

maxon

BIKEDRIVE AIR

Operating Manual



maxonbikedrive.com

maxon BIKEDRIVE AIR | Operating Manual
Edition 2023-09 | DocID 9473424-03

TABLE OF CONTENTS

1	CONTENT AND SYMBOLS	5
	1.1 Currentness of the operating manual	6
2	DRIVE SYSTEM	7
	2.1 Intended use	7
3	SYSTEM OVERVIEW	9
	3.1 Components / scope of delivery	9
	3.2 System components	10
	3.2.1 Drive unit	10
	3.2.2 POWERTAB / Battery SOC indicator	11
	3.2.3 Battery BX250I	12
	3.2.4 Range Extender BX250E	13
	3.2.5 Charger	14
	3.2.6 Charging socket	15
	3.2.7 Speed sensor	16
	3.2.8 Remote switch for mountain bikes	17
	3.2.9 Remote switches for racing and gravel bikes	17
	3.2.10 Optional light module	18
	3.2.11 Optional bracket for Range Extender	19
	3.2.12 Installation of non BIKEDRIVE AIR accessories	20
4	COMMISSIONING AND OPERATION	21
	4.1 POWERTAB function overview	21
	4.1.1 Selecting the support level	22
	4.1.2 Individually configuring the support levels with the Connect app ..	22
	4.1.3 POWERTAB energy supply	22
	4.1.4 Meanings of the LEDs	23
	4.1.5 POWERTAB charge status display	23
	4.2 Charging the battery	24
	4.3 Installing and removing the battery	25
	4.4 IMPORTANT SAFTY INSTRUCTIONS OF THE BATTERY	25
	4.5 Using the charger	28
	4.5.1 Connecting the charger to the power grid	28
	4.5.2 Charging process	28
	4.5.3 Maintenance and service	28
	4.6 Safety alerts	29

4.7	Range Extender	30
4.7.1	Component	30
4.7.2	Operation	30
4.7.3	Installing the Range Extender	31
4.7.4	Changing the Range Extender	33
4.7.5	Meanings of the LEDs	34
4.8	Recharge the Range Extender	35
4.9	IMPORTANT SAFTY INSTRUCTIONS FOR THE RANGE EXTENDER ..	36
5	MAINTENANCE	39
5.1	After an accident	39
5.2	Battery	39
5.3	Cable routing	40
6	CLEANING AND CARE	41
7	TRANSPORT	43
8	LIABILITY FOR MATERIAL DEFECTS	45
9	DISPOSAL	47
9.1	General information / disposal instructions	47
9.1.1	Recycling	47
9.2	Responsibility	47
9.2.1	Second use	47
9.3	Disposal	47
	LIST OF FIGURES	49
	LIST OF TABLES	50

1 CONTENT AND SYMBOLS

This operating manual only contains specific information about your BIKEDRIVE AIR and should be used in combination with the operating manual of the bike. Please read the operating manual in its entirety before using your BIKEDRIVE AIR. If you do not have a printed version of the operating manual, it can be downloaded from the website of the dealer, or contact your local dealer.

Additionally, this operating manual contains important information that increases the safety, makes it possible to achieve a long service life for the BIKEDRIVE AIR, and increases the enjoyment of riding with the e-bike. Disregarding the content of the operating manual can cause damage to the vehicle and personal injuries.

Make sure that your authorized dealer provides you with all documents that belong to the product. If certain information in this manual contradicts the product information of a component manufacturer, please contact your local dealer.

The following symbols are used in the operating manual:



Indicates a potentially hazardous situation. Noncompliance can lead to severe injuries.



Indicates a possibly hazardous situation or an unsafe practice. Noncompliance can lead to injuries or damage to components.



Indicates an important aspect. Noncompliance can lead to damage to components.

Continued on next page.

1.1 Currentness of the operating manual



The operating manual of the BIKEDDRIVE AIR is continuously checked to ensure that it is up to date. The manual at hand reflects the knowledge available at the time of printing. We recommend visiting our website at maxonBIKEDDRIVE.com/de/service to inform yourself about any changes. There you can also find the current version of the operating manual as a PDF.



Safety alerts:

- *Read this operating manual prior to use.*
 - *Store the operating manual for future use.*
 - *Closely read the operating manual for the optional components used.*
-

Never open the electric component of the BIKEDDRIVE AIR yourself. Maintenance must be performed by a specialist. Opening components automatically voids the warranty.

Modifying the components or using components that are not intended for the BIKEDDRIVE AIR is not permitted and can critically affect the safety. Any modifications or use of third-party components voids the warranty.

After a long ride, the BIKEDDRIVE AIR drive unit can heat up significantly. This poses risk of burns.

The BIKEDDRIVE AIR meets the requirements of ISO 13849-1:2015 category 2 PL c.

2 DRIVE SYSTEM

Congratulations on your purchase of the BIKEDRIVE AIR drive system. You have chosen a drive system with the latest technology.

The bike equipped with the BIKEDRIVE AIR drive system has been developed for the current electric bike market. The support is adjusted by means of a controller that evaluates the data of three sensors (speed, cadence, and torque) and regulates the motor depending on the selected level of support. Once a speed of 25 km/h is reached, no support is provided any more. However, you can ride faster than 25 km/h using your own strength without electromotive support and without additional resistance.

2.1 Intended use



Legal provisions

Inform yourself about the applicable statutory regulations in your country or at your place of residence prior to commissioning your bike.

Your BIKEDRIVE AIR is intended for transporting one person on asphalt roads as well as on paved and unpaved tracks. The permissible load (rider + accessories + luggage) depends on the bike manufacturer, who is also responsible for providing this information.

The BIKEDRIVE AIR is not intended for the following:

- Use in races / competitions
- Cleaning with a high-pressure water jet
- Transport on the outside of a car in rainy weather
- Charging the bike in an outdoor location where it is subject to moisture or intense direct sunlight

The intended use can be limited by:

- The safety alerts in this operating manual
- The chapter “Commissioning and operation” in this operating manual
- The country-specific traffic regulations
- The country-specific regulations on registration for use in road traffic

Use of the BIKEDRIVE AIR is not recommended for the following user groups:

- Persons with restricted physical, sensory, or mental abilities
- Persons who are unable to safely operate the vehicle due to their size



Modifications to the BIKEDRIVE AIR aimed at increasing the motor power or the maximum support speed, pose a danger to your safety while riding. There is risk of consequences under traffic, registration, insurance, regulatory, and criminal law.



Rotating parts, such as wheels, crank arms, or pedals, can pull in clothing, transported objects, and even body parts.

- Always wear close-fitting clothes, a helmet, and goggles.
 - Wear shoes that have soles with good grip and that are appropriate for the pedals.
 - Do not fasten any objects to your handlebar that could swing into the front wheel.
-



A bike equipped with BIKEDRIVE AIR accelerates faster than a conventional bicycle. Always remember that other road users cannot know that you are capable of such acceleration.

- First practice using your BIKEDRIVE AIR in a traffic-restricted zone before using it in road traffic.
-

Active and passive light systems must be installed in accordance with the safety regulations of the road traffic legislation of the corresponding country. The safety equipment must be checked regularly and, if needed, repaired by a qualified specialist.



WARNING

Switch off the system, before carrying out maintenance or cleaning work on the chain or gears of your bicycle.

