special attention is to be drawn.

1.2 IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING

When using this product, basic precautions should always be followed, including the following:

- Read all the instructions before using the product.
- Do not put fingers or hands into the product.
- Never subject the Drive Unit to mechanical shocks to prevent damage to the Drive Unit.
- To reduce the risk of injury, close supervision is necessary when the Drive Unit is used near children.
-  Never open the Drive Unit case or attempt to disassemble the Drive Unit.
- Do not use this product if the flexible power cord or output cable is frayed, has broken insulation, or any other signs of damage.
- Do not make any changes to the Drive Unit that affect the performance or maximum supported speed of your Drive Unit. By doing so you endanger yourself and others and possibly violate laws. The warranty will be voided in addition.
- The walk assist must only be used to push the e-bike. Make sure that both wheels of the e-bike are in contact with the ground. Otherwise, there is a risk of injury.
- Make sure that your legs are at a safe distance from the pedals when the walk assist is avtivated. Otherwise there is a risk of injury from the rotating pedals.
- Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 37.
- This equipment is not intended to be used at ambient temperatures less than -5°C (23°F) or above ambient temperatures of 40°C (104°F).
- Only use this product within following temperature limits:
  Operation: -5°C to 40°C / 23°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F.



The Drive Unit can heat up during operation depending on the load and other factors, so that the surface of the Drive Unit and nearby components (Drive Unit cover) become hot. Do not touch the Drive Unit with your hands or legs during or after a ride. Otherwise there is a risk of burns.

NOTE

— The warranty expires automatically when the housing of the Drive Unit is opened.

— The Drive Unit may only be removed and installed by an authorized workshop.

1.2.1 Safety instructions for working on the e-bike

Make sure that the HPR50 drive system is no longer supplied with power before doing any work (e.g. cleaing, chain maintenance, etc.) on the e-bike:

⚠ Switch off the drive system at the Display and wait until the Display has disappeared.

Otherwise, there is a risk that the Drive Unit may start in an uncontrolled way and cause serious injuries, e.g. crushing, pinching or shearing of the hands.

All work such as repair, assembly, service and maintenance be carried out exclusively by a bicycle dealer authorized by TQ.

1.2.2 Riding safety instructions

Observe the following points to avoid injuries due to a fall when starting with high torque:

⚠ We recommend that you wear a suitable helmet and protective clothing every time you ride. Please observe the regulations of your country.

⚠ Consider the potentially high torque of the drive when starting up.

⚠ Select a suitable gear ratio or pedal assistance for starting off to avoid the risk of a wheelie (front wheel lifts off) or rollover.

⚠ CAUTION

Risk of injury

Practice the handling of the e-bike and its functions without assistance from the Drive Unit at first. Then gradually increase the assistance mode.

SAVE THESE INSTRUCTIONS

1.3 Intended Use

The Drive Unit HPR50 is intended exclusively for assisting power to your e-bike and must not be used for any other purposes.

Any other use or use that goes beyond this is considered improper and will result in the loss of the warranty. In case of non-intended use, TQ-Systems GmbH assumes no liability for any damage that may occur and no warranty for proper and functional operation of the product.

Intended use also includes observing these instructions and all information contained therein as well as the information on intended use in the supplementary documents enclosed with the e-bike.

Faultless and safe operation of the product requires proper transport, storage, installation and operation.

2 Technical data

2.1 Drive unit

Weight	approx. 1850 g / 4.1 lbs
Continous rated power	250 W
Torque (max.)	50 Nm
Interface standard of bottom bracket shaft	ISIS
Length of bottom bracket schaft	135 mm / 5.31"
Operating temperature Storage temperature	-5°C to +40°C / 23°F to 104°F 0°C to +40°C / -4°F to 104°F

Tab. 5: Technical data – Drive Unit HPR50

2.2 Speedsensor

Weight	16 g incl. magnet
Mounting position	Left rear dropout

Tab. 6: Technical data – Speedsensor

3 OPERATION

⚠ WARNING

- ► Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 37.
- ► Only use this product within following temperature limits:
  Operation: -5°C to 40°C / 23°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F.
- ► Further safety warnings regarding Risk of Fire, Electric Shock or Injury to persons can be found in the section "1.2 Important Safety Instructions" on page 35.

Switch on drive system:

► Switch on the Drive Unit by **shortly** pressing the button (Pos. 1 in Fig. 11) on the Display.

Switch off drive system:

► Switch off the Drive Unit by **long** pressing the button (Pos. 1 in Fig. 11) on the Display.

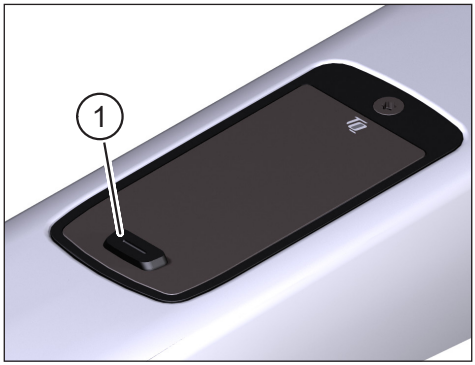


Fig. 11: Display

Please refer to the respective user manual for more information on the initial configuration and the functionalities of the Display.

► Make sure that the Battery is sufficiently charged before operation.

3.1 General riding notes

3.1.1 Functionality of the drive system HPR50

The HPR50 drive system supports you when riding up to a speed limit permitted by law which may vary depending on your country. The precondition for Drive Unit assistance is that the rider pedals. At speeds above the permitted speed limit, the drive system turns off the assistance until the speed is back within the permitted range.

The assistance provided by the drive system depends firstly on the selected assistance mode and secondly on the force exerted by the rider on the pedals. The higher the force applied to the pedals the greater the Drive Unit assistance.

You can also ride the e-bike without Drive Unit assistance, e.g. when the drive system is switched off or the Battery is empty.

3.1.2 Gear shift

The same specifications and recommendations apply for shifting gears on an e-bike as for shifting gears on a bicycle without Drive Unit assistance.

3.1.3 Riding range

The possible range with one Battery charge is influenced by various factors, for example:

— Weight of e-bike, rider and baggage
— Selected assist mode
— Speed
— Route profile
— Selected gear
— Age and state of charge of the Battery
— Tire pressure
— Wind
— Outside temperature

The range of the e-bike can be extended with the optional Range Extender.

3.2 Mounting position Speedsensor

The speed of the e-bike is measured with support of a magnet (Pos. 2 in Fig. 12) which triggers pulses at the speed sensor (Pos. 1 in Fig. 12).
The Speedsensor and magnet are mounted at manufacturer with a distance between 1 mm and 8 mm (see Fig. 12) in the area of the rear wheel.

NOTE

- ▶ Check the correct distance between Speedsensor and magnet if the speed Display shows incorrect values or fails.
- ▶ When performing installation work on the rear wheel, make sure that you do not damage the sensor or the sensor bracket. All work such as repair, assembly, service and maintenance carried out exclusively by a bicycle dealer authorized by TQ.
- ▶ Make sure that the Speedsensor and magnet are free of dirt to avoid signal interference.

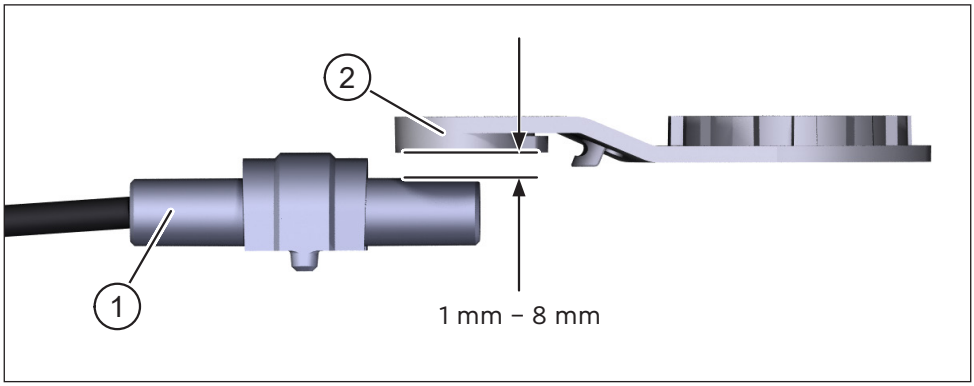


Fig. 12: Mounting – Distance between Speedsensor and magnet

4 TRANSPORT AND STORAGE

— Observe the permissible operating temperature (-5°C to +40°C / 23°F to 104°F) and storage temperature (0°C to +40°C / 32°F to 104°F) during transport and storage.

