

*impulse speed 2.0*

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# Pedelec Impulse Speed 2.0

English



Item no. 1973K0014028

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# Introduction

Thank you for choosing the Pedelec Impulse Speed 2.0 from Derby Cycle. This S-Pedelec (= fast Pedelec) is equipped with an innovative electric drive that assists you when you are cycling. This will make your trip much more enjoyable if you are riding up hills, carrying loads or riding into the wind. You can decide yourself how much you want to use it.

Although the S-Pedelec looks like a normal bike, it is classed as an L1e moped, so there are a number of important differences: In Germany, you will need a moped test certificate (if you were born after 01.04.1965) and an insurance plate ➡ *Chapter 1.2 "Statutory requirements"*. You must also wear a bicycle helmet.

The purpose of this User Manual is to help you get the most out of your Pedelec Impulse Speed 2.0 and use it correctly.

## Structure of the User Manual

You will find information on how to use your S-Pedelec in ➡ *Chapter 1 "Safety"*.

You will find a brief introduction in ➡ *Chapter 4 "Quick start"*.

The most important components of your Pedelec are described in detail in the following chapters.

You will find the specifications of your Pedelec Impulse Speed 2.0 in ➡ *Chapter 12 "Technical data"*.

The information in this User Manual specifically refers to your S-Pedelec. For general information, for example on bike technology, refer to the *"Original User Manual | General"* (CD).

## CD with important information

On the enclosed CD, you will find versions of the *"Original User Manual | Pedelec Impulse Speed 2.0"* in various languages. In addition, the CD also contains the *"Original User Manual | General"* with general information on bike technology.

You can download the latest version of the User Manual from the Internet. There you will also find manuals for the individual bike components.

You can run the CD using any standard PC or laptop. Proceed as follows:

### METHOD A:

1. Insert the CD.
2. Double-click on the file shelexec.exe using the left mouse button.
3. Select the desired language.
4. Select "Open User Manual from CD" or "Check for new version of User Manual online".

### METHOD B:

1. Insert the CD.
2. Using the mouse, right-click once on: "Open folder to display files."
3. Double-click on "Start" using the left mouse button.
4. Select the desired language.
5. Select "Open User Manual from CD" or "Check for new version of User Manual online".

To call up the files, you need the program Adobe Reader. It has been included on the CD or can be downloaded free of charge from [www.adobe.com](http://www.adobe.com).

If you would like a printed copy of the *"Original User Manual | General"*, you can have it sent to you free of charge by requesting it from the following address:

Derby Cycle GmbH / Raleigh Univega GmbH  
Siemensstrasse 1–3  
49661 Cloppenburg, Germany  
+ 49 (4471) 966-0  
[info@derby-cycle.com](mailto:info@derby-cycle.com)



Even if you can't wait to go for a ride, you should read through the *"Original User Manual | Pedelec Impulse Speed 2.0"* and the *"Original User Manual | General"* (CD) carefully before using your S-Pedelec for the first time.

The manufacturer accepts no liability for damage resulting from failure to adhere to these manuals.

Use your S-Pedelec only as intended. Otherwise, there is a risk of technical failure, which can lead to unforeseeable accidents! Improper use may void the warranty and guarantee.



Pass on the manual to anyone who uses, maintains or repairs this S-Pedelec.

## 1 Safety

The User Manual contains the following symbols that denote dangers or important information. Read all the safety information. Failure to observe the instructions can cause electric shock, fire and/or serious injury.



**WARNING**  
regarding possible physical injury, increased risk of falls or other injuries.



**NOTE**  
regarding possible damage to property or the environment.



**IMPORTANT ADDITIONAL INFORMATION**  
or special information on using the S-Pedelec.

### 1.1 General



If children are present, keep a close eye on them, especially if there is a possibility they could insert objects into the motor through apertures in the housing. This poses the danger of fatal electric shock.