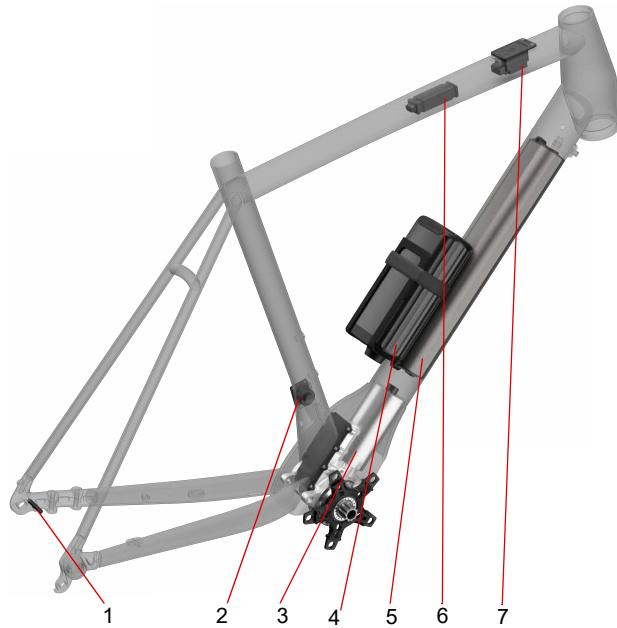


WARNING

Risk of Fire – No User Serviceable Parts

3 SYSTEM OVERVIEW

3.1 Components / scope of delivery



- | | | | |
|---|----------------|---|-----------------------|
| 1 | Speed sensor | 2 | Charging socket |
| 3 | Drive unit | 4 | Range Extender BX250E |
| 5 | Battery BX250I | 6 | Light module |
| 7 | POWERTAB | | Shifter (not shown) |
- Charger (not shown)

Figure 3-1 BIKEDRIVE AIR | Components



Read all safety alerts and instructions.

Failure to comply with the safety alerts and instructions can cause electric shock, fire, and/or severe injuries.

Store all safety alerts and instructions for future reference.



The term “battery” used in this operating manual refers to all original BIKEDRIVE AIR batteries.

- **Do not get distracted by the display of the POWERTAB.** If you do not concentrate on the traffic only, you risk being involved in an accident.
- Read and observe the safety alerts and instructions in all operating manuals of the e-bike as well as in the operating manual of your BIKEDRIVE AIR system.

3.2 System components

Depending on the configuration of your BIKEDRIVE AIR e-bike, some illustrations in this operating manual might slightly differ from your actual bike.

3.2.1 Drive unit



- *Do not remove and open the drive unit yourself. Only specialist personnel are authorized to open it and it must be repaired with original spare parts exclusively. Unauthorized opening of the system voids the warranty.*
- *Modification of the drive unit and installing other, unapproved products is not permitted.*
- *After driving, do not touch the drive unit, as the surface may be hot.*

The drive unit consists of an efficient brushless maxon internal-rotor motor and a low-noise performance planetary gearhead. The integrated electronics and sensors ensure sensitive support in all riding situations. The patented, innovative freewheel has no noticeable resistance – both when backpedaling as well as when riding without electrical support.



Figure 3-2 BIKEDRIVE AIR | Drive unit

Technical data – BIKEDRIVE AIR drive unit	
Nominal voltage	36 V
Power	250 W
Ambient temperature for operation	-20°C to +40°C
Protection	IP5K5 (in acc. with ISO 20653:2013)

Table 3-1 Technical data | Drive unit

3.2.2 POWERTAB / Battery SOC indicator

The POWERTAB control element gives you full control over your e-bike. You can connect it to a smartphone via Bluetooth (BLE), or to other devices from Garmin, Sigma, or o-synce via ANT+. You can choose between three levels of support and configure them individually. In the factory settings, there are three preset ride modes: Level 0 - I - II - III. The SOC of the e-bike battery is displayed on the POWERTAB. An inconspicuous and intuitive remote switch for racing bike or mountain bike handlebars is available optionally.



Figure 3-3 BIKEDRIVE AIR | POWERTAB

Technical data – POWERTAB	
Battery indicator	
Support levels I - II - III	
Bluetooth (BLE) and ANT+	
Light switch (optional)	

Table 3-2 Technical data | POWERTAB

3.2.3 Battery BX250I

The lithium-ion battery is permanently mounted in the down tube and only the specialist dealer is permitted to remove it. The battery is charged with a charger. Depending on the bike manufacturer, the charging port for the charger can be in different positions.

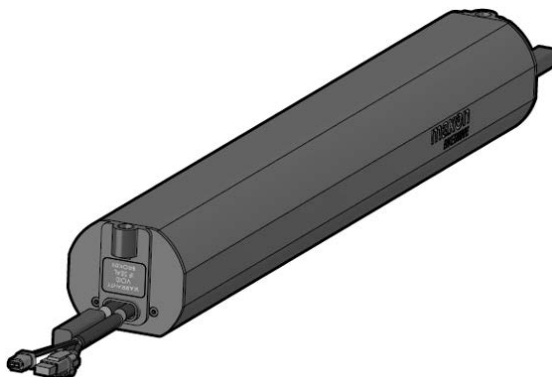


Figure 3-4 BIKEDRIVE AIR | Battery BX250I

Technical data - Battery BX250I	
Nominal voltage	36 V
Capacity	250 Wh
Weight (battery only)	1.4 kg
Charging time (0 ... 100%)	3.5 h
Charging time (0 ... 80%)	2.5 h

Table 3-3 Technical data | Battery BX250I

3.2.4 Range Extender BX250E

A Range Extender is available for longer rides and adds another 250 Wh. It works like a power bank and charges the integrated battery. The Range Extender is screw-mounted to the frame with a holder, using the eyelets for the bottle holder. The Range Extender is integrated into the system by means of a cable connected to the charging socket. The cable, as the cable length, are frame-specific and might differ from manufacturer to manufacturer.

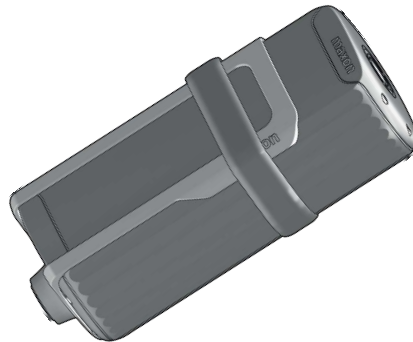


Figure 3-5 BIKEDRIVE AIR | Range Extender BX250E

Technical data – Range Extender BX250E	
Nominal voltage	36 V
Capacity	250 Wh
Charging time (0...100%)	3.5 h with 2 A charger
Charging time (0...80%)	2.5 h with 2 A charger

Table 3-4 Technical data | Range Extender BX250E

3.2.5 Charger

Various chargers are available for the BIKEDRIVE AIR, to cover the country-specific voltages. The customer-friendly bayonet lock can easily be connected to the charging socket.

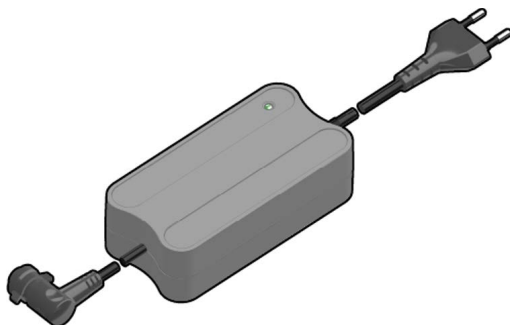


Figure 3-6 BIKEDRIVE AIR | Charger

Technical data – Charger	
Input voltage	220 – 240 V (also available as a 110 V version)
Input frequency	50 – 60 Hz
Nominal output voltage	36 V
Output current	2 A ±0.2 A
Environment	
Operating temperature	-0°C to +40°C
Storage temperature	-40°C to +55°C
Operation with humidity	20...85%
LED status display	
Red turns green	Battery full
Standby mode	Green
Charging process	Red
Full mode	Green

Table 3-5 Technical data | Charger

3.2.6 Charging socket

The charging socket is installed in different positions, depending on the manufacturer. The pin assignment of the charging socket and charging plug is specific to the BIKEDRIVE AIR. The cover can be mounted on both sides. When not in use, the cover should be closed.