— Observe the country-specific regulations for the transport of e-bikes and batteries.

— Store the motor in a dry place, protected from direct sunlight.

⚠ WARNING

Fire or electric shock hazard due to damaged Battery or Range Extender and unintentional start-up of the HPR50 drive system

The rechargeable batteries can be damaged by shocks or impacts during transport. Furthermore, the HPR50 drive system can be started up unintentionally.

► Take the necessary precautions to prevent the batteries from being damaged or the drive system from starting up.

Please check and read all safety instruction which are included in the Battery and Range Extender manual.

5 USER MAINTENANCE

5.1 Maintenance and Service

All service, repair or maintenance work performed by a TQ authorized bicycle dealer. Your bicycle dealer can also help you with questions about bicycle use, service, repair or maintenance.

5.2 Cleaning

— The components of the HPR50 drive system must only be cleaned with water from a standard household water hose and not with any high-pressure cleaner.

— Before cleaning switch off the drive system on the Display.

— Before Cleaning remove the optional Range Extender if necessary.

— Before cleaning the e-bike check that the cover of the charging port in the bike frame is closed and engaged.

— After cleaning, check that the charging port in the e-bike frame is dry. If there are drops of water on the contacts in the charging port, the e-bike may not be able to be switched on.

6 Environmentally friendly disposal



The components of the drive system and the batteries must not be disposed of in the residual waste garbage can.

— Dispose of metal and plastic components in accordance with country-specific regulations.

— Dispose of electrical components in accordance with country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE).

— Dispose of batteries and rechargeable batteries in accordance with the country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Battery Directive 2006/66/EC in conjunction with Directives 2008/68/EC and (EU) 2020/1833.

— Observe addtitonally the regulations and laws of your country for disposal.

In addition you can return components of the drive system that are no longer required to a bicycle dealer authorized by TQ.

NOTE

For more information and TQ product manuals in various language, please visit www.tq-ebike.com/en/support/manuals or scan this QR-Code.

We have checked the contents of this publication for conformity with the product described. However, deviations cannot be ruled out so that we cannot accept any liability for complete conformity and correctness.

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Art.-No.: HPR50-DRV01-UM
Rev0300 2023/09

HPR Battery V01 360 Wh



User Manual

EN

1 Safety



These instruction contains information that you must observe for your personal safety and to prevent personal injury and damage to property. They are highlighted by warning triangles and shown below according to the degree of danger.

- ► Read the instructions completely before start-up and use. This will help you to avoid hazards and errors.
- ► Keep the manual for future reference. This user manual is an integral part of the product and must be handed over to third parties in case of resale.

NOTE

Also observe the additional documentation for the other components of the HPR50 drive system as well as the documentation enclosed with the e-bike.

1.1 Hazard classification

⚠ DANGER

The signal word indicates a danger with a **high** degree of risk which will result in death or serious injury if not avoided.

⚠ WARNING

The signal word indicates a danger with a **medium** level of risk which will result in death or serious injury if not avoided.

⚠ CAUTION

The signal word indicates a danger with a **low** level of risk which could result in a minor or moderate injury if not avoided.

NOTE

A note in the sense of this instruction is important information about the product or the respective part of the instruction to which special attention is to be drawn.

1.2 IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING

When using this product, basic precautions should always be followed, including the following:

- Read all the instructions before using the product.
- Do not put fingers or hands into the product.
- Liquid may leak from the Battery if used improperly. Avoid any contact with this liquid. Wash it off with water if you do come into contact with the liquid. Also seek medical attention if the liquid has come into contact with your eyes. Liquid leaking from the Battery can cause irritation or burns.
- Never subject the Battery to mechanical shocks to prevent damage to the Battery.
- To reduce the risk of injury, close supervision is necessary when the Battery is used near children.
-  Never open the Battery case or attempt to disassemble the Battery. WARNING – Risk of Fire – No User Serviceable Parts.
- Do not use this product if the flexible power cord or output cable is frayed, has broken insulation, or any other signs of damage.
- Never break or puncture the Battery.
- Only charge the Battery in well ventilated rooms.
- Only use the original TQ Charger (FSP235–14S4AC8C) to charge the Battery.
- Use only original HPR Batteries to supply power to the drive system.
- This equipment is not intended to be used at ambient temperatures less than -5°C (23°F) or above ambient temperatures of 40°C (104°F).
- The battery is intended to be charged when the ambient temperature is between 0°C (32°F) and 40°C (104°F). Never charge the battery when ambient temperatures are outside this range.
- Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 49.

Only use this product within following temperature limits:
Operation: -5°C to 40°C / 23°F to 104°F
Charging: 0°C to 40°C / 32°F to 104°F
Storage: 0°C to 40°C / 32°F to 104°F
Recommended storage: 10°C to 20°C / 50°F to 68°F

1.2.1 INSTRUCTIONS PERTAINING TO RISK OF FIRE

Explosion and fire hazard with damaged Battery housing

- If the Battery housing is damaged, make sure to have it replaced by a TQ authorised bicycle dealer, even if the Battery is still functional.
- Do not make any repair attempts under any circumstances.

Explosion and fire hazard when short-circuiting the Battery terminals

- Keep the Battery away from metallic objects as there is a risk of short circuits. Do not allow nails, screws or other small, sharp and/or metallic objects to come into contact with the Battery (charging/discharging socket).

Risk of explosion and fire in case of high heat, fire or contact with water



Protect the battery from fire, high heat and also from extended direct exposure to sunlight.

- Never immerse the battery in water.

Danger of poisoning by gases from a smoking or burning Battery in case of damaged Battery or improper use.

- Be careful not to breathe in the highly toxic gases from a smoking or burning Battery.
- Ensure good ventilation and consult a doctor if you notice any undesirable effects on the respiratory organs. The vapors may irritate the respiratory organs.

1.2.2 INSTRUCTIONS PERTAINING TO ELECTRIC SHOCK

The Electric risk and shock is only applicable for the TQ Charger (FSP235–14S4AC8C). Please check and read all safety instruction which are included in the Charger manual.

SAVE THESE INSTRUCTIONS

1.3 Intended Use

The HPR Battery V01 is intended exclusively for supplying power to the HPR50 drive system and must not be used for any other purpose.

Any other use or use that goes beyond this is considered improper and will result in the loss of the warranty. In case of non-intended use, TQ-Systems GmbH assumes no liability for any damage that may occur and no warranty for proper and functional operation of the product.

Intended use also includes observing these instructions and all the information contained therein as well as the information on intended use in the supplementary documents enclosed with the e-bike.

Faultless and safe operation of the product requires proper transport, storage, installation and operation.

2 Technical data

Nominal voltage	50.4 V
Nominal capacity	6.8 Ah
Nominal energy	360 Wh
Dimensions	48 mm x 63.5 mm x 370 mm / 1.89" x 2.5" x 14.57"
Charging temperature	0°C to 40°C / 32°F to 104°F
Operating temperature	-5°C to 40°C / 23°F to 104°F
Storage temperature	0°C to 40°C / 32°F to 104°F
Recommended storage temperature	10°C to 20°C / 50°F to 68°F
Weight	approx. 1835 g / 4.04 lbs

Tab. 7: Technical data – HPR Battery V01

3 OPERATION

3.1 Battery charging

⚠ DANGER

- ▶ Only use TQ Charger (FSP235–14S4AC8C) for charging the Battery.

⚠ WARNING

Fire or electric shock hazard due to damage to Battery, Range Extender, charger, cable and plug

- ▶ Never charge the Battery if you notice any damage to the Battery, Range Extender, charger, cables or connectors.
- ▶ Only perform the charging process in a place where there are no flammable materials in surrounding.
- ▶ Never leave the charging process unattended.
- ▶ Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 49.
- ▶ Only use this product within following temperature limits:
  Operation: -5°C to 40°C / 23°F to 104°F
  Charging: 0°C to 40°C / 32°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F
  Recommended storage: 10°C to 20°C / 50°F to 68°F.
- ▶ Further safety warnings regarding Risk of Fire, Electric Shock or Injury to persons can be found in the section "1.2 Important Safety Instructions" on page 47.

NOTE

You can charge the Battery either directly with the charger or via the optional Range Extender. For more information, refer to the corresponding user manuals for the charger and the Range Extender.

