



Display V02 & Remote V01



User Manual
EN

1 Safety



This 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

HAZARD

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

WARNING

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

CAUTION

The signal word indicates a hazard 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 Intended Use

The Display V02 and the Remote V01 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.

1.3 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.

1.4 Safety instructions for the Display und Remote

- 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.

1.5 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.

1.6 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.

1.7 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.

1.8 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.

2 Technical data

2.1 Display

| | |
|----------------------------|---|
| 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 | 2,400 Ghz – 2,4835 Ghz |
| Transmitting power max. | 2,5 mW |
| Protection class | IP66 |
| 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 | -5 °C to +40 °C / 23 °F to 104 °F |
| Storage temperature | 0 °C to +40 °C / 32 °F to 140 °F |

Tab. 1: Technical data – Display

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 Remote

| | |
|-----------------------|-----------------------------------|
| Protection class | IP66 |
| Weight with cable | 25 g / 0,88 oz |
| Operating temperature | -5 °C to +40 °C / 23 °F to 104 °F |
| Storage temperature | 0 °C to +40 °C / 32 °F to 104 °F |

Tab. 2: Technical data – Remote

3 Operation and indication components

3.1 Overview Display

| Pos. in Fig. 1 | 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 6 on page 10) |
| 4 | Assist mode (OFF, I, II, III) |
| 5 | Button |

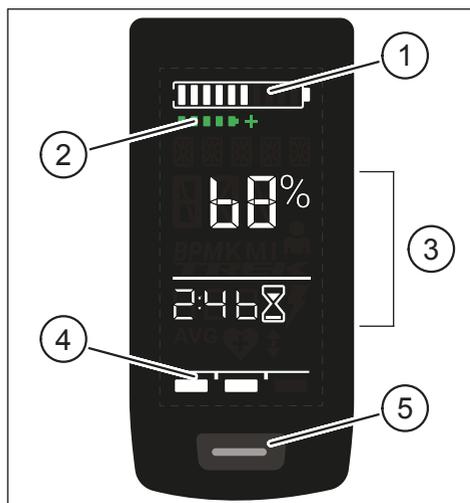


Fig. 1: Operation and indication components on Display

3.2 Overview Remote

| Pos. in Fig. 2 | Description |
|----------------|-------------|
| 1 | UP Button |
| 2 | DOWN Button |

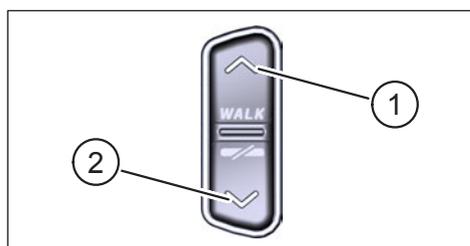


Fig. 2: Operation on the Remote

4 Operation

- ▶ Make sure that the Battery is sufficiently charged before operation.

Switch on drive system:

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

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

5 Setup-Mode

5.1 Setup-Mode activate

- ▶ Switch **off** 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.

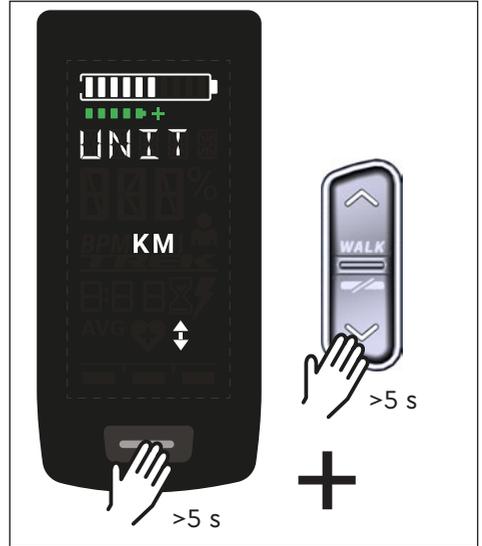


Fig. 4: Setup-Mode activate

5.2 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 (> 3s) if the walk assist function is deactivated due to country-specific laws and regulations.