If you have reason to suspect a safety problem with your Pedelec, do not ride it, and make sure nobody else can use it until you have it checked by a specialist cycle shop. Safe use is not possible if electrical components or the battery shows signs of damage.

Never ride with no hands! This poses an acute risk of falling.

Take the battery out of the S-Pedelec before beginning work on the S-Pedelec.

Observe the maximum permitted gross weight of your S-Pedelec, as this could otherwise lead to breakage or failure of safety-relevant components ➡ Chapter 12 “Technical data”.

It is not permitted to carry children in a bike trailer pulled by an S-Pedelec. Trailers themselves are permitted, provided the trailer coupling used has the national type approval (ABE) required for motor vehicles.



If you wish to make any adjustments to the ride characteristics of your S-Pedelec, please consult your specialist cycle shop.

## 1.2 Statutory requirements



The S-Pedelec is classed from a legal point of view as an L1e moped. In some EU countries it must, like all other motorcycles and motor vehicles, comply with certain regulations, for example the Road Traffic Licensing Regulation in Germany (StVZO). Please observe the relevant explanations and general information provided in the “*Original User Manual | General*” (CD).

The following statutory requirements apply for an S-Pedelec:

- When riding with the power assist only, the S-Pedelec must not travel faster than 20 km/h. You will therefore reach a speed of between 15 and 18 km/h on the flat.
- The power assist switches itself off once you have reached a speed of roughly 45 km/h. This requires around 700 watts of power, which cannot be supplied by the electric motor alone. You can reach speeds of 35-45 km/h by combining the motor's output of 350 watts with your own physical effort.

### 1.2.1 Requirements for the rider



You are legally required to wear a helmet. You should wear a suitable helmet (e.g. a bicycle helmet).

You are legally required to have a driving license. The moped test certificate is mandatory. If you have a German driving licence, you are automatically exempt from this requirement.

In Germany, if you were born before 1 April 1965, you may also ride an S-Pedelec without a driving licence.

You are legally required to have insurance. In Germany, you can obtain the small registration mark from any insurance company.

Use on cycle paths is restricted. When you use your S-Pedelec as a normal bike, i.e. without assistance from the electric motor, you can ride on all cycle paths without restriction. When you use the motor, restrictions apply in some EU countries. In Germany an amendment to the Road Traffic Ordinance (StVO) states that: Outside built-up areas, you must ride your S-Pedelec on cycle paths, as also applies to mopeds. In exceptional cases where this is not permitted, the cycle path will be marked with the sign “No mopeds” in accordance with Paragraph 2 Section 4 of the Road Traffic Ordinance (StVO). Inside built-up areas, on the other hand, you can only use your Pedelec on cycle paths if there is a sign to indicate that it is permitted in accordance with Paragraph 41, Sec. 2, No. 5.

These regulations apply to you wherever you are in the European Union. It is possible that different regulations exist in other countries, also inside the EU in individual cases. Before using your S-Pedelec abroad, find out about the applicable legislation in the relevant country.

## 1.3 Battery



The battery contains chemical substances, which could cause dangerous reactions if the safety information given here is not adhered to.

Avoid contact with liquid leaking from a damaged battery. In case of contact, rinse off the liquid with water. In case of eye contact, consult a doctor after rinsing.

Never attempt to repair your battery. Batteries must not be dismantled, opened or crushed. The improper opening or damaging of the battery poses the risk of serious injury. Opening the battery voids the warranty claim. If your battery is damaged, contact your specialist cycle shop for advice.

Batteries must not be exposed to heat (e.g. radiator) or naked flames. External heat can cause the battery to explode. In addition, high temperatures shorten battery life. When charging, always ensure there is adequate ventilation.

A battery must not be short-circuited. It is dangerous to store batteries in a box or drawer where they can short-circuit one another or can be short-circuited by other conductive materials (paper clips, coins, keys, nails, screws). A short circuit between the battery contacts can cause burns or fire. Short-circuit damage caused in this way voids all guarantee claims.