- ▶ Connect the charger to the power supply.
- ▶ Unfold the cover (Pos. 1 in Fig 13) on the charging port (Pos. 2 in Fig. 13) in the bike frame.
- ▶ Check that the contacts in the charging port are free of dirt and clean them if necessary.
- ▶ Align the charging plug (Pos. 3 in Fig. 13) of the charger or Range Extender so that the plug codes of the charging plug and charging port match (see Fig. 13).

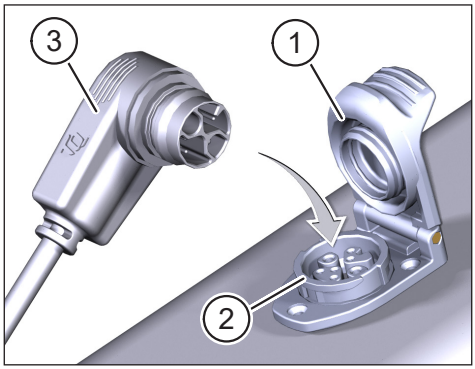


Fig. 13: Battery charging

- ▶ Insert the charging plug (Pos. 3 in Fig. 13) of the charger or Range Extender into the charging port.
- ▶ Pull the charging plug out of the charging port when charging is complete.
- ▶ Close the cover on the charging port when charging is complete and disconnect the charger from the power supply.

3.2 Note on Charging

NOTE

The temperature of the Battery must be within the permissible charging temperature range (0°C to 40°C / 32°F to 104°F). Otherwise the charging process will not be started.

— The drive system is deactivated during the charging process.
— The state of charge of the Battery can be read on the Display.
— The state of charge of the Range Extender can be read on the Display and on the 5 LEDs on the side of the Range Extender.
— New batteries have a charge level of 20% to 30% due to transportation regulations and must be recharged within less than 6 months of manufacture.
— The Battery should be recharged immediately after complete discharge (state of charge <5%).
— 1 charge cycle can consist of a full charge of the Battery capacity (0% to 100%) or several partial charges that add up to 100% of the charge capacity.
— The Battery capacity should be at least 60% after 500 charging cycles.
— Derating: In case the Battery capacity gets almost empty (approx. <10%) during riding the sytems switches automatically to mode I.

4 TRANSPORT

— The transport of lithium batteries is subject to country-specific laws and regulations. Inform yourself about the respective regional regulations and observe them during transport.
— For transport observe the special requirements for packaging and labeling that apply in your country.
— Contact a TQ authorized bicycle dealer for information on transporting the Battery and suitable transport packaging. For transport outside the bicycle frame, we recommend a certified transport box.

5 STORAGE

— It's recommended to store the Battery at room temperature (approx. 10°C to 20°C / 50°F to 68°F) and do not expose it to direct sunlight.
— Do not store the Battery near heat sources or other easily flammable materials.
— Store the Battery in dry rooms (humidity below 70%) and protect it from rain and moisture.
— Store the Battery only in rooms equipped with smoke detectors.
— Charge the Battery to approx. 30% to 60% before storage.
— Check the Battery every 6 months and recharge it to approximately 30% to 60%.
— Fully charge the Battery before use.
— Do not store the Battery with the charger plugged in.

6 USER MAINTENANCE

6.1 Maintenance and Service

All service, repair or maintenance work performed by a TQ authorized bicycle dealer. Your bicycle dealer can also help you with questions about bicycle use, service, repair or maintenance.

6.2 Cleaning

— Never immerse the Battery in water to clean it.
— Never clean the Battery with a water jet.
— Only clean the Battery with a soft, damp cloth.
— Please contact a TQ authorised bicycle dealer, if the Battery is no longer functional.

7 Environmentally friendly disposal



The components of the drive system and the batteries must not be disposed of in the residual waste garbage can.

— Dispose of metal and plastic components in accordance with country-specific regulations.

— Dispose of electrical components in accordance with country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE).

— Dispose of batteries and rechargeable batteries in accordance with the country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Battery Directive 2006/66/EC in conjunction with Directives 2008/68/EC and (EU) 2020/1833.

— Observe addtitonally the regulations and laws of your country for disposal.

In addition you can return components of the drive system that are no longer required to a bicycle dealer authorized by TQ.

NOTE

For more information and TQ product manuals in various language, please visit www.tq-ebike.com/en/support/manuals or scan this QR-Code.

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Art.-No.: HPR50-BAT01-UM
Rev0301 2023/10

HPR Battery V05 580 Wh



User Manual

EN

1 Safety



These instruction contains information that you must observe for your personal safety and to prevent personal injury and damage to property. They are highlighted by warning triangles and shown below according to the degree of danger.

- ► Read the instructions completely before start-up and use. This will help you to avoid hazards and errors.
- ► Keep the manual for future reference. This user manual is an integral part of the product and must be handed over to third parties in case of resale.

NOTE

Also observe the additional documentation for the other components of the HPR50 drive system as well as the documentation enclosed with the e-bike.

1.1 Hazard classification

⚠ DANGER

The signal word indicates a danger with a **high** degree of risk which will result in death or serious injury if not avoided.

⚠ WARNING

The signal word indicates a danger with a **medium** level of risk which will result in death or serious injury if not avoided.

⚠ CAUTION

The signal word indicates a danger with a **low** level of risk which could result in a minor or moderate injury if not avoided.

NOTE

A note in the sense of this instruction is important information about the product or the respective part of the instruction to which special attention is to be drawn.

1.2 IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING

When using this product, basic precautions should always be followed, including the following:

- Read all the instructions before using the product.
- Do not put fingers or hands into the product.
- Liquid may leak from the Battery if used improperly. Avoid any contact with this liquid. Wash it off with water if you do come into contact with the liquid. Also seek medical attention if the liquid has come into contact with your eyes. Liquid leaking from the Battery can cause irritation or burns.
- Never subject the Battery to mechanical shocks to prevent damage to the Battery.
- To reduce the risk of injury, close supervision is necessary when the Battery is used near children.
-  Never open the Battery case or attempt to disassemble the Battery. WARNING – Risk of Fire – No User Serviceable Parts.
- Do not use this product if the flexible power cord or output cable is frayed, has broken insulation, or any other signs of damage.
- Never break or puncture the Battery.
- Only charge the Battery in well ventilated rooms.
- Only use the original TQ Charger (FSP235–14S4AC8C) to charge the Battery.
- Use only original HPR Batteries to supply power to the drive system.
- This equipment is not intended to be used at ambient temperatures less than -5°C (23°F) or above ambient temperatures of 40°C (104°F).
- The battery is intended to be charged when the ambient temperature is between 0°C (32°F) and 40°C (104°F). Never charge the battery when ambient temperatures are outside this range.
- Do not attempt to modify or repair the product. Check further detail in Chapter "1.3 Intended Use" on page 61.

Only use this product within following temperature limits
Operation: -5°C to 40°C / 23°F to 104°F
Charging: 0°C to 40°C / 32°F to 104°F
Storage: 0°C to 40°C / 32°F to 104°F
Recommended storage: 10°C to 20°C / 50°F to 68°F.

1.2.1 INSTRUCTIONS PERTAINING TO RISK OF FIRE

Explosion and fire hazard with damaged Battery housing

- If the Battery housing is damaged, make sure to have it replaced by a TQ authorised bicycle dealer, even if the Battery is still functional.
- Do not make any repair attempts under any circumstances.

Explosion and fire hazard when short-circuiting the Battery terminals

- Keep the Battery away from metallic objects as there is a risk of short circuits. Do not allow nails, screws or other small, sharp and / or metallic objects to come into contact with the Battery (charging / discharging socket).

Risk of explosion and fire in case of high heat, fire or contact with water



Protect the battery from fire, high heat and also from extended direct exposure to sunlight.

- Never immerse the battery in water.

Danger of poisoning by gases from a smoking or burning Battery in case of damaged Battery or improper use.

- Be careful not to breathe in the highly toxic gases from a smoking or burning Battery.
- Ensure good ventilation and consult a doctor if you notice any undesirable effects on the respiratory organs. The vapors may irritate the respiratory organs.

1.2.2 INSTRUCTIONS PERTAINING TO ELECTRIC SHOCK

The Electric risk and shock is only applicable for the TQ Charger (FSP235–14S4AC8C). Please check and read all safety instruction which are included in the Charger manual.