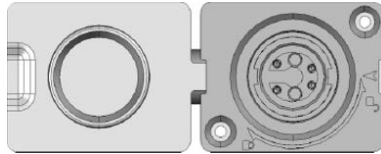


Figure 3-7 BIKEDRIVE AIR | Charging socket

Continued on next page.

3.2.7 Speed sensor

Configuring the speed sensor

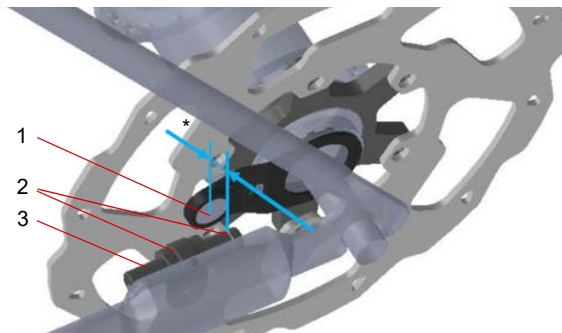
- The magnet must be positioned on the spoke or brake disk.
- The sensor is positioned on the frame side and must not move.
- The permissible distance between the speed sensor and magnet is 1 mm to 8 mm.
- The magnet may only pass through one line of the sensor.



Information:

If the distance between the speed sensor and magnet is outside of the specified range, or the speed sensor has not been connected correctly, a system error is generated and is displayed by a red LED on the POWERTAB. When this condition occurs, no support can be expected from the BIKEDRIVE AIR. If the problem cannot be solved, please contact an authorized specialist dealer.

To check whether the speed sensor is functioning correctly, use the maxon Connect app or a connected display. If the Connect app shows a plausible speed, the speed sensor is functioning correctly. If the speed display jumps from one value to the next, the sensor is positioned incorrectly. Check that the magnet only passes through one line of the sensor.



- | | | | |
|---|--------|---|----------------------|
| 1 | Magnet | 2 | Switch point marking |
| 3 | Sensor | | |

* The permissible distance between the sensor and magnet is 1–8 mm.

Figure 3-8 BIKEDRIVE AIR | Distance between speed sensor and magnet

3.2.8 Remote switch for mountain bikes

The mountain bike remote switch can be used universally and is suitable for installation on straight handlebars. Using the switch, the support level can be increased or decreased.



Figure 3-9 BIKEDRIVE AIR | Remote switch for mountain bikes

3.2.9 Remote switches for racing and gravel bikes

The remote switches consist of two buttons that can be mounted on the handlebars of racing bikes and gravel bikes. The support level can be decreased at any time using the left switch or increased using the right switch.

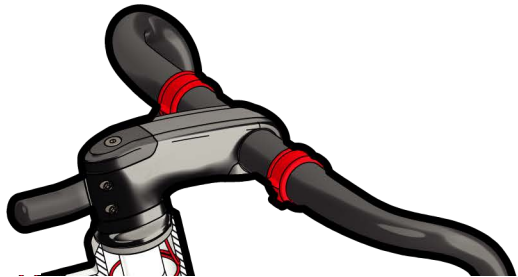


Figure 3-10 BIKEDRIVE AIR | Remote switches for racing and gravel bikes

Continued on next page.

3.2.10 Optional light module

The light module is optional and, depending on the manufacturer, has possibly already been installed in series, or it can be retrofitted. Have the installation performed by an authorized dealer.

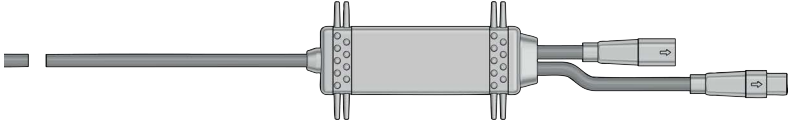


Figure 3-11 BIKEDRIVE AIR | Light module

Technical data – Light module	
Nominal voltage	12 V
Maximum power	18 W

Table 3-6 Technical data | Light module

Continued on next page.

3.2.11 Optional bracket for Range Extender

The bottle cage for the Range Extender is attached to the bicycle frame with two screws. Please use the screws that come with the bicycle frame and the tightening torques defined by the bicycle manufacturer. Make sure to use suitable screws, otherwise the main battery installed in the down tube or the bicycle frame may be damaged. → see chapter "section "Figure 3-12 BIKEDRIVE AIR | Mounting Ranger Extender bracket" on page 19.

The Range Extender holder can also be used for the standard drinks bottle. The compatibility of the drinks bottle in the holder must be checked before riding.

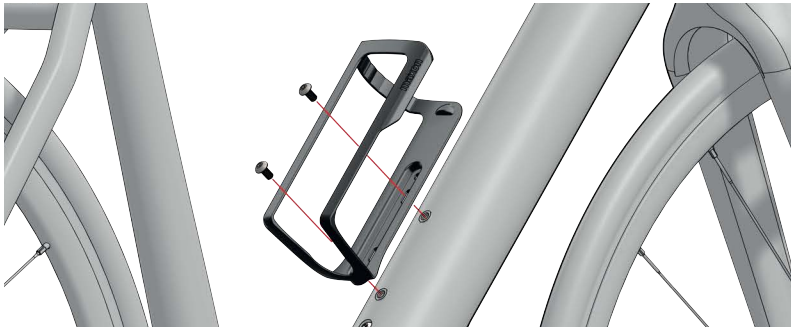


Figure 3-12 BIKEDRIVE AIR | Mounting Ranger Extender bracket

The holder has a hole pattern that allows two possible mounting positions. When choosing the position, make sure that the connection cable can be easily inserted into the charging socket. If necessary, try both positions to achieve the optimum installation condition.

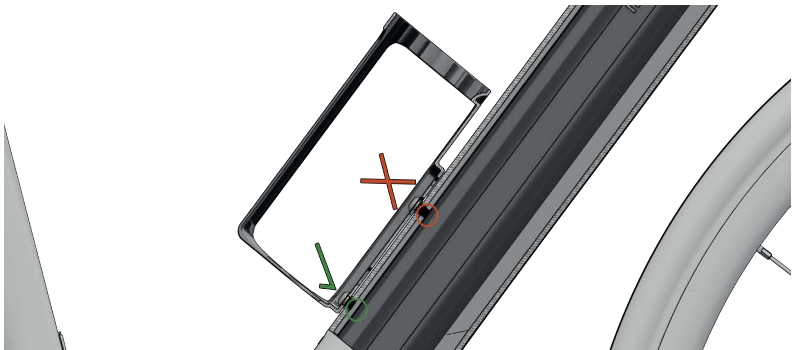


Figure 3-13 BIKEDRIVE AIR | Screws assembly range extender

3.2.12 Installation of non BIKEDRIVE AIR accessories

When accessories, such as a child seat or bike trailer, are installed, the accessory manufacturer or a specialist dealer must verify that the accessory is compatible with the BIKEDRIVE AIR.

4 COMMISSIONING AND OPERATION

This chapter describes how to get your BIKEDRIVE AIR ready for riding.



In the standard delivery, the BIKEDRIVE AIR is shipped fully mounted by the specialist dealer. If the delivery was nonstandard, contact your specialist dealer.



For all maintenance and repair work on your BIKEDRIVE AIR, only utilize non-magnetic tools. Use non-magnetic tools before performing any maintenance or repairs.

4.1 POWERTAB function overview

To **switch on** the e-bike, press the On/Off button on the POWERTAB.



A short press of the button switches on the bike. When it starts up, no support level is active.