Batteries must not be exposed to mechanical shocks. Even if a battery shows no visible signs of damage after falling or being knocked, it may be damaged. For this reason, even batteries that seem fine must be taken to a specialist dealer for inspection. Damaged batteries must neither be charged nor used for another application.

Keep batteries away from children.

Use the battery solely for your S-Pedelec.

Ideally, take the battery out of your S-Pedelec when not in use.

Batteries not designed for the Pedelec must not be used.

Never transport damaged batteries. The safety of damaged batteries cannot be guaranteed.

Lithium reacts very strongly upon direct contact with water. Never put the battery into water. Caution is therefore also required in the case of damaged batteries which have become wet, as they may catch fire.

In case of fire, water can be used to extinguish any flames in the vicinity, but never the battery itself. Powder fire extinguishers for metal fires (Class D) are better suited to this task. If the battery can be safely moved outdoors, the fire can also be suffocated using sand.



The S-Pedelec operates at low voltage (36 volts). Never attempt to operate the Pedelec using power from a source other than a genuine Pedelec battery. The designations of approved batteries are listed in ➔ *Chapter 12 "Technical data"*.

## 1.4 Charger



The charger may only be used to charge the battery supplied. Use of the charger for other purposes is not permitted. Any kind of manipulation of the charger or battery housing is forbidden!

The mains voltage must correspond to the voltage given on the type plate of the charger. The supply voltage of the charger is given on the type plate on the back of the device.

The charger is only intended for use indoors. The battery may only be charged in a dry, non-flammable environment. During the charging process, the battery and charger must be placed on a flat, non-flammable surface. Battery and charger must not be covered. There must be no highly combustible materials in the immediate vicinity. This also applies when charging the battery on the S-Pedelec. In this case, you must place the S-Pedelec so as to prevent any fire from spreading quickly (avoid carpeted floors!).

Ingress of water and damp in the charger must be avoided at all costs. In case of ingress of water, immediately disconnect the charger from the mains and have it checked by a specialist.

The battery may heat up during charging. A maximum temperature of 45°C may be reached. If the battery becomes any hotter than this, stop the charging process immediately. Such a battery may no longer be used, and you must have it inspected by the dealer.

A battery that displays a fault must not be charged.

The battery must not be left unattended while charging.

Damaged batteries must not be charged (risk of explosion!).

Do not attempt to modify or take apart the charger. Have repairs carried out only by specialists.

A charger with a damaged mains plug or mains cable must not be connected to the mains and must be replaced by a specialist. The same applies for extension cables that are not in perfect condition.



Do not charge batteries for an extended period if they will not be used.

If you detect smoke or an unusual smell, immediately unplug charger at the wall socket and disconnect the battery from the charger.

No chargers other than those specifically intended for use with the battery may be used. The use of a different charger may cause malfunctions, shortened service life, fire or explosion.

Do not use damaged batteries or chargers (plug, housing, cable).

Do not replace the mains cable. This poses the risk of fire and explosion.



Condensation may form on the charger if the temperature changes suddenly from cold to hot. In case of condensation, wait approximately one hour before connecting the charger to the mains, until it has warmed up to the temperature of the room. Ideally, avoid such situations by storing the charger in the place where it is operated.

Only charge the battery at ambient temperatures of between 0°C and 45°C. You can maximise a battery's service life, however, by charging it at an ambient temperature of between 10°C and 30°C.

live. Maintenance or repairs on the motor when it is open must only be carried out by a professional bike workshop.

## 1.6 Adjustments/maintenance/repair



When carrying out adjustments and maintenance or when cleaning, avoid crushing cables or damaging them with sharp edges.

Please have all installation and adjustment work carried out by your specialist cycle shop. In case you have to fasten something in place or change something yourself, you will find an exhaustive list at the end of the “*Original User Manual | General*” (CD) detailing the tightening torques which must always be adhered to.