SAVE THESE INSTRUCTIONS

1.3 Intended Use

The HPR Battery V05 is intended exclusively for supplying power to the HPR50 drive system and must not be used for any other purpose.

Any other use or use that goes beyond this is considered improper and will result in the loss of the warranty. In case of non-intended use, TQ-Systems GmbH assumes no liability for any damage that may occur and no warranty for proper and functional operation of the product.

Intended use also includes observing these instructions and all the information contained therein as well as the information on intended use in the supplementary documents enclosed with the e-bike.

Faultless and safe operation of the product requires proper transport, storage, installation and operation.

2 Technical data

Nominal voltage	50.26 V
Nominal capacity	11.14 Ah
Nominal energy	580 Wh
Dimensions	60.5 mm x 65.5 mm x 416.6 mm / 2.38" x 2.58" x 16.4"
Charging temperature Operating temperature Storage temperature Recommended storage temperature	0°C to 40°C / 32°F to 104°F -5°C to 40°C / 23°F to 104°F 0°C to 40°C / 32°F to 104°F 10°C to 20°C / 50°F to 68°F
Weight	2680 g / 5.91 lbs

Tab. 8: Technical data – HPR Battery V05

3 OPERATION

3.1 Battery charging

⚠ DANGER

- ▶ Only use TQ Charger (FSP235–14S4AC8C) for charging the Battery.

⚠ WARNING

Fire or electric shock hazard due to damage to Battery, Range Extender, charger, cable and plug

- ▶ Never charge the Battery if you notice any damage to the Battery, Range Extender, charger, cables or connectors.
- ▶ Only perform the charging process in a place where there are no flammable materials in surrounding.
- ▶ Never leave the charging process unattended.
- ▶ Do not attempt to modify or repair the product. Check further detail in Chapter "1.3 Intended Use" on page 61.
- ▶ Only use this product within following temperature limits:
  Operation: -5°C to 40°C / 23°F to 104°F
  Charging: 0°C to 40°C / 32°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F
  Recommended storage: 10°C to 20°C / 50°F to 68°F.
- ▶ Further safety warnings regarding Risk of Fire, Electric Shock or Injury to persons can be found in the section: "1.2 Important Safety Instructions" on page 59.

NOTE

You can charge the Battery either directly with the charger or via the optional Range Extender. For more information, refer to the corresponding user manuals for the charger and the Range Extender.

- ▶ Connect the charger to the power supply.
- ▶ Unfold the cover (pos. 1 in Fig. 14) on the charging port (pos. 2 in Fig. 14) in the bike frame.
- ▶ Check that the contacts in the charging port are free of dirt and clean them if necessary.
- ▶ Align the charging plug (pos. 3 in Fig. 14) of the charger or Range Extender so that the plug codes of the charging plug and charging port match (see Fig. 14).

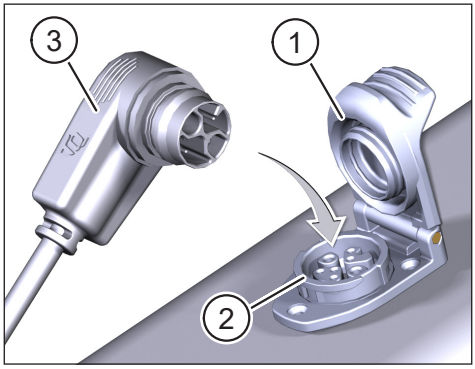


Fig. 14: Battery charging

- ▶ Insert the charging plug (pos. 3 in Fig. 14) of the charger or Range Extender into the charging port.
- ▶ Pull the charging plug out of the charging port when charging is complete.
- ▶ Close the cover on the charging port when charging is complete and disconnect the charger from the power supply.

3.2 Note on Charging

NOTE

The temperature of the Battery must be within the permissible charging temperature range (0°C to 40°C / 32°F to 104°F).
Otherwise the charging process will not be started.

— The drive system is deactivated during the charging process.
— The state of charge of the Battery can be read on the Display.
— The state of charge of the Range Extender can be read on the Display and on the 5 LEDs on the side of the Range Extender.
— New batteries have a charge level of 20% to 30% due to transportation regulations and must be recharged within less than 6 months of manufacture.
— The Battery should be recharged immediately after complete discharge (state of charge <5%).
— 1 charge cycle can consist of a full charge of the Battery capacity (0% to 100%) or several partial charges that add up to 100% of the charge capacity.
— The Battery capacity should be at least 60% after 500 charging cycles.
— Derating: In case the Battery capacity gets almost empty (approx. <10%) during riding the sytems switches automatically to mode I.

4 TRANSPORT

— The transport of lithium batteries is subject to country-specific laws and regulations. Inform yourself about the respective regional regulations and observe them during transport.
— For transport observe the special requirements for packaging and labeling that apply in your country.
— Contact a TQ authorized bicycle dealer for information on transporting the Battery and suitable transport packaging. For transport outside the bicycle frame, we recommend a certified transport box.

5 STORAGE

— It's recommended to store the Battery at room temperature (approx. 10°C to 20°C / 50°F to 68°F) and do not expose it to direct sunlight.
— Do not store the Battery near heat sources or other easily flammable materials.
— Store the Battery in dry rooms (humidity below 70%) and protect it from rain and moisture.
— Store the Battery only in rooms equipped with smoke detectors.
— Charge the Battery to approx. 30% to 60% before storage.
— Check the Battery every 6 months and recharge it to approximately 30% to 60%.
— Fully charge the Battery before use.
— Do not store the Battery with the charger plugged in.

6 USER MAINTENANCE

6.1 Maintenance and Service

All service, repair or maintenance work performed by a TQ authorized bicycle dealer. Your bicycle dealer can also help you with questions about bicycle use, service, repair or maintenance.

6.2 Cleaning

— Never immerse the Battery in water to clean it.
— Never clean the Battery with a water jet.
— Only clean the Battery with a soft, damp cloth.
— Please contact a TQ authorised bicycle dealer, if the Battery is no longer functional.

7 Environmentally friendly disposal



The components of the drive system and the batteries must not be disposed of in the residual waste garbage can.

— Dispose of metal and plastic components in accordance with country-specific regulations.

— Dispose of electrical components in accordance with country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE).

— Dispose of batteries and rechargeable batteries in accordance with the country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Battery Directive 2006/66/EC in conjunction with Directives 2008/68/EC and (EU) 2020/1833.

— Observe addtitonally the regulations and laws of your country for disposal.

In addition you can return components of the drive system that are no longer required to a bicycle dealer authorized by TQ.

NOTE

For more information and TQ product manuals in various language, please visit **www.tq-ebike.com/en/support/manuals** or scan this QR-Code.

We have checked the contents of this publication for conformity with the product described. However, deviations cannot be ruled out so that we cannot accept any liability for complete conformity and correctness.

The information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Art.-No.: HPR-BAT05-UM
Rev0100 2024/04

HPR Range Extender V01 160 Wh



User Manual

EN

1 Safety



These instruction contains information that you must observe for your personal safety and to prevent personal injury and damage to property. They are highlighted by warning triangles and shown below according to the degree of danger.

- ► Read the instructions completely before start-up and use. This will help you to avoid hazards and errors.
- ► Keep the manual for future reference. This user manual is an integral part of the product and must be handed over to third parties in case of resale.

NOTE

Also observe the additional documentation for the other components of the HPR50 drive system as well as the documentation enclosed with the e-bike.

1.1 Hazard classification

⚠ DANGER

The signal word indicates a danger with a **high** degree of risk which will result in death or serious injury if not avoided.

⚠ WARNING

The signal word indicates a danger with a **medium** level of risk which will result in death or serious injury if not avoided.

⚠ CAUTION

The signal word indicates a danger with a **low** level of risk which could result in a minor or moderate injury if not avoided.

NOTE

A note in the sense of this instruction is important information about the product or the respective part of the instruction to which special attention is to be drawn.