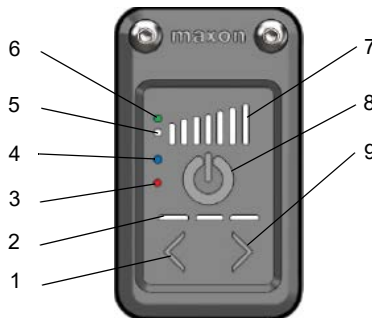
To switch off the e-bike, you have to press the button for around 5 seconds.



Note:

- *If the bike is not used, it switches off automatically after 15 minutes.*
- *Always switch off the e-bike if you are not using it.*

If a light has been permanently mounted on the bike, the On/Off button of the POWERTAB has to be pressed once again, to switch on the light.

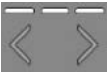


- | | | | |
|---|-----------------------------------|---|----------------------------------|
| 1 | Button for decreasing the support | 2 | Support levels: 0 - I - II - III |
| 3 | Error LED | 4 | Service LED |
| 5 | Status LED | 6 | Range Extender LED |

- 7 State of charge (SOC)
- 8 On/Off button and light switch
- 9 Button for increasing the support

Figure 4-14 BIKEDRIVE AIR | POWERTAB

4.1.1 Selecting the support level



The selected support level is displayed as bars.

- If no bar is lit, support level Zero has been selected and the bike does not provide any support.
- One lit bar symbolizes level I.
- Two lit bars symbolize level II.
- Three lit bars symbolize level III.

Zero

The motor support has been switched off. The e-bike behaves like a normal bicycle. You can switch to level Zero at any time for “normal” cycling. The BIKEDRIVE AIR e-bike behaves as if it is completely switched off. It freewheels internally, and you will not notice its presence at all.

Level I, II & III

When you pedal, the motor supports you. The levels have been predefined by the manufacturer. Three sensors (torque, velocity, and cadence) continuously provide data that is used to give the rider the best possible support. With the Connect app, each level can be configured individually.

4.1.2 Individually configuring the support levels with the Connect app

maxon offers end users a Connect app, which is available for iOS and Android. With the Connect app, the rider can individually configure the support levels and use the cell phone as a display on the handlebar.

		Google Play Store	iOS App Store
Connect app			

4.1.3 POWERTAB energy supply

The POWERTAB is supplied with voltage by the main battery.

4.1.4 Meanings of the LEDs

*Green
(Range
Extender)*

When the green LED is on, an active Range Extender has been detected and the main battery is being charged.

*White
(Status
LED)*

The white Status LED is continuously lit as soon as the e-bike is switched on (battery voltage present).

*Blue (Ser-
vice LED)*

When the service tool switches the e-bike to service mode for diagnostics or system configuration, the blue Service LED is lit. In this mode, the system does not provide any power or support.

*Red (Error
LED)*

If the e-bike detects an error, the red Error LED lights up.

The only way to exit a fault condition is to switch the POWERTAB off and on. If this error occurs repeatedly, contact your dealer.

*State of
charge
(SOC)*

The status of the battery charge is displayed with 7 bars. Each bar corresponds to 1/7 of the usable battery charge.

When charging, the SOC indicator flashes. The bike is charged while it is switched on.

If the battery charge is too low, no SOC is displayed. Instead, only the white Status LED is lit. Once the battery charge gets too low, the bike switches off automatically.

Level

The selected support level is displayed with three bars. If no bar is lit, level Zero (0) has been selected. The bike does not provide any support. As soon as you have selected a support level, the support is activated. The higher the motor support, the lower the range.

4.1.5 POWERTAB charge status display

The charge status of the main battery is displayed on the POWERTAB and in the Connect app. The charge status of the integrated battery is displayed on the POWERTAB in the form of white light bars.



4.2 Charging the battery

The battery can be charged at any time. The charging can also be stopped at any time. Only use the original maxon charger to charge the battery.

Charge the battery completely before a planned ride, so as to have the full battery capacity at your disposal. After a journey, if the battery is completely used, directly recharge it to at least 60% capacity.

If the temperature is outside of the permissible charging temperature range, the battery cannot be charged, even when it is connected to the charger. Only after the permissible charging temperature has been reached, can the battery be charged again.



Do not use the charger plug and/or the power plug if they are wet or dirty. Clean the connectors with a dry cloth prior to plugging them in.

- 1) Select a cool location (observe the permissible charging temperature Table 4-7 Technical data | Battery5-24).
- 2) Connect the charger to the power socket.
- 3) Connect the charger to the charging socket on the bike and secure it with the bayonet lock.
- 4) The charging process starts automatically and the progress is displayed via LEDs on the POWERTAB. Once the battery is fully charged, the charger and bike automatically switch off.
- 5) Open the bayonet lock and unplug the charger from the charging socket of the bike.
- 6) Disconnect the charger from the power outlet.

Technical data – Battery		
Type	BX250I	BX250E
	Lithium-ion battery	
Charging time (0 ... 100%)	3.5 h	3.5 h
Charging time (0 ... 80%)	2.5 h	2.5 h
Environmental conditions	Operating temperature	
	-10°C ... +60°C	-10°C ... +50°C
	Charging temperature	
	0°C ... +45°C	0°C ... +50°C
	Storage temperature	
	+10°C ... +20°C	+10°C ... +20°C

Table 4-7 Technical data | Battery



Deep discharge

The battery management system (BMS) has been configured to prevent a fully discharged battery from damage for an extended period of time. However, to achieve the best possible battery life, we strongly recommend regularly charging the battery to a SOC of approximately 60% when the bike is not in use.

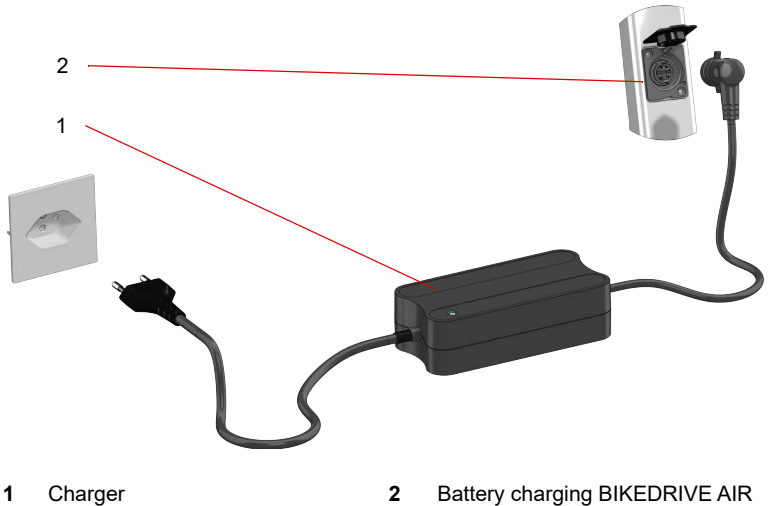


Figure 4-15 BIKEDRIVE AIR | Load scheme

4.3 Installing and removing the battery



Do not remove the battery and the BIKEDRIVE AIR drive unit. Contact an authorized specialist dealer to have the battery and drive unit removed.

4.4 IMPORTANT SAFTY INSTRUCTIONS OF THE BATTERY



Important: Read the safety alerts and warning information.



INSTRUCTION AROUND FIRE AND ELECTRIC SHOCK HAZARD:

- The battery may only be used for the intended application.
- The battery may not be disassembled, opened, or broken into pieces.