6 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 11.3 on page 18).
- Remaining time for drive unit support (2 h and 46 min in this example).

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 whether 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: Display – Riding information

7 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.

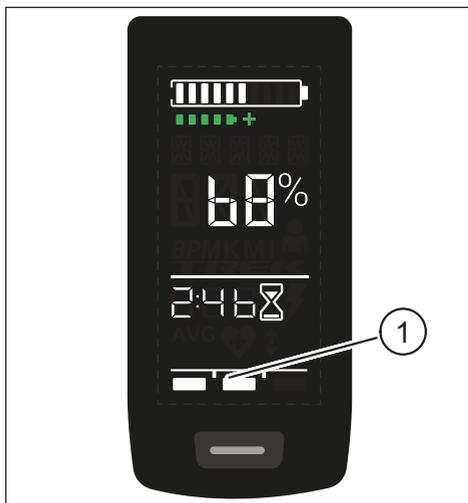


Fig. 5: Visualization of the selected assist mode



Fig. 6: Select assist mode on the Remote

8 Set connections

8.1 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

8.2 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

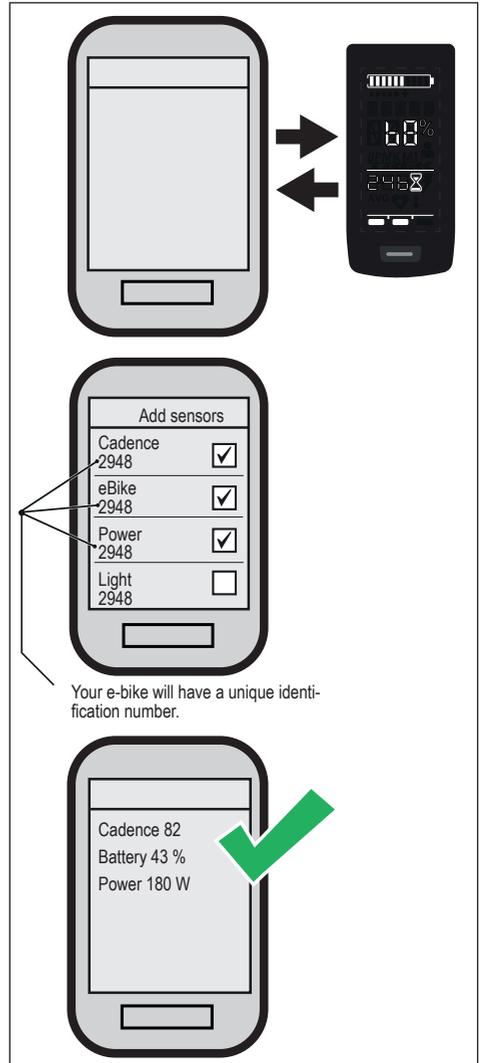


Fig. 8: Connection e-bike to bicycle computer

9 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 „5.2 Settings“), the next screen with riding information is Displayed instead of activating the walk assist (see chapter „6 Riding information“).

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 standstill, 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.

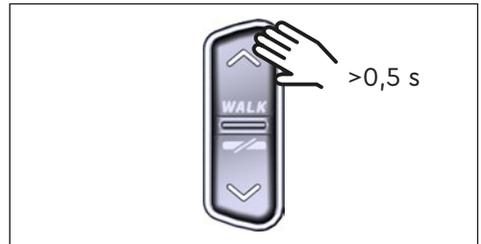


Fig. 9: Activate walk assist

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.