1.2 IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING

When using this product, basic precautions should always be followed, including the following:

- Read all the instructions before using the product.
- Do not put fingers or hands into the product.
- The installation of the HPR Range Extender V01 may only be carried out by authorised dealers. The persons must be qualified accordingly, e. g. by training as a two-wheel mechatronics technician. They must be able to recognise possible dangers during installation. Otherwise, there is a risk that the Range Extender or other lithium-ion batteries on the e-bike will be damaged or that the Range Extender comes off during the ride due to incorrect mounting.
- Liquid may leak from the Battery if used improperly. Avoid any contact with this liquid. Wash it off with water if you do come into contact with the liquid. Also seek medical attention if the liquid has come into contact with your eyes. Liquid leaking from the Range Extender can cause irritation or burns.
- Never subject the Range Extender to mechanical shocks to prevent damage to the Range Extender.
- To reduce the risk of injury, close supervision is necessary when the Range Extender is used near children.
- Never open the Range Extender case or attempt to disassemble the Range Extender.
  WARNING – Risk of Fire – No User Serviceable Parts.
- Do not use this product if the flexible power cord or output cable is frayed, has broken insulation, or any other signs of damage.
- Never break or puncture the Range Extender.
- Only charge the Range Extender in well ventilated rooms.
- Only use the original TQ Charger (FSP235–14S4AC8C) to charge the Range Extender.
- Use only original HPR Range Extenders to supply power to the drive system.

⚠ This equipment is not intended to be used at ambient temperatures less than -5°C (23°F) or above ambient temperatures of 40°C (104°F).

⚠ The Range Extender is intended to be charged when the ambient temperature is between 0°C (32°F) and 40°C (104°F). Never charge the Range Extender when ambient temperatures are outside this range.

⚠ Do not attempt to modify or repair the product.
Check further detail in chapter "1.3 Intended Use" on page 73.

⚠ Only use this product within following temperature limits:
Operation: -5°C to 40°C / 23°F to 104°F
Charging: 0°C to 40°C / 32°F to 104°F
Storage: 0°C to 40°C / 32°F to 104°F
Recommended storage: 10°C to 20°C / 50°F to 68°F.

1.2.1 INSTRUCTIONS PERTAINING TO RISK OF FIRE

⚠ **Explosion and fire hazard with damaged Range Extender housing**

- If the Range Extender housing is damaged, make sure to have it replaced by a TQ authorised bicycle dealer, even if the Range Extender is still functional.
- Do not make any repair attempts under any circumstances.

⚠ **Explosion and fire hazard when short-circuiting the Range Extender terminals**

- Keep the Range Extender away from metallic objects as there is a risk of short circuits. Do not allow nails, screws or other small, sharp and/or metallic objects to come into contact with the Range Extender (charging/discharging socket).

⚠ **Risk of explosion and fire in case of high heat, fire or contact with water**



Protect the Range Extender from fire, high heat and also from extended direct exposure to sunlight.

- Never immerse the Range Extender in water.

Danger of poisoning by gases from a smoking or burning Range Extender in case of damaged Range Extender or improper use.

- Be careful not to breathe in the highly toxic gases from a smoking or burning Range Extender.
- Ensure good ventilation and consult a doctor if you notice any undesirable effects on the respiratory organs. The vapors may irritate the respiratory organs.

1.2.2 INSTRUCTIONS PERTAINING TO ELECTRIC SHOCK

The Electric risk and shock is only applicable for the TQ Charger (FSP235–14S4AC8C). Please check and read all safety instruction which are included in the Charger manual.

SAVE THESE INSTRUCTIONS

1.3 Intended Use

The HPR Range Extender is intended exclusively for supplying power to the HPR50 drive system and must not be used for any other purpose.

Any other use or use that goes beyond this is considered improper and will result in the loss of the warranty. In case of non-intended use, TQ-Systems GmbH assumes no liability for any damage that may occur and no warranty for proper and functional operation of the product.

Intended use also includes observing these instructions and all the information contained therein as well as the information on intended use in the supplementary documents enclosed with the e-bike.

Faultless and safe operation of the product requires proper transport, storage, installation and operation.

2 Technical data

Nominal voltage	50.4 V
Nominal capacity	2.8 Ah
Nominal energy	160 Wh
Discharge logic	When operating the e-bike, the Range Extender is discharged first afterwards the battery.
Dimensions	Ø 76 mm, length 185 mm / Ø 3", length 7.3"
Charging temperature	0°C to 40°C / 32°F to 104°F
Operating temperature	-5°C to 40°C / 23°F to 104°F
Storage temperature	0°C to 40°C / 32°F to 104°F
Recommended storage temperature	10°C to 20°C / 50°F to 68°F
Weight	approx. 950 g / 2.1 lbs (without frame fastening like FIDLOCK®)

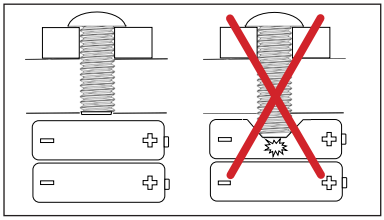
Tab. 9: Technical data – HPR Range Extender V01

3 INSTALLATION INSTRUCTIONS

3.1 Installing the HPR Range Extender on the e-bike

The design of the mounting system for the HPR Range Extender on the e-bike depends on the manufacturer. This section shows how to mount the Range Extender on the down tube of the e-bike using the FIDLOCK® system.

Make sure especially in case of retrofit that no components of the e-bike such as the battery or wiring harness are damaged when installing the Range Extender.



Pay special attention to the following points:

— The assembly of the HPR Range Extender may only be carried out by authorised dealers. The personnel must be appropriately qualified, e.g. through training as a two-wheel mechatronics technician. They must be able to recognise possible dangers during assembly. Otherwise, there is a risk that the Range Extender or other lithium-ion batteries on the e-bike will be damaged or that the Range Extender comes loose during the ride due to insufficient fastening.

— Selection of the correct screw heads and screw lengths.

— Selection of the positions recommended by the bicycle manufacturer for the attachment.

3.1.1 Fitting the FIDLOCK® Bike Base to the e-bike

⚠ WARNING

Fire hazard due to damage to the battery inside the e-bike frame caused by using screws that are too long

► Only use the screws provided by the bicycle manufacturer or the ISO 7380–1 M5 × 10 A2 button head screws included in the scope of delivery to attach the FIDLOCK® Bike Base.

Using screws that are too long can damage the battery inside the e-bike frame.

⚠ CAUTION

Risk of accident due to release of the Range Extender from the locking mechanism

- ▶ Only use the screws provided by the bicycle manufacturer or the ISO 7380–1 M5 × 10 A2 button head screws included in the scope of delivery to attach the FIDLOCK® Bike Base.

Screws with a higher head mean that the FIDLOCK® Force Connector on the Range Extender is not firmly connected to the FIDLOCK® Bike Base and will come loose while riding.

- ▶ Fasten the FIDLOCK® Bike Base (Pos. 1 in Fig. 15) with the two button head screws (Pos. 2 in Fig. 15) in the threads provided for this purpose (Pos. 3 in Fig. 15, follow the specifications of the bicycle manufacturer) inside the e-bike frame.
- ▶ Tighten the two button head bolts with a torque of **2 Nm** or to the max. torque values specified by the bicycle manufacturer.

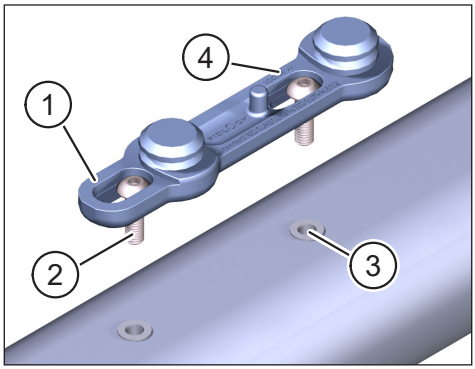


Fig. 15: Fasten the FIDLOCK® Bike Base to the e-bike

NOTE

- ▶ Observe the inscription engraved **"upside>>"** when mounting on the FIDLOCK® Bike Base (Pos. 1 in Fig. 16). The upper edge of the FIDLOCK® logo (Pos. 2 in Fig. 16) on the FIDLOCK® Force Connector must point in the direction of the arrow from **"upside >>"**.

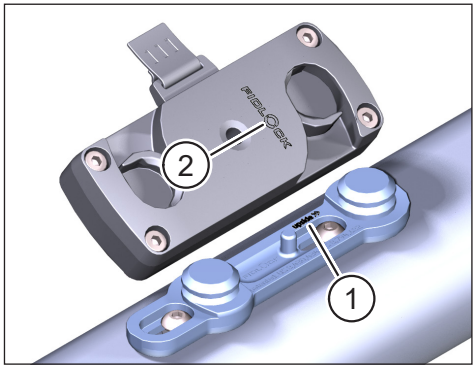


Fig. 16: Orientation of FIDLOCK® Bike Base and FIDLOCK® Force Connector

3.1.2 Fasten FIDLOCK® Force Connector to Range Extender

⚠ WARNING

Fire hazard due to damage to the Range Extender by using screws that are too long

- ► Only use the screws provided by the bicycle manufacturer or the ISO 4762 M4 × 16 A2 cylinder screws included in the scope of delivery to fasten the FIDLOCK® Force Connector.