- *The battery may not be exposed to heat or fire. Avoid subjecting the battery to direct sunlight for extended periods. Do not leave the bike in a car or similar location, where the temperature inside can rise above 60°C.*
 - *Do not throw the battery into a fire.*
 - *Do not heat up part of the battery, for example, with a soldering iron or another source of heat.*
 - *Do not submerge the battery in water, do not throw it into water.*
 - *Do not short-circuit the battery.*
 - *Do not step on the battery and do not throw it.*
 - *Do not pierce the battery with a sharp object, such as a needle or screw driver.*
 - *If a cell is leaking, do not let the fluid come into contact with the skin or eyes. If it did come into contact, wash the affected area with ample amounts of water and seek medical attention.*
 - *Do not use a damaged or deformed battery.*
 - *Do not put the battery into a microwave, a dryer, or a high-pressure vessel.*
-



STORAGE AND TRANSPORT:

- *Store the battery out of reach of children.*
 - *Store the battery at a low temperature (below 20°C is recommended), in a location with low humidity that is free of dust and corrosive gas.*
 - *It is not permitted to store one or several batteries in a box or drawer in such a way that there is risk of them short-circuiting each other or being short-circuited by other conductive materials.*
 - *Do not store the battery in a pocket or bag together with metallic objects, such as keys, necklaces, hairpins, coins, or screws.*
 - *Do not transport packages that have been squashed, pierced, or torn. Such packages must be isolated until the sender has provided instructions for inspecting the product and repackaging it as necessary.*
-



OPERATION:

- *The battery must be charged prior to use. Always use the correct charger. The information provided by the manufacturer and the specifications in the device manual regarding correct charging, always have to be observed.*
-



CHARGING:

- *It is not permitted to use any other chargers than those specifically intended for use with the devices.*
 - *Using an unsuitable charger can cause malfunctions and reduce the service life of the battery. It also harbors risk of fire and explosion.*
 - *If the battery connectors are dirty, clean them with a clean, dry cloth.*
 - *The charging process automatically stops as soon as the battery is fully charged. This prevents overcharging.*
-

- *Do not charge the battery for an extended period of time if the battery is not needed.*
 - *Once the charging process has been completed, it is recommended to first remove the charger from the power socket, and then from the battery.*
 - *Do not expose the charger to any moisture (water, rain, snow) during the charging process.*
 - *Never perform the charging process in rooms where moisture can deposit on the charger.*
 - *Beware of condensation. If the charger is taken from a cold area to a warm room, condensation can form. In this case, wait until the condensation has evaporated before using the charger. This can take several hours.*
 - *Never carry the charger by the power cable or the charger cable.*
 - *Never pull on the power cable to unplug the charger from the power socket.*
 - *Do not subject the cable and plug to pressure. Severely stretching or bending the cables, jamming a cable between a wall and window frame, or placing heavy objects on a cable or plug can cause an electric shock or fire.*
 - *When routing the power cable and the attached charger cable, make sure that nobody can step onto or trip over them, and that both cables are not exposed to other damaging influences or strains.*
 - *Do not use the charger if the power cable, charging cable, or the plugs on the cables are damaged. Damaged parts must be immediately replaced by the authorized specialist dealer.*
 - *Do not use or disassemble the charger if it has suffered a hard impact, has been dropped, or has been damaged in other ways. Take the damaged charger to an authorized specialist dealer for repairs.*
 - *Small children are not permitted to use the charger.*
 - *Do not disassemble or modify the charger.*
 - *Do not cover the charger during the charging process and do not place any objects on the device.*
 - *Never short-circuit the poles of the charging plug with metallic objects.*
 - *Make sure that the power plug is firmly positioned in the socket.*
 - *Do not charge a battery that cannot be charged or is charged too slowly.*
 - *Do not touch the plugs with moist hands.*
 - *Stop charging the battery if the charging process has not been completed within the given time.*
 - *Do not continue using the battery if the battery gets unusually hot, or is discolored or deformed.*
 - *Stay away from fire if you notice a leak or a bad smell. If fluid gets onto skin or clothing, immediately wash it off with fresh water.*
-

SAVE THESE INSTRUCTIONS

4.5 Using the charger

4.5.1 Connecting the charger to the power grid

- Pay attention to the supply voltage. The voltage of the power source must match the specifications on the nameplate of the charger. Plug the device plug of the power cable into the device socket of the charger. Connect the (country-specific) power cable to the power grid.



Heat development at the charger during the charging process poses risk of fire. Charge the battery on the bike only when it is in a dry condition and at a fireproof location. Do not cover the charger during the charging process.

4.5.2 Charging process

The charging process starts as soon as the charger is connected to the battery or the charging socket on the bike, and the power grid.

LED status indicator:

- Red turns green: Battery full
- Standby mode: Green
- Charging: Red
- Full mode: Green



Note

- *Charging is only possible, if the temperature of the e-bike battery is within the permissible charging temperature range.*
- *During the charging process, the drive unit is deactivated.*

Once the e-bike battery has been fully charged, the charging process stops. Disconnect the charger from the power grid and the battery from the charger. When the battery is disconnected from the charger, the battery is switched off automatically.



Note

- *If you performed the charging process at the bike, properly close the charging socket with the cover afterward, to prevent dirt or water from entering.*

4.5.3 Maintenance and service

If the charger fails, please contact an authorized bike dealer.

4.6 Safety alerts

Read all safety alerts and instructions.

Failure to comply with the safety alerts and instructions can cause electric shock, fire, and/or severe injuries.

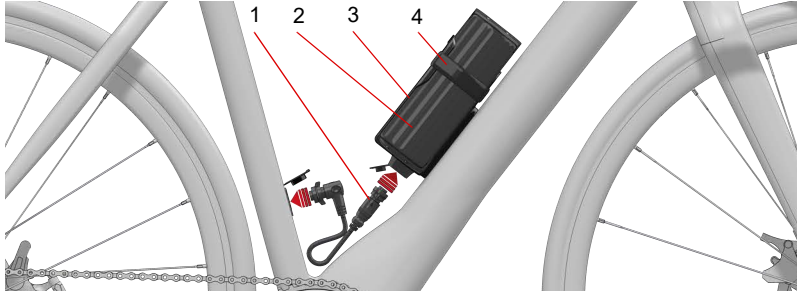


Store all safety alerts and instructions for future reference.

- *Beware of condensation. If the charger is taken from a cold area to a warm room, condensation can form. In this case, wait until the condensation has evaporated before using the charger. This can take several hours.*
 - *Do not expose the charger to moisture (water, rain, snow) during the charging process.*
 - *Never carry the charger by the power cable or the charger cable.*
 - *Never pull on the power cable to unplug the charger from the power socket.*
 - *Do not subject the cables and plugs to pressure. Severely stretching or bending the cables, jamming a cable between a wall and window frame, or placing heavy objects on a cable or plug can cause an electric shock or fire.*
 - *Do not cover the charger during the charging process and do not place any objects on the device.*
 - *When routing the power cable and the connected charger cable, make sure that nobody can step onto or trip over them, and that none of the cables are exposed to other damaging influences or strains.*
 - *Do not use the charger if the power cable, charging cable, or the plugs on the cables are damaged. Damaged parts must be immediately replaced by the authorized specialist dealer.*
 - *Do not use or disassemble the charger if it has suffered a hard impact, has been dropped, or has been damaged in other ways. Take the damaged charger to an authorized dealer for inspection.*
 - *Small children are not permitted to use the charger.*
 - *Do not disassemble the charger and do not modify it.*
 - *Never short-circuit the poles of the charging plug with metallic objects.*
 - *Make sure that the power plug is firmly positioned in the socket.*
 - *Do not touch the plugs with wet hands.*
 - *Do not use the charging plug and/or the power plug if they are wet or dirty. Clean the plugs with a dry cloth before plugging them in.*
 - *Disconnect the device from the power supply before connecting or disconnecting the battery.*
-

4.7 Range Extender

4.7.1 Component



- | | | | |
|---|------------------------|---|--------------------------|
| 1 | Charging cable | 2 | Range Extender BX250E |
| 3 | Support Range Extender | 4 | Rubber band for security |

Figure 4-16 BIKEDRIVE AIR | Range Extender component

4.7.2 Operation

The range extender extends the driving time of the BIKEDRIVE AIR. As soon as the range extender is plugged into the charging plug, the main battery is charged. For longer tours, it is recommended to switch on a range extender right at the beginning of the tour. The Range Extender charges the main battery with a predefined charging current. It is also possible to carry several Range Extenders and exchange an empty Range Extender with a full one, or use the breaks to charge the Range Extender. This extends the range many times over.

