HPR-SB02
HPR Gateway

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 HPR 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.
- 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".
- 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 assist 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 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 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.

1.2.4 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.

FCC ID: 2ANFF-Q105

Supplier's Declaration of Conformity
47 CFR § 2.1077 Compliance Information

Unique Identifier: TQ-Systems GmbH, Model: HPR DISPLAY V03

Responsible Party – U.S. Contact Information

TQ-Systems USA INC.
424 Network Station
Chesapeake, VA 23320, US
info@tqusa.com

FCC Compliance Statement

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.

1.2.5 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.

IC ID: 23072-Q105
HVIN: HPR-SB02 PMN: HPR-SB02

CAN ICES-003 (B) / NMB-003 (B)

SAVE THESE INSTRUCTIONS

1.3 Intended Use

The HPR SB-02 is a gateway for the TQ HPR E-Bike system to allow Bike manufacturers to use their own HMI as well as third party integration. In the HPR system, normally a TQ display unit is included. As this is replaced by the Bike manufacturer display the functionality of the display on the inernal CAN bus and to the TQ E-Bike App will be taken over by this gateway to allow riders to change their system settings over the TQ E-Bike App. The gateway also has up to five output connectors to also took over the general Smart Box functionality to allow powering and CAN communication for auxiliary compononents system integration as e.g. light or eShift actors.

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-SB02 (Gateway)

Device Type	Interface between TQ E-Bike System and Bike OEM components
Information Indication	Provide main system information via external CAN-Bus and BLE/ANT+
Adjustments	DST (TQ Dealer Service Tool) or TQ E-Bike App
Connectivity	Bluetooth, ANT+ (Radio network standard with low power consumption)
Frequency Transmitting power max.	2.402 Ghz - 2.480 Ghz 2.5 mW
Power supply	13.2 V DC (12 - 14 V DC) / max. 2A
Dimension (without connector)	50 mm x 22 mm x 21 mm/ 1.97 " x 0.87 " x 0.83 "
Weight	32 g / 1.13 oz
Max. height during operation	3000m / 9843 ft above sea level
Protection class	IP65
Pollution degreee	3
Operating temperature Storage temperature	-5 °C to +40 °C / 23 °F to 104 °F 0 °C to +40 °C / 32 °F to 140 °F

Tab. 1: Technical data – HPR-SB02

Declaration of Conformity

We, TQ-Systems GmbH, Gut Delling, Mühlstr. 2, 82229 Seefeld, Germany, declare that the HPR-SB02 Gateway, 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/

Tab. 2:

3 OPERATION

⚠ WARNING

- ► Do not attempt to modify or repair the product. Check further detail in Chapter “1.3 Intended Use“
- ► 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“.

3.1 Interface HPR-SB02 (HPR Gateway)

Interfaces
Max. load 2A continous current If eDropper seat post/eShift/remote used max. 14W ~ 1.1A light (AUX)
Default configuration (not adjustable from the Bike OEM) Remote: Allways ON CAN1 CAN2 CAN3: Allways ON AUX: light

3.2 Set connections

3.2.1 Connection e-bike to smartphone

NOTE

— You can download the TQ E-Bike app from the Appstore for IOS and the Google Play Store for Android.

— Download the TQ E-Bike app.
— The bike will start up normally and will then enter the pairing mode.
— Search and select the bike (e.g. TQ 12345) via the TQ E-Bike APP.
— Select your bike (you only need to pair your smartphone the first time).

Bluetooth®

Fig. 1: Connection E-Bike to Smartphone

3.2.2 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+).
— The bike will start up normally and will then enter the pairing mode.
— Search and select the bike (e.g. TQ 12345) via the TQ E-Bike APP.
— Select at least one of the three shown sensors (see Fig. 2).
— Your e-bike is now connected.