Using screws that are too long can damage the battery in the Range Extender.

- ► Fasten the FIDLOCK® Force Connector (Pos. 1 in Fig. 17) in the threads (Pos. 3 in Fig. 17) in the Range Extender using the four M4 x 16 cylinder screws supplied (Pos. 2 in Fig. 17).
- ► Tighten the four cylinder screws with a torque of **1 Nm**.

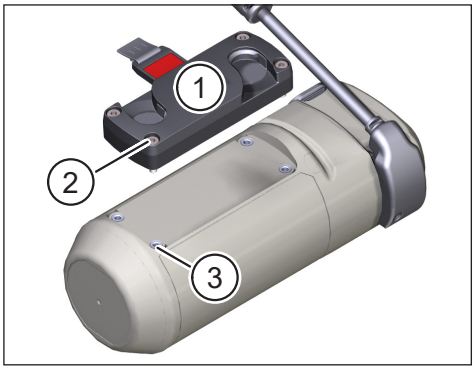


Fig. 17: Fasten FIDLOCK® Force Connector to Range Extender

3.1.3 Insert and lock the Range Extender on the FIDLOCK® Bike Base

- ► Place the Range Extender (Pos. 1 in Fig. 18) with the fastened FIDLOCK® Force Connector (Pos. 2 in Fig. 18) diagonally onto the FIDLOCK® Bike Base (Pos. 3 in Fig. 18). The pin (Pos. 4 in Fig. 18) on the FIDLOCK® Bike Base must slide into the corresponding socket in the FIDLOCK® Force Connector when it is put on. The magnets support the attachment and the Range Extender should automatically lock into place with an audible click.

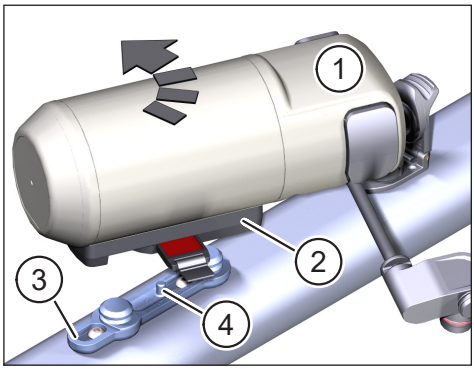


Fig. 18: Insert Range Extender

3.1.4 Locking the Range Extender into the FIDLOCK® Bike Base

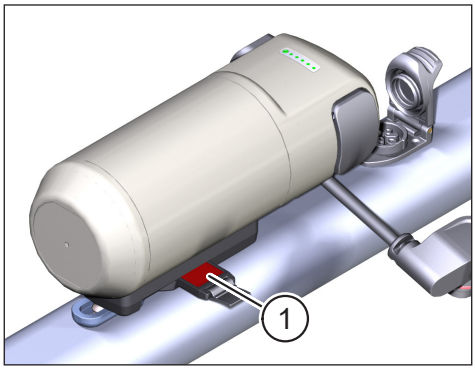


Fig. 19: FIDLOCK® system unlocked

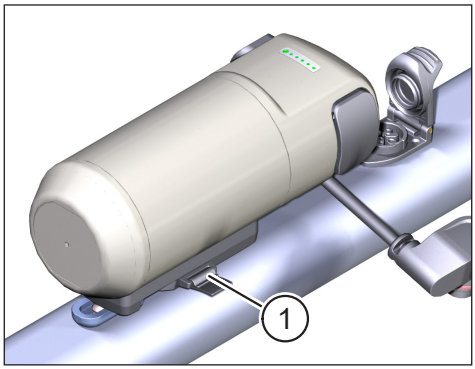


Fig. 20: FIDLOCK® system locked

The FIDLOCK® system is still unlocked after inserting the Range Extender. This condition is indicated by the red field (Pos. 1 in Fig. 19) on the locking tab.

► Push the locking tab in as far as it will go (Pos. 1 in Fig. 20), to fix the Range Extender firmly in place.

⚠ CAUTION

Risk of accident due to unlocked Range Extender

► Always lock the Range Extender with the locking tab in the FIDLOCK® system before go riding.

Otherwise there is a risk that the Range Extender will come loose while riding, which can lead to a crash.

NOTE

► Check the FIDLOCK® Bike Base and the FIDLOCK® Force Connector for dirt and damage before every ride.

For more information on the FIDLOCK® TWIST system and compatible accessories, please visit www.fidlock.com/consumer/.

3.1.5 Connect the connection cable to the Range Extender

- ▶ Connect the plug (Pos. 1 in Fig. 21) of the connection cable to the socket (Pos. 2 in Fig. 21) in the Range Extender.
- ▶ Fasten the connector to the Range Extender with the M3 × 8 socket head screw (Pos. 3 in Fig. 21) included in the scope of delivery of the cable, with a torque of 1 Nm. Never use a longer screw. Otherwise there is a risk of damaging the electronics in the Range Extender.

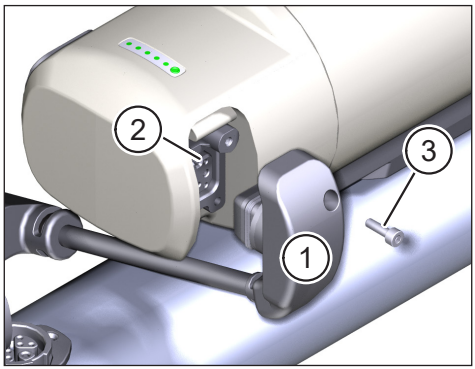


Fig. 21: Fasten the connection cable to the Range Extender

NOTE

Connecting cables are available in various versions with different cable lengths and connector orientations to meet the requirements of the respective installation situation.

- ▶ Enquire at the e-bike manufacturer about the connection cable you need.

3.1.6 Connect the connection cable to the charging port of the e-bike

- ▶ Unfold the cover (Pos. 1 in Fig. 22) of the charging port (Pos. 2 in Fig. 22) on the e-bike frame.
- ▶ Check that the terminals in the charging port are free of dirt and clean them if necessary.
- ▶ Align the connector (Pos. 3 in Fig. 22) of the connection cable so that the connector coding of the plug and charging port match.
- ▶ Insert the plug into the charging port and secure the plug with the cover (Pos. 1 in Fig. 22).

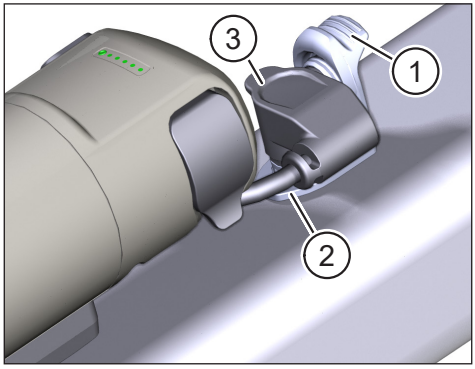


Fig. 22: Connect the connection cable to the charging port

⚠ CAUTION

Risk of accident due to free hanging connection cable on the Range Extender

- ▶ Always connect the Range Extender to the charging port of the battery in the bicycle frame when you have installed the Range Extender on the bicycle.

Otherwise there is a risk that the free hanging connection cable on the Range Extender will get caught in the pedals while riding and so leads to crash.

4 OPERATION

4.1 Range Extender charging

⚠ DANGER

- ▶ Only use TQ Charger (FSP235–14S4AC8C) for charging the Range Extender.

⚠ WARNING

Fire or electric shock hazard due to damage to battery, Range Extender, charger, cable and plug.

- ▶ Never charge the Range Extender if you notice any damage to the Battery, Range Extender, Charger, cables or connectors.
- ▶ Only perform the charging process in a place where there are no flammable materials in surrounding.
- ▶ Never leave the charging process unattended.
- ▶ Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 73.
- ▶ Only use this product within following temperature limits:
  Operation: -5°C to 40°C / 23°F to 104°F
  Charging: 0°C to 40°C / 32°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F
  Recommended storage: 10°C to 20°C / 50°F to 68°F.
- ▶ Further safety warnings regarding Risk of Fire, Electric Shock or Injury to persons can be found in the section "1.2 Important Safety Instructions" on page 71.