## 1.5 Motor



If children are present, keep a close eye on them, especially if there is a possibility they could insert objects into the motor through apertures in the housing. This poses the danger of fatal electric shock.

Bear in mind that the motor can heat up on long ascents. Be careful not to touch it with your hands, feet or legs. You could burn yourself.

Live parts may be exposed when you open covers or remove parts. Connection points may also be

## 1.7 Transportation of the S-Pedelec



For the transportation of your S-Pedelec, we recommend removing the battery from the S-Pedelec and packaging it separately. A suitable transport container can be obtained from your specialist cycle shop.

### 1.7.1 The S-Pedelec and your car

If you transport your S-Pedelec on a bike rack, ensure that it is designed for the higher weight of a Pedelec. To reduce the load on the rack, and for protection against the weather, the battery must be transported inside the car.

### 1.7.2 The S-Pedelec on trains

In Germany, you can take your S-Pedelec with you on trains which are marked with the bike symbol. On German Intercity (IC) and EuroCity (EC) trains, you must book a place for your bike in advance. Bikes are not permitted on German Intercity Express (ICE) trains.

### 1.7.3 The S-Pedelec on aeroplanes

Your Pedelec is generally subject to the policies of the respective airline concerning bikes. Batteries are subject to dangerous goods legislation. Therefore, they must not be carried on passenger planes – neither in the cargo hold, nor the cabin. Please contact the relevant airline for detailed information.



## 2 Components of the Pedelec



## 3 First steps

### 3.1 Checking the tightening torques

Check that all screws and important components are fastened securely and correctly. You will find a table with the prescribed tightening torques for important screw connections in ➡ *Chapter 30 “Technical data” of the “Original User Manual | General” (CD).*

### 3.2 Fitting the pedals

It may be that the pedals for your S-Pedelec have yet to be fitted:

The right pedal (marked with an “R”) is screwed clockwise into the right crank arm. The left pedal (marked with an “L”) is screwed anticlockwise into the left crank arm. Both pedals are screwed in tightly in the direction of the front wheel using a size 15 open-ended spanner or a suitable Allen key. The tightening torque is 40 Nm.



If the pedals are not screwed in straight, the thread in the crank arm may be severely damaged. This could lead to serious accidents and injuries.

### 3.3 Adjusting the saddle height

#### 3.3.1 Clamping bolt

If a torque is specified (in Nm) on the seatpost clamp, tighten the clamping bolt to this torque. If no tightening torque is specified, tighten an M6 bolt (dia. 6 mm) and an M5 bolt (dia. 5 mm) to 5.5 Nm.

#### 3.3.2 Quick-release device

For opening, the quick-release lever must be folded back through 180° – you will see the lettering “OPEN”. For closing, fold the quick-release lever back in through 180° – you will see the lettering “CLOSE”.



*Opening the quick-release lever*



*Closing the quick-release lever*



As a rule of thumb, you can be confident that the quick-release device is sufficiently secure if the lever can only be closed by applying firm pressure with the heel of your hand. You will feel increasing resistance from the lever, beginning when it is at approx. 90°. If the seatpost is not clamped firmly or securely enough, tighten the clamping nut or turn the screw clockwise by another half a turn respectively while the quick-release lever is open. Close the quick-release lever and check that the saddle is securely fastened once more.

Check that all quick-release levers are fastened correctly and securely before every journey and every time you return to your bike having left it unattended, even for a short time.

With regard to the saddle height, there is a simple test procedure: Whilst sitting on the saddle, the heel of your fully-stretched leg should just reach the pedal in its lowest position. When the ball of your foot is in the same position, your leg should be bent slightly.

## 4 Quick start

Charge the battery completely before riding for the first time. Charge temperature: 0°C to 45°C.