10 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

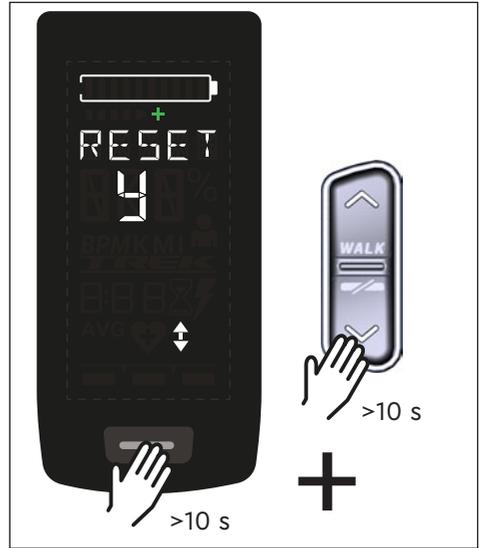


Fig. 10: Reset to factory settings

11 General riding notes

11.1 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.

11.2 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.

11.3 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.

12 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.

13 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.

14 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 additionally 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.



15 Error codes

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

| Error code | Cause | Corrective measures |
|-------------------|-----------------------------------|--|
| ERR 401 DRV SW | General software error | |
| ERR 403 DRV COMM | Peripheral communication error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 405 DISP COMM | Walk assist communication error | |
| ERR 407 DRV SW | Drive Unit electronic error | |
| ERR 408 DRV HW | Drive Unit overcurrent error | Restart the system and avoid unintended use. Contact your TQ dealer if the error still occurs. |
| ERR 40B DRV SW | | |
| ERR 40C DRV SW | | |
| ERR 40D DRV SW | General software error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 40E DRV SW | | |
| ERR 40F DRV SW | | |
| ERR 415 DRV SW | Configuration error | Contact your TQ dealer. |
| ERR 416 BATT COMM | General software error | |
| ERR 418 DISP COMM | Display initialization error | |
| ERR 41D DRV HW | Drive Unit memory error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 41D DRV SW | | |
| ERR 42B DRV SW | General software error | |
| ERR 42E DRV SW | | |
| ERR 440 DRV HW | Drive Unit electronic error | |
| ERR 445 DRV HW | Drive Unit overcurrent error | Restart the system and avoid unintended use. Contact your TQ dealer if the error still occurs. |
| ERR 451 DRV HOT | Drive Unit over temperature error | Permissible operating temperature exceeded or fall below. Switch off the drive unit to allow it to cool down if necessary. Start the system again. Contact your TQ dealer if the error still occurs. |
| ERR 452 DRV HOT | | |

| Error code | Cause | Corrective measures |
|-------------------|-------------------------------------|--|
| ERR 453 DRV SW | Drive Unit initialization error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 457 BATT CONN | Drive Unit voltage error | |
| ERR 458 BATT CONN | Drive Unit overvoltage error | Replace the Charger and use only original Charger. Contact your TQ dealer if the error still occurs. |
| ERR 45D BATT GEN | General Battery error | |
| ERR 465 BATT COMM | Battery communication error timeout | |
| ERR 469 BATT GEN | Critical Battery error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 475 BATT COMM | Battery initialization error | |
| ERR 479 DRV SW | | |
| ERR 47A DRV SW | General software error | |
| ERR 47B DRV SW | | |
| ERR 47D DRV HW | Drive Unit overcurrent error | Restart the system and avoid unintended use. Contact your TQ dealer if the error still occurs. |
| ERR 47F DRV HOT | Drive Unit overtemperature error | Permissible operating temperature exceeded or fall below. Switch off the drive unit to allow it to cool down if necessary. Start the system again. Contact your TQ dealer if the error still occurs. |
| ERR 480 DRV SENS | Drive Unit assist error | Restart the system and avoid unintended use. Contact your TQ dealer if the error still occurs. |