NOTE

— The drive system detects whether the Range Extender is connected to the charging port of the battery in the bicycle frame. In this case the drive system is deactivated during the charging process for safety reasons.

— The charging system detects whether the Range Extender is connected to the charging port of the battery in the bicycle frame. In this case both are charged, first the battery and afterwards the Range Extender.

⚠ CAUTION

Risk of accident due to activated drive system during the charging process

▶ Always connect the Range Extender to the charging port of the battery in the bicycle frame when you have installed the Range Extender on the bicycle.

This is the only way to ensure that the drive system is deactivated during charging. Otherwise there is a risk that you can start the drive system during charging and that the plugged-in charging cable will cause damage or leads to a crash.

▶ Connect the charger to the power supply.

▶ Unfold the cover (Pos. 1 in Fig. 23) on the charging port of the Range Extender.

▶ Check that the terminals in the charging port (Pos. 2 in Fig. 23) are free of dirt and clean them if necessary.

▶ Insert the charging plug (Pos. 3 in Fig. 23) of the charger into the charging port of the Range Extender.

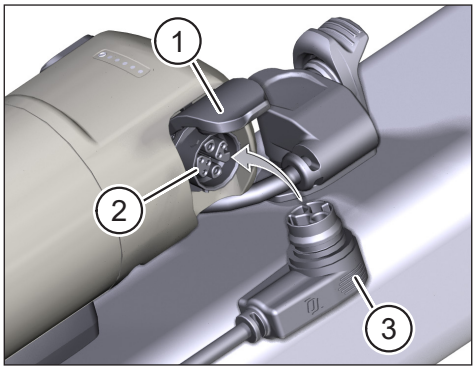


Fig. 23: Range Extender charging

▶ Pull the charger plug of the charger out of the charging port of the Range Extender when charging is complete.

▶ Close the cover on the charging port when charging is complete.

▶ Disconnect the charger from the power supply.

4.2 Notes on Charging

NOTE

The temperature of the Range Extender must be within the permissible charging temperature range (0°C to 40°C / 32°F to 104°F).
Otherwise the charging process will not start.

— The Range Extender can be charged directly on the e-bike or separately.

— The drive system is deactivated during charging when the Range Extender is connected to the battery charging port in the bicycle frame.

— The charging status of the Range Extender can be read on the display and on the 5 LEDs on the side of the Range Extender. Briefly cover the light sensor to the left of the LEDs with a finger to activate this display.

— New Range Extenders have a state of charge of 20% to 30% due to transport regulations and must be recharged within less than 6 months after manufacturing.

— The Range Extender should be recharged immediately after it has been completely discharged (state of charge <5%).

— 1 charge cycle can consist of a full charge of the Range Extender capacity (0% to 100%) or several partial charges that add up to 100% of the charge capacity.

— The Range Extender capacity should be at least 60% after 500 charging cycles.

5 TRANSPORT AND STORAGE

— The transport of lithium batteries is subject to country-specific laws and regulations. Inform yourself about the respective regional regulations and observe them during transport.

— For transport observe the special requirements for packaging and labeling that apply in your country.

— Contact a TQ authorised bicycle dealer for information on transporting the Range Extender and suitable transport packaging. For transport outside the bicycle frame, we recommend a certified transport box.

— It's recommended to store the Range Extender at room temperature (approx. 10°C to 20°C / 50°F to 68°F) and do not expose it to direct sunlight.

— Do not store the Range Extender near heat sources or other easily flammable materials.

— Store the Range Extender in dry rooms (humidity below 70%) and protect it from rain and moisture.

— Store the Range Extender only in rooms equipped with smoke detectors.

— Charge the Range Extender to approx. 30% to 60% before storage.

— Check the Range Extender every 6 months and recharge it to approx. 30% to 60%.

— Fully charge the Range Extender before use.

— Do not store the Range Extender with the charger plugged in.

6 USER MAINTENANCE

6.1 Maintenance and Service

All service, repair or maintenance work performed by a TQ authorized bicycle dealer. Your bicycle dealer can also help you with questions about bicycle use, service, repair or maintenance.

6.2 Cleaning

— Never immerse the Range Extender in water to clean it.
— Never clean the Range Extender with a water jet.
— Only clean the Range Extender with a soft, damp cloth.
— Please contact a TQ authorised bicycle dealer, if the Range Extender is no longer functional.

7 Environmentally friendly disposal

The components of the drive system and the batteries must not be disposed of in the residual waste garbage can.



— Dispose of metal and plastic components in accordance with country-specific regulations.
— Dispose of electrical components in accordance with country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE).
— Dispose of batteries and rechargeable batteries in accordance with the country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Battery Directive 2006/66/EC in conjunction with Directives 2008/68/EC and (EU) 2020/1833.
— Observe addtitonally the regulations and laws of your country for disposal.

In addition you can return components of the drive system that are no longer required to a bicycle dealer authorized by TQ.

NOTE

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We have checked the contents of this publication for conformity with the product described. However, deviations cannot be ruled out so that we cannot accept any liability for complete conformity and correctness.

The information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Rev0201 2023/10

4 A Charger



User Manual

EN

1 Safety



These instruction contains information that you must observe for your personal safety and to prevent personal injury and damage to property. They are highlighted by warning triangles and shown below according to the degree of danger.

- ► Read the instructions completely before start-up and use. This will help you to avoid hazards and errors.
- ► Keep the manual for future reference. This user manual is an integral part of the product and must be handed over to third parties in case of resale.

NOTE

Also observe the additional documentation for the other components of the HPR50 drive system as well as the documentation enclosed with the e-bike.

1.1 Hazard classification

⚠ DANGER

The signal word indicates a danger with a **high** degree of risk which will result in death or serious injury if not avoided.

⚠ WARNING

The signal word indicates a danger with a **medium** level of risk which will result in death or serious injury if not avoided.

⚠ CAUTION

The signal word indicates a danger with a **low** level of risk which could result in a minor or moderate injury if not avoided.

NOTE

A note in the sense of this instruction is important information about the product or the respective part of the instruction to which special attention is to be drawn.

1.2 IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING

When using this product, basic precautions should always be followed, including the following:

- Read all the instructions before using the product.
- Do not put fingers or hands into the product.
- Only use the original TQ Charger (FSP235–14S4AC8C) to charge the original Battery and Range Extender V01.
- Before each charging process, check that the Charger cable and plug are not damaged.
- Only operate the Charger in dry rooms.
- Keep the Charger clean. Contamination could cause an electric shock.
- The Battery and Range Extender must never be charged unattended.
- To reduce the risk of injury, close supervision is necessary when the Charger is used near children.
- Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 91.
- The Battery and Range Extender are intended to be charged when the ambient temperature is between 0°C (32°F) and 40°C (104°F).
  Never charge the Battery and the Range Extender when ambient temperatures are outside this range.
- This equipment is not intended to be used at ambient temperatures less than 0°C (32°F) or above ambient temperatures of 40°C (104°F).
- Only use this product within following temperature limits:
  Charging: 0°C to 40°C / 32°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F.

1.2.1 INSTRUCTIONS PERTAINING TO RISK OF FIRE

Do not operate the Charger on easily combustible surfaces (e.g. paper, textiles, etc.) or in combustible environments. There is a risk of fire due to the heating of the Charger during charging.

To reduce the risk of fire, connect only to a circuit provided with 20 amperes maximum branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70.

1.2.2 INSTRUCTIONS PERTAINING TO ELECTRIC SHOCK

Do not use this product if the flexible power cord or output cable is frayed, has broken insulation, or any other signs of damage.

Never open the Charger. In the event of a fault, have the Charger checked by an authorized bicycle dealer.

Protect the Charger from moisture. Otherwise there is a risk of electric shock.

SAVE THESE INSTRUCTIONS

1.3 Intended Use

The TQ Charger (FSP235–14S4AC8C) is intended exclusively for charging the Battery and the optional Range Extender of the HPR50 drive system and must not be used for other purposes. The terms Battery or Range Extender refer exclusively to the original Battery pack included in the scope of delivery of the e-bike or the optional Range Extender.

Any other use or use that goes beyond this is considered improper and will result in the loss of the warranty. In case of non-intended use, TQ-Systems GmbH assumes no liability for any damage that may occur and no warranty for proper and functional operation of the product.