SEAT TUBE BATTERY

*Charging the battery*

1. Remove the cover from the charging socket.
2. Connect the plug of the charger to the battery.



DOWN TUBE BATTERY

*Charging the battery*



SEAT TUBE BATTERY

3. Plug the charger in at the wall socket.



You must charge the battery completely before using it for the first time. As required by transport law, the battery leaves the factory with an approximately 30% charge.

You can also remove the battery from your S-Pedelec and charge it elsewhere. For more information, refer to ➡ *Chapter 5 "Battery"*. Please note, the battery is heavy. Hold on tight to it!

4. Once all of the battery LEDs have gone out, the battery is fully charged. Pull the plug of the charger out of the charging socket and unplug the charger at the wall socket.
5. a) **Down tube battery:** If you removed the battery for charging, replace it in the holder from the front/above. At the same time, the key must be in the lock and must be turned anticlockwise. Press the battery down into the holder until the locking mechanism engages.

b) **Seat tube battery:** If you removed the battery for charging, reinsert it into the holder on the S-Pedelec from the left-hand side. Tilt the battery outwards at an angle of roughly 45° as you do so. Swivel the battery into the upright position until the locking mechanism engages.



DOWN TUBE BATTERY



SEAT TUBE BATTERY

*Installing the battery*

6. Now turn the key clockwise and remove it. The battery is now locked in place.



DOWN TUBE BATTERY






SEAT TUBE BATTERY

*Locking the battery*

7. Make sure that the battery is securely positioned and that the key is no longer in the lock.



**Seat tube battery:** You can lock both the battery and your ring lock with your key.

8. Press the  button on the control unit to switch on the drive system.
9. After the welcome screen, the display shows the power-assist mode that was last set. Press the / buttons to select the level of assistance: *ECO* (low), *SPORT* (medium), *POWER* (high), *POWER + SPORT* (very high) or no assistance. Pressing once changes the level of assistance by one level. This works both ways, depending on which of the buttons you press. You can now ride off just as you would if you were riding a normal bike. The motor starts providing assistance as soon as the rear wheel starts turning.




Apply the brake before putting your foot on the pedal.

From the first moment, you have full assistance. Practice starting up in a safe location before venturing into the road traffic.

## 5 Battery

Your battery is a lithium-ion battery, the ideal type for this application. One of the main benefits is its low weight combined with a high capacity.

### 5.1 Charging the battery

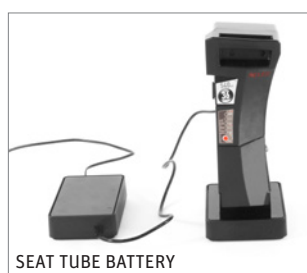
You can charge the battery whilst it is on the Pedelec  
 *Chapter 4 "Quick start"*.

Alternatively, you can take the battery out of its holder and charge it in a separate location. This is recommended if it is cold outside, in order to charge the battery in a warmer room.



Condensation may form on the charger if the temperature changes suddenly from cold to hot. In case of condensation, wait approximately one hour before connecting the charger to the mains, until it has warmed up to the temperature of the room. Ideally, avoid such situations by storing the charger in the place where it is operated.

The battery can be charged at temperatures between 0°C and 45°C. However, you can maximise a battery's service life by charging it at an ambient temperature of between 10°C and 30°C.



*Battery in the charger*

#### 5.1.1 Removing the battery

1. Grip the battery by the handle, insert the key into the lock and turn it anticlockwise. The battery is now unlocked.



*DOWN TUBE BATTERY*



*SEAT TUBE BATTERY*

*Unlocking the battery*

2. a) **Down tube battery:** Grip the battery with both hands and lift it forwards/upwards out of its holder. Hold the battery tight to avoid dropping it. Place the battery down on a suitable surface, which should be dry, flat and non-flammable.
- b) **Seat tube battery:** Grip the battery by the handle and remove it from the Pedelec by tilting it sideways. Hold the battery tight to prevent it from falling out.