If the main battery is completely discharged, the Range Extender must first charge the main battery sufficiently to get support again.

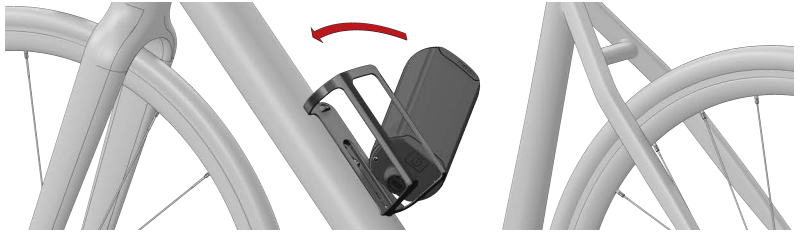
The Range Extender works like a charger, so the main battery of the BIEKDRIVE AIR can also be charged without an electrical socket.

4.7.3 Installing the Range Extender

- 1) Switch the BIKEDRIVE AIR off.
- 2) Check whether the special holder for the Range Extender has been mounted in place. If not, please contact a specialist dealer.

➔ **Info: Especially in the case of a retrofit, make sure that no components of the e-bike such as internal battery or wiring harness are damaged when mounting the range extender ➔ see “BIKEDRIVE AIR | Screws assembly range extender” on page 19. If the bracket is not available, contact the specialist dealer.**

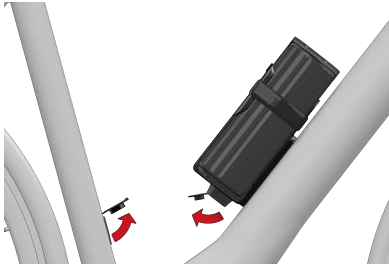
- 3) Insert the Range Extender into the holder from the side. Make sure that the notch on the bottle holder engages correctly with the Range Extender.



- 4) Secure the Range Extender with the rubber band.

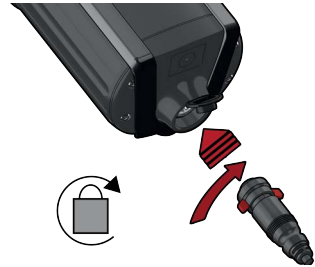


- 5) Open sockets on the frame and range extender.



Note: Make sure that no dirt/water gets into the plugs/sockets.

- 6) Connect the charging cable and lock it on both sides with the bayonet.



7) Function check:

- a) Start the system by pressing the on/off button on the POWERTAB or the on/off button on the Range Extender.
- b) The status LED of the Range Extender and the Range Extender LED on the Powertab light up green continuously, the Range Extender is charging the main battery.

If the status LED on the Range Extender flashes green, check whether the connection cable is plugged in correctly.

- c) Switching off the system: long press (~5s) on the on/off button of the POWERTAB or the on/off button on the Range Extender.



→ Switch on the Range Extender at the beginning of your tour to achieve the maximum range.

4.7.4 Changing the Range Extender

An empty range extender on the BIKEDRIVE AIR system switches off automatically.

- 1) Switch off the BIKEDRIVE AIR.
- 2) Disconnect the cable between the Range Extender and charging socket.
- 3) Close the socket on the range extender.
- 4) Remove the rubber band from the Range Extender.
- 5) Tilt the battery sideways.
- 6) Insert the new Range Extender.
- 7) Check that the notch on the bottle cage engages correctly with the Range Extender.
- 8) Secure the Range Extender with the rubber band.
- 9) Open the sockets on the frame and the Range Extender.

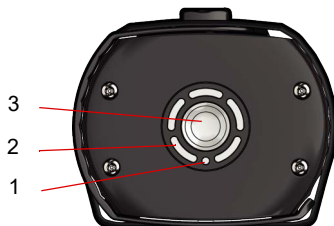
Note: Make sure that no dirt/water gets into the plugs/sockets.

- 10) Connect the charging cable and lock it on both sides with the bayonet.
- 11) Function check:
 - a) Start the system by pressing the on/off button on the POWERTAB or the on/off button on the Range Extender.
 - b) The status LED of the Range Extender and the Range Extender LED on the POWERTAB light up green, the Range Extender charges the main battery.

If the status LED on the Range Extender flashes green, check that the connection cable is plugged in correctly.

- c) Switching off the system: long press (~5s) on the on/off button of the POWERTAB or the on/off button on the Range Extender.

4.7.4.1 Meaning status LED



- 1 LED (green, amber, red) 2 Charge level indicator (white)
3 On/Off button

Figure 4-17 BIKEDRIVE AIR | Range Extender

4.7.5 Meanings of the LEDs



- 5 LED 80% - 100%
4 LED 60% - 80%
3 LED 40% - 60%
2 LED 20% - 40%
1 LED 0% - 20%

Green (activated Range Extender)

If the green LED is lit, the Range Extender has been detected and is active.

- Green (flashing): Range Extender is switched on, no system has been detected yet.
- Green (steady): Range Extender is switched on and the system has been detected. In this state, the main battery is being recharged.

Amber (Charging LED)

The range extender is charged through the external charger.

Red (Error LED)

There is an error at the Range Extender.

The only way to exit this fault condition is to switch the Range Extender off and on. If the error persists, contact your dealer.

Charge level indicator (white)

The status of the battery charge of the Range Extender is displayed with 5 bars. Each bar corresponds to 1/5 of the usable battery charge. → check "Meanings of the LEDs" on page 34. To display the charging status, the button must be pressed briefly → check "On/Off button" on page 34.

4.8 Recharge the Range Extender

To charge the Range Extender, unplug the connection cable between the Range Extender and the bicycle. Connect the charger to the Range Extender. Only use the original maxon charger to charge the battery.

The Range Extender can also be charged when removed from the bicycle. After a journey, if the Range Extender is completely used, directly recharge it to at least 60% capacity.

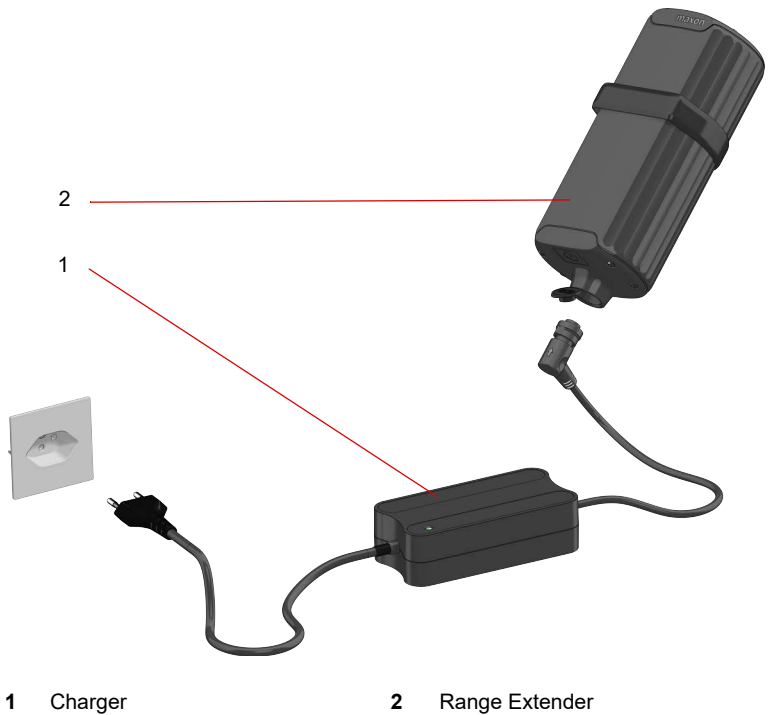


Figure 4-18 BIKEDRIVE AIR | Load scheme

4.9 IMPORTANT SAFTY INSTRUCTIONS FOR THE RANGE EXTENDER



Important: Read the safety alerts and warning information.