| Error code | Cause | Corrective measures |
|-------------------|--------------------------------|---|
| ERR 481 BATT COMM | Battery communication error | |
| ERR 482 DRV SW | Drive Unit configuration error | |
| ERR 483 DRV SW | | |
| ERR 484 DRV SW | | |
| ERR 485 DRV SW | | |
| ERR 486 DRV SW | | |
| ERR 487 DRV SW | | |
| ERR 488 DRV SW | | |
| ERR 489 DRV SW | | |
| ERR 48A DRV SW | Software runtime error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 48B DRV SW | | |
| ERR 48C DRV SW | | |
| ERR 48D DRV SW | | |
| ERR 48E DRV SW | | |
| ERR 48F DRV SW | | |
| ERR 490 DRV SW | | |
| ERR 491 DRV SW | | |
| ERR 492 DRV SW | | |
| ERR 493 DRV HW | Drive Unit voltage error | |
| ERR 494 DRV HW | Supply voltage problem | |
| ERR 495 DRV HW | Drive Unit voltage error | |
| ERR 496 DRV HW | Drive Unit phase breakage | |
| ERR 497 DRV HW | Drive Unit calibration error | |
| ERR 4C8 DRV SW | General software error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 498 DRV COMM | Peripheral communication error | |
| ERR 499 DRV COMM | | |
| ERR 49A DRV COMM | | |
| ERR 49B DRV SENS | Cadence-sensor error | |

| Error code | Cause | Corrective measures |
|-------------------|-----------------------------------|--|
| ERR 49C DRV SENS | Torquesensor error | Restart the system and avoid unintended use. Contact your TQ dealer if the error still occurs. |
| ERR 49D DRV SENS | | |
| ERR 49E DRV SENS | | |
| ERR 49F DRV SENS | | |
| ERR 4A0 DRV COMM | CAN-Bus communication error | Check the charging port for dirt. Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 4A1 DRV COMM | | |
| ERR 4A2 DRV COMM | Microcontroller electronics error | |
| ERR 4A3 DRV SW | Cadence-sensor error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 4A4 DRV HW | | |
| ERR 4A5 DRV SW | Torquesensor error | |
| ERR 4A6 BATT COMM | Battery communication error | |
| ERR 4A7 DRV SW | General software error | |
| ERR 4A8 SPD SENS | Speedsensor error | Check the distance between magnet and Speedsensor or check for tampering. |
| ERR 4A9 DRV SW | General software error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 4AA DRV SW | | |
| WRN 4AB DRV SENS | Cadence-sensor error | |
| ERR 4AD DRV SW | Drive Unit control error | |
| ERR 4AE DRV SW | Cadence-sensor error | |
| ERR 4AF DRV SW | | |
| ERR 4B0 DRV HW | Drive Unit mechanical error | Check if anything is stuck or wedged in the chainring. Contact your TQ dealer if the error still occurs. |
| ERR 4C8 DRV SW | General software error | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 4C9 DRV SW | | |
| ERR 4CA DRV SW | | |
| ERR 4CB DRV SW | | |

| Error code | Cause | Corrective measures |
|--|--|---|
| WRN 601 SPD SENS | Speedsensor problem | Check the distance between magnet and Speedsensor. Restart the system. Contact your TQ dealer if the error still occurs. |
| WRN 602 DRV HOT | Drive Unit overtemperature | Permissible operating temperature exceeded. Switch off the drive unit to allow it to cool down. Start the system again. Contact your TQ dealer if the error still occurs. |
| WRN 603 DRV COMM | CAN-Bus communication problem | Check the charging port for dirt. Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 5401 DRV CONN | Communication error between Drive Unit and Display | Restart the system. Contact your TQ dealer if the error still occurs. |
| ERR 5402 DISP BTN ERR 5403 DISP BTN | Remote button pressed when switching on | Don't press the Remote button during start-up. Check whether buttons are stuck due to dirt and clean them if necessary. . |
| WRN 5404 DISP BTN | Walk assist user error | Activate walk assist by pressing the UP button (Walk) on the Remote until Walk appears on the Display. Release the button directly and press it again to use the walk assist. Contact your TQ dealer if the error still occurs. |

Tab. 5: Error codes



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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