Bluetooth®

ANT+™

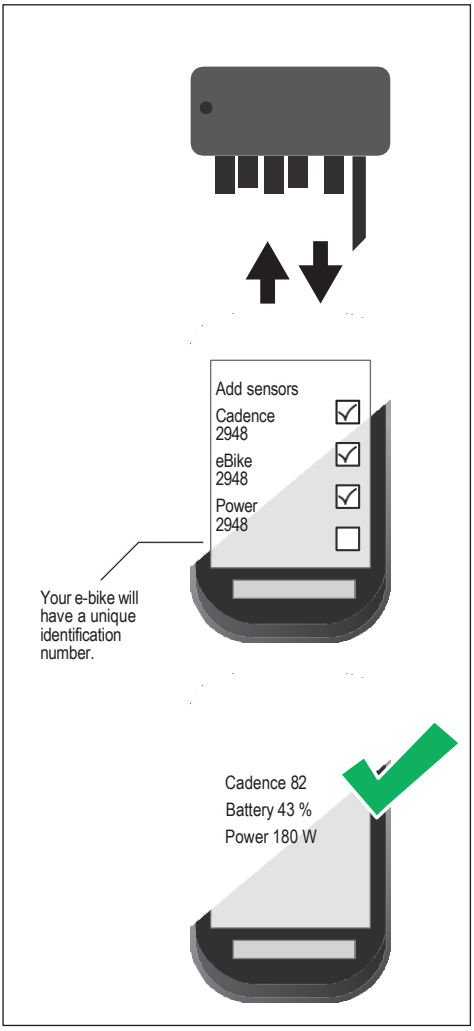

Fig. 2: Connection e-bike to bicycle computer

3.2.3 Connection e-bike to SHIMANO Di2 groupsets

Function overview

— Select drivetrain support levels using the Di2 shift levers
— Shift display with the Di2 shift lever
— Light ON/ OFF using the Di2 shift levers

Necessary requirements and installation steps for Di2 functionality

Hardware requirements:

— SHIMANO CAN adapter EW-EX310 from software version 4.1.0
DURA-ACE Di2 from 2022, ULTEGRA Di2 from 2022 and SHIMANO 105 Di2 (With software version equal or higher then 4.3.0)
— TQ: SmartBox from Rev. 0200, E-System from software version equal or higher then 1.102.39

Setting up the SHIMANO application:

► Download and register the app (https://bike.shimano.com/e-tube/project.html)

First steps:

► Select language
► Register SHIMANO ID
► Register bike or power meter
(press the button on the rear derailleur together and the app connects to the bike)
► Select the "Customize" menu
► Select button and set either „MULTI PURPOSE CH.1" for left shifter and „MULTI PURPOSE CH.2" for right shifter (or vice versa) in the Shimano E-Tube APP. These functions will trigger the following functionalities in the e-bike

	MULTI PURPOSE CH.1	MULTI PURPOSE CH.2
Single press	assist up	assist down
Double press	display / settings up	display / settings down
Long press	LIGHT ON/OFF	LIGHT ON/OFF

Tab. 3: Di2 button assignment

For entering the settings menu, follow the next steps:

- ► Actuate via Long Press „MULTI PURPOSE CH.1“ and „MULTI PURPOSE CH.2“ simulateniously
- ► Cycle through the options via single press on the Shimano SDIs and confirm via the button on the display
- ► To leave the settings menu you have to confirm all options after another until leaving the settings menu

If you want to use only one function per button via Single Press you can also choose the related function in the Shimano E-Tube APP. These functions will trigger the following functionalites in the e-bike:

SHIMANO function	TQ function
assist up	assist up
assist down	assist down
Display / settings	cycle through display screens
LIGHT ON/OFF	LIGHT ON/OFF

Tab. 4: Functions

Please note that in the future more functionalities will be added.

- ► Confirm configuration
- ► Disconnect

3.2.4 Connection e-bike to SRAM AXS groupsets

Function overview

— Select drivetrain support levels using the SRAM AXS shift levers

Necessary requirements and installation steps for functionality

Hardware requirements:

— SRAM AXS components (With software version equal or higher then 4.1.0)

Setting up the Sram application

► https://support.sram.com/hc/en-us/articles/6030759847451-How-do-I-change-eTap-AXS-shift-button-assignments-using-the-AXS-App

First steps:

► Connect to SRAM AXS components
► Select "Configure Controlls"
► Select the Button you want to configure
► Open the dropdown menue with the title "ANT+ Control"
► Select "ANT Function 1" for "Assist up"
► Select "ANT Function 2" for "Assist down"
► Disconnect

3.3 General riding notes

3.3.1 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.

3.3.2 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.

3.3.3 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 Gateway 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.

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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