WARNING: Wenn Sie mit einem Range Extender fahren, muss das Range Extender-Kabel immer in den Ladeanschluss des Fahrrads eingesteckt und verriegelt sein. Ein loses Kabel kann Ihr Fahrrad und den Range Extender beschädigen und sich verfangen, so dass Sie die Kontrolle über das Fahrrad verlieren und stürzen können.



CAUTION: Schmutzablagerungen können dazu führen, dass sich der Verriegelungshebel des Range Extender-Steckers schwer drehen lässt. Reinigen Sie den Stecker des Range Extenders regelmässig mit einem feuchten Tuch und lassen Sie den Stecker vor Gebrauch trocknen.



CAUTION: Verwenden Sie zur Montage des Flaschenhalters nur die mitgelieferten Schrauben und das vom Rahmenhersteller vorgegebene Anzugsmoment. Längere Schrauben können den Range Extender beschädigen.



WARNING: Bei Verwendung eines nicht spezifizierten Flaschenhalters kann sich der Range Extender lösen und herausfallen. Dies kann Ihr Fahrrad und den Range Extender beschädigen sowie dazu führen, dass Sie die Kontrolle über das Fahrrad verlieren und stürzen.



GENERAL:

- The Range Extender may only be used for the intended application.
- The Range Extender may not be disassembled, opened, or broken into pieces.
- The Range Extender may not be exposed to heat or fire. Avoid subjecting the battery to direct sunlight for extended periods. Do not leave the bike in a car or similar location, where the temperature inside can rise above 60°C.
- Do not throw the Range Extender into a fire.
- Do not heat up part of the Range Extender, for example, with a soldering iron or another source of heat.
- Do not submerge the Range Extender in water, do not throw it into water.
- Remove the Range Extender before cleaning the bicycle.
- Clean the Range Extender with a damp cloth.
- Do not short-circuit the Range Extender.
- Do not step on the Range Extender and do not throw it.
- Do not pierce the battery with a sharp object, such as a needle or screw driver.
- If a cell is leaking, do not let the fluid come into contact with the skin or eyes. If it did come into contact, wash the affected area with ample amounts of water and seek medical attention.
- Do not used a damaged or deformed Range Extender.
- Use the original screws supplied by the manufacturer for the bottle holder. Longer screws can damage the battery.
- Do not put the Range Extender into a microwave, a dryer, or a high-pressure vessel.



STORAGE AND TRANSPORT:

- *Store the Range Extender out of reach of children.*
- *Store the Range Extender at a low temperature (around 20°C is recommended), in a location with low humidity that is free of dust and corrosive gas.*
- *Charge to >50% SOC every 6 months.*
- *It is not permitted to store one or several Range Extender units in a box or drawer in such a way that there is risk of them short-circuiting each other or being short-circuited by other conductive materials.*
- *Do not store the Range Extender in a pocket or bag together with metallic objects, such as keys, necklaces, hairpins, coins, or screws.*
- *Do not transport packages that have been squashed, pierced, or torn. Such packages must be isolated until the sender has provided instructions for inspecting the product and repackaging it as necessary.*



OPERATION:

- *The Range Extender must be charged prior to use. Always use the correct charger. The information provided by the manufacturer and the specifications in the device manual regarding correct charging, always have to be observed.*



CHARGING:

- *It is not permitted to use any other chargers than those specifically intended for use with the devices.*
- *Using an unsuitable charger can cause malfunctions and reduce the service life of the battery. It also harbors risk of fire and explosion.*
- *If the connectors of the Range Extender are dirty, clean them with a clean, dry cloth.*
- *The charging process automatically stops as soon as the Range Extender is fully charged. This prevents overcharging.*
- *Do not charge the Range Extender for an extended period of time if the Range Extender is not needed.*
- *Do not charge the Range Extender for more than 24 hours.*
- *Once the charging process has been completed, it is recommended to first remove the charger from the power socket, and then from the Range Extender.*
- *Do not expose the charger to any moisture (water, rain, snow) during the charging process.*
- *Never perform the charging process in rooms where moisture can deposit on the charger.*
- *Beware of condensation. If the charger is taken from a cold area to a warm room, condensation can form. In this case, wait until the condensation has evaporated before using the charger. This can take several hours.*
- *Never carry the charger by the power cable or the charger cable.*
- *Never pull on the power cable to unplug the charger from the power socket.*

- *Do not subject the cable and plug to pressure. Severely stretching or bending the cables, jamming a cable between a wall and window frame, or placing heavy objects on a cable or plug can cause an electric shock or fire.*
 - *When routing the power cable and the attached charger cable, make sure that nobody can step onto or trip over them, and that both cables are not exposed to other damaging influences or strains.*
 - *Do not use the charger if the power cable, charging cable, or the plugs on the cables are damaged. Damaged parts must be immediately replaced by the authorized specialist dealer.*
 - *Do not use or disassemble the charger if it has suffered a hard impact, has been dropped, or has been damaged in other ways. Take the damaged charger to an authorized specialist dealer for repairs.*
 - *Small children are not permitted to use the charger.*
 - *Do not disassemble or modify the charger.*
 - *Do not cover the charger during the charging process and do not place any objects on the device.*
 - *Never short-circuit the poles of the charging plug with metallic objects.*
 - *Make sure that the power plug is firmly positioned in the socket.*
 - *Do not touch the plugs with moist hands.*
 - *Stop charging the Range Extender if the charging process has not been completed within the given time.*
 - *Do not continue using the Range Extender if the Range Extender gets unusually hot, or is discolored or deformed.*
 - *Stay away from fire if you notice a leak or a bad smell. If fluid gets onto skin or clothing, immediately wash it off with fresh water.*
-

SAVE THESE INSTRUCTIONS

5 MAINTENANCE

To ensure that the e-bike stays functional and safe, regular maintenance is required. Before performing any maintenance measures, observe the instructions of the bike manufacturer.



Have the work on your BIKEDRIVE AIR system performed by an authorized specialist dealer.

5.1 After an accident



If parts of the drive system (cable, motor, battery) are visibly damaged due to an accident, there is risk of an electric shock.

- *Have the drive system checked by an authorized specialist dealer.*
-

5.2 Battery

The battery is a wear part, as it ages over time – a process that is further accelerated by how it is used. The service life of the battery depends on the following factors:

Strain

High demands on the motor performance (strong pedaling, high support levels) reduce the service life of the battery.

AMBIENT TEMPERATURE FOR STORAGE

Temperatures above 30°C or placing the e-bike with the battery in strong direct sunlight reduces the service life of the battery. Storage at temperatures from +10°C to +20°C increases the service life.

SOC during storage

The longest service life is achieved by storing the battery with a SOC of 60%. Storing the battery when it is completely full or completely empty reduces the service life.