Intended use also includes observing these instructions and all information contained therein as well as the information on intended use in the supplementary documents enclosed with the e-bike.

Faultless and safe operation of the product requires proper transport, storage, installation and operation.

2 Technical Data

Input power supply voltage	100 VAC to 240 VAC
Input power supply frequency	50 Hz to 60 Hz
Power plug versions	EU, USA, UK, NZL/AUS
Output voltage (max.)	58.8 V DC
Charge current (max.)	4 A
Dimensions	177 mm x 86 mm x 32.2 mm / 6.97" x 3.39" x 1.27"
Protection class	IP40 (Indoor use only)
Operating and storage temperature	0°C to 40°C / 32°F to 104°F
Max. height during operation	3000 m / 9843 ft above sea level
Weight	700 g / 1.54 lbs incl. power cable

Tab. 10: Technical data – TQ Charger (FSP235–14S4AC8C)

3 OPERATION

3.1 Battery / Range Extender charging

⚠ WARNING

Fire or electric shock hazard due to damage to Battery, Range Extender, Charger, cable and plug

- ▶ Never use the Charger if you notice any damage to the Battery, Range Extender, Charger, cables or connectors.
- ▶ Only perform the charging process in a place where there are no flammable materials in surrounding.
- ▶ Never leave the charging process unattended.
- ▶ Only use the original TQ Charger (FSP235–14S4AC8C) to charge the Battery or Range Extender.
- ▶ Further safety warnings regarding Risk of Fire, Electric Shock or Injury to persons can be found in the section "1.2 Important Safety Instructions" on page 89.
- ▶ Do not attempt to modify or repair the product.
  Check further detail in chapter "1.3 Intended Use" on page 91.
- ▶ Only use this product within following temperature limits:
  Charging: 0°C to 40°C / 32°F to 104°F
  Storage: 0°C to 40°C / 32°F to 104°F.

Connect the Charger to the power supply

- ▶ Insert the small device plug (Pos. 1 in Fig. 24) of the country-specific power cord into the socket (Pos. 2 in Fig. 24) on the Charger.
- ▶ Connect the mains plug of the Charger to the mains socket.

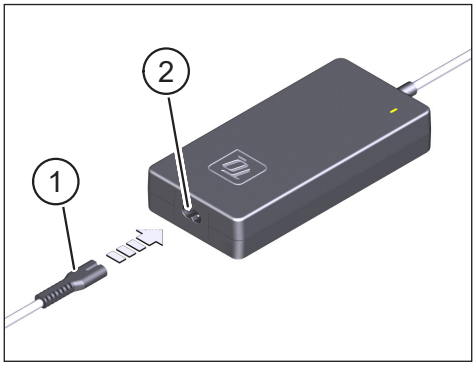


Fig. 24: Connect the Charger to the power supply

Integrated Battery charging

- ▶ Open the cover (Pos. 1 in Fig. 25) on the charging port (Pos. 2 in Fig. 25) in the bike frame.
- ▶ Check that the contacts in the charging port are free of dirt and clean them if necessary.
- ▶ Align the charging plug (Pos. 3 in Fig. 25) of the charger so that the plug codes of the charging plug and charging port match (see Fig. 25).
- ▶ Plug in the charging plug of the Charger into the charging port of the Battery.

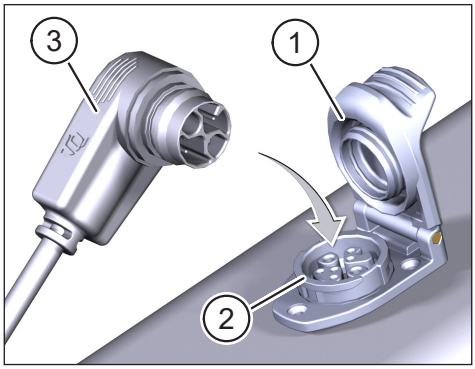


Fig. 25: Integrated Battery charging

- ▶ Remove the charging plug of the Charger from the charging port of the Battery when charging is complete.
- ▶ Close the cover on the charging port after the charging process has been completed.
- ▶ Disconnect the Charger from the power supply system.

NOTE

The drive system detects whether the Charger is connected to the charging port of the Battery in the bike frame. In this case, the drive system is deactivated during the charging process for safety reasons.

Optional Range Extender Charging

NOTE

— When connecting the Charger to the optional Range Extender, it is checked whether the Range Extender is connected to the charging port of the Battery in the bike frame. In this case, the drive system is deactivated during the charging process for safety reasons.

— The charging system detects whether the Range Extender is connected to the charging port of the Battery in the bicycle frame. In this case, both are charged, first the integrated Battery and then the optional Range Extender.

⚠ CAUTION

Risk of accident due to activated drive system during charging process

▶ Always connect the Range Extender to the charging port of the Battery in the bike frame when you have installed the Range Extender on the bike.

This is the only way to ensure that the drive system is deactivated during charging. Otherwise, there is a risk that you may start the drive system during charging and the plugged-in charging cable may cause a fall when you start driving.

▶ Open the cover (Pos. 1 in Fig. 26) on the charging port of the Range Extender.

▶ Check that the contacts in the charging port (Pos. 2 in Fig. 26) are free of dirt and clean them if necessary.

▶ Insert the charging plug (Pos. 3 in Fig. 26) of the Charger into the charging port of the Range Extender.

▶ Remove the charging plug of the Charger from the charging port of the Range Extender after the charging process is complete.

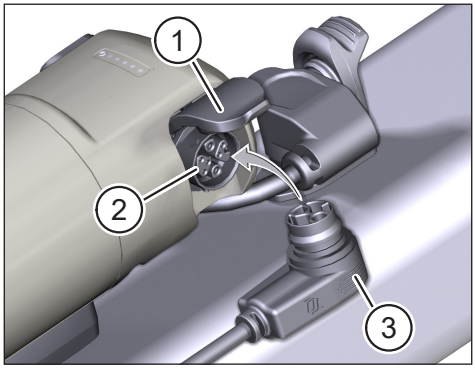


Fig. 26: Range Extender charging

▶ Close the cover on the charging port when charging is complete.

▶ Disconnect the Charger from the power supply.

3.2 Notes on the charging process

NOTE

The temperature of the Battery or Range Extender must be within the permissible charging temperature range (0°C to 40°C / 32°F to 104°F). Otherwise, the charging process will not be started.

— The drive system is deactivated in the following cases:
  - While the Battery is charging.
  - When the Range Extender is connected to the charging port of the Battery in the bike frame and is charging.

— The state of charge of the Battery and the Range Extender can be read separately on the Display.

— The state of charge of the Range Extender can also be read from the 5 LEDs located on the side of the Range Extender.

3.3 LED-states on the Charger

LED-state	Description
Off	Charger is not connected to the power supply
Red blinking	Standby (no Battery connected)
Green blinking	Charging
Green permanent light	Charging process completed
Red permanent light	Error (overvoltage, undervoltage, short-circuit at output, overcurrent, overtemperature, wrong polarity)

Tab. 11: LED-states on the Charger

4 TRANSPORT AND STORAGE

— Store the Charger in a dry place, protected from direct sunlight.
— Do not drop the Charger to avoid damaging it.

5 USER MAINTENANCE

5.1 Maintenance and Service

All service, repair or maintenance work performed by a TQ authorized bicycle dealer. Your bicycle dealer can also help you with questions about bicycle use, service, repair or maintenance.

5.2 Cleaning

► Disconnect the Charger from the power supply and, if necessary from the charging port.
► Only clean the Charger with a damp cloth.
► Make sure the Charger is completely dry before reusing it.

6 Environmentally friendly disposal

The components of the drive system and the batteries must not be disposed of in the residual waste garbage can.

— Dispose of metal and plastic components in accordance with country-specific regulations.

— Dispose of electrical components in accordance with country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE).

— Dispose of batteries and rechargeable batteries in accordance with the country-specific regulations. In EU countries, for example, observe the national implementations of the Waste Battery Directive 2006/66/EC in conjunction with Directives 2008/68/EC and (EU) 2020/1833.

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For Service and Warranty, please contact your local authorized bike shop.

Refer to the Trek website (Support) for the latest revision of this manual.
New features, as described in the latest manual, may not be applicable on your e-bike.

Limited warranty

Your bicycle is covered by a Limited Warranty.
Please visit our website for details.

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