If you do not use your e-bike for an extended period of time (> 1 month), make sure that the internal battery and the range extender is charged to approximately 60%. After 6 months, check the SOC or the SOC LED on your dashboard. If the SOC is less than 60%, recharge the internal battery and the range extender to approximately 60%.



Storing a full or empty battery can lead to damage.

5.3 Cable routing



Cabling for the BIKEDRIVE AIR

- *The cable guides must be smooth, with no sharp edges.*
 - *The cables must be protected against coming into contact with burrs, cooling ribs, or similar sharp edges that could damage their insulation.*
 - *It is important to effectively prevent the cables from coming into contact with moving parts. Cables must not be bent or squashed.*
 - *Do not use other cables or connectors than the original delivered.*
-

6 CLEANING AND CARE

If necessary, clean the bike equipped with the BIKEDRIVE AIR system with water (but not with a jet of water!) and a soft sponge or soft brush.

All components of the e-bike and the drive system must be kept clean. Pay particular attention to the contacts and interfaces between the Range Extender battery and the charging socket. These areas must be dried completely before each use. The charging socket should always be closed when not in use.



Never use a high-pressure cleaner.

Instead, use a slightly moist cloth for cleaning. Make sure that none of the electrical components or the charging socket come into contact with water during the cleaning process. To this end, close all open covers prior to cleaning. Consult your authorized specialist dealer for more information about cleaning your bike.



Charging port – Precautionary measures

- *Close the cover of the charging port after each charging procedure. The charging port should be opened only for connecting a charger or Range Extender.*
 - *Do not use the charging plug when it is wet or dirty. Clean the plug with a dry cloth before use. Beware of condensation.*
 - *The charging plug system does not work if it is wet.*
-

••page intentionally left blank••

7 TRANSPORT

To prevent damage when transporting the bike equipped with the BIKEDRIVE AIR system on the car roof or mounted to the outside of the car, observe the following:



When the bike is transported on the roof or mounted to the outside of the car in rainy weather and when traveling at high speed, there is risk of water getting into the e-bike.

- *Take off the Range Extender and close the charging socket.*



The bike equipped with the BIKEDRIVE AIR system increases the requirements on car transport systems, rear racks, and roof racks. Unsuitable bike racks can break while the car is in motion or might not reliably protect your E-BIKE.

- *Check the car manual for the allowed roof load and the manual of the car bike rack for the support load.*



Li-ion batteries are subject to the requirements of the legislation on hazardous materials. Private users can transport the battery on the street without restrictions. For commercial transport or transport by third parties (e.g., forwarding agent), national regulations on packaging and labeling must be observed. If necessary, consult experts on hazardous materials for information on how to correctly prepare the shipment.

••page intentionally left blank••

8 LIABILITY FOR MATERIAL DEFECTS

A 24-month liability for material defects is stipulated by law and starts on the day of purchase.

To make a claim for material defects, the original invoice must be presented.

You are entitled to the warranty under the following conditions:

- There is a manufacturing or material defect.
- The claimed damage already existed at the time of handover.
- The change to the product is not the result of function-related wear or aging.
- Shipping package.

The following is excluded from the warranty:

- All wear parts, insofar as the defect is not a production or material defect.
- Damage that occurred as a result of improper use or failure to observe the warning instructions.
- Damage caused by noncompliance with the procedures described in the "Maintenance" chapter.
- Damage caused by improper repair tools and lack of proper upkeep.
- Damage caused by installing used parts.
- Damage caused by retrofitting nonstandard equipment and by making technical modifications.

••page intentionally left blank••

9 DISPOSAL



Rechargeable batteries and old batteries of e-bikes do not belong in the household waste. They could ignite and for this reason it is mandatory to dispose of them properly. Used batteries can be returned free of charge. Help us to recycle.

9.1 General information / disposal instructions

The BIKEDRIVE AIR is equipped with highly efficient and long-lasting lithium-ion batteries. They can be recharged countless times and, depending on the use, only reach the end of their service life after years. However, the service life heavily depends on how regularly they are used and how they are handled. Correct handling can positively influence the service life. At the end of the service life, the battery is not defective; it simply does not provide the desired performance any more. Consequently, the capacity of the e-bike battery decreases by a certain percentage from year to year. This reduces the range that can be achieved with a single charge. When the battery is considered to be unusable is therefore also partly a matter of personal preference.

9.1.1 Recycling

Once a battery has reached the end of its service life, it must be disposed of appropriately. If you have defective or worn-out batteries for our e-bike system, please contact a specialist dealer, who will handle the proper disposal. The return as well as the recycling is always free of charge for e-bikers. Proper recycling saves resources and valuable raw materials are returned to the material cycle. Never remove the battery yourself; always have it removed by a specialist dealer.

9.2 Responsibility

The battery manufacturer is responsible for the recycling. However, as soon as the e-bike crosses country borders, the importer (in countries other than Switzerland consequently the bike manufacturer or dealer) automatically becomes the manufacturer. In other EU countries, we provide the e-bike manufacturers with the best possible support for this task.

9.2.1 Second use

Our batteries have been designed and certified specifically for use in e-bikes. We cannot guarantee that they can be reliably used in other areas of application.

9.3 Disposal

Chargers, accessories, and packaging must be recycled in an environmentally friendly manner. Do not dispose of chargers in the household waste.

9.3.0.1 Only for EU countries:

In accordance with EU Directive 2012/19/EU on waste electrical and electronic equipment and its implementation into national law, chargers that are no longer in working order must be collected separately and recycled in an environmentally friendly manner.

Subject to change without notice

LIST OF FIGURES

Figure 3-1	BIKEDRIVE AIR Components	9
Figure 3-2	BIKEDRIVE AIR Drive unit	10
Figure 3-3	BIKEDRIVE AIR POWERTAB	11
Figure 3-4	BIKEDRIVE AIR Battery BX250I	12
Figure 3-5	BIKEDRIVE AIR Range Extender BX250E	13
Figure 3-6	BIKEDRIVE AIR Charger	14
Figure 3-7	BIKEDRIVE AIR Charging socket	15
Figure 3-8	BIKEDRIVE AIR Distance between speed sensor and magnet	16
Figure 3-9	BIKEDRIVE AIR Remote switch for mountain bikes	17
Figure 3-10	BIKEDRIVE AIR Remote switches for racing and gravel bikes	17
Figure 3-11	BIKEDRIVE AIR Light module	18
Figure 3-12	BIKEDRIVE AIR Mounting Ranger Extender bracket	19
Figure 3-13	BIKEDRIVE AIR Screws assembly range extender	19
Figure 4-14	BIKEDRIVE AIR POWERTAB	22
Figure 4-15	BIKEDRIVE AIR Load scheme	25
Figure 4-16	BIKEDRIVE AIR Range Extender component	30
Figure 4-17	BIKEDRIVE AIR Range Extender	34
Figure 4-18	BIKEDRIVE AIR Load scheme	35

LIST OF TABLES

Table 3-1	Technical data Drive unit	11
Table 3-2	Technical data POWERTAB	11
Table 3-3	Technical data Battery BX250I	12
Table 3-4	Technical data Range Extender BX250E	13
Table 3-5	Technical data Charger	14
Table 3-6	Technical data Light module	18
Table 4-7	Technical data Battery	24

© 2023 maxon. All rights reserved Any use, in particular reproduction, editing, translation, and copying, without prior written approval is not permitted (contact: maxon international ltd., Brünigstrasse 220, CH-6072 Sachseln, +41 41 666 15 00, www.maxongroup.com). Infringements will be prosecuted under civil and criminal law. The mentioned trademarks belong to their respective owners and are protected under trademark laws. Subject to change without prior notice.