DOWN TUBE BATTERY

*Removing the battery*



SEAT TUBE BATTERY



SEAT TUBE BATTERY

*Charging the battery*

3. You should now remove the key and keep it in a safe place to prevent it from breaking off or being lost.

### 5.1.2 Charging the battery



Before charging the battery, read the information on the charger carefully.

1. a) **Down tube battery:** Take the charger provided out of its packaging and plug it in at the wall socket (230–240 V).
- b) **Seat tube battery:** Take the charger provided and the docking station out of their packaging and plug the mains plug into a socket (230–240 V). Connect the charger to the docking station. The LED in the charger now lights up red briefly, then changes to steady green.



To charge the battery safely, the charger must be placed on a suitable surface, which should be dry and non-flammable.

**Seat tube battery:** The charger must stand on its four feet. This is essential to ensure that the hot air from the ventilation slots can dissipate.

2. a) **Down tube battery:** Connect the plug of the charger to the battery.
- b) **Seat tube battery:** Put the battery in the holder of the docking station. The LED in the charger lights up green.

3. a) **Down tube battery:** Charging begins. If your charger has an LED, it lights up red. The battery is charged in five stages. When charging of one stage is in progress, the corresponding LED flashes. When this stage has been fully charged, the LED stops flashing and stays lit. Now the next LED will begin to flash. After all five LEDs have gone out, the battery is fully charged.

b) **Seat tube battery:** Charging begins. The LED of the charger lights up green. The battery LEDs light up one by one to indicate the progress of charging. The battery is charged in five stages. When charging of one stage is in progress, the corresponding LED flashes. When this stage has been fully charged, the LED stops flashing and stays lit. Now the next LED will begin to flash. After all five LEDs have gone out, the battery is fully charged.



If your charger has an LED, and it flashes red continuously, this indicates a charging fault. Have the charger and battery checked by your specialist cycle shop.

4. Unplug the charger at the wall socket once charging is complete.



Damaged batteries must not be charged, and further use is not permitted.

The battery may heat up during charging. A maximum temperature of 45°C may be reached. If the battery becomes any hotter than this, stop the charging process immediately.





There is no memory effect, so you can top up your battery after every trip. Then you are always ready for the off.

Ideally you should charge the battery at a temperature of between +10°C and +30°C. It takes longer to charge the battery at low temperatures, while the battery will not charge up at temperatures higher than +45°C. Ideally, you should charge and store the battery inside your house or in a warm garage when the outside temperature is low. In this case, you should only fit the battery onto your bike just before using it.

### 5.1.3 Installing the battery

1. a) **Down tube battery:** Insert the battery into the battery holder of the Pedelec from the front/above. At the same time, the key must be in the lock and must be turned anticlockwise.

b) **Seat tube battery:** Insert the battery into the holder of the Pedelec from the left by tilting it outwards at roughly 45°.



DOWN TUBE BATTERY



SEAT TUBE BATTERY

*Installing the battery*

2. Press the battery down into the holder until the locking mechanism engages. Now turn the key clockwise and remove it. The battery is now locked in place.



DOWN TUBE BATTERY



SEAT TUBE BATTERY

*Locking the battery*

3. Make sure the battery is firmly in place.

## 5.2 Battery information system

There is a display panel on the outer face of the battery which includes five LEDs and a battery button or push button. The LEDs light up as soon as you press the battery button or push button. The charge state and capacity of the battery is indicated by the number of LEDs that light up and the way in which they light up.



DOWN TUBE BATTERY  
Battery button



SEAT TUBE BATTERY  
Push button

### 5.2.1 Checking the charge state

a) **Down tube battery:** Press the battery button briefly. The LEDs light up and display the current battery charge state.

DISPLAY		BATTERY CHARGE STATE
.....	5 LEDs light up	100-80%
....	4 LEDs light up	80-60%
...	3 LEDs light up	60-40%
..	2 LEDs light up	40-20%
.	1 LED lights up	20-10%
o	1 LED flashes	10-0%

b) **Seat tube battery:** Press the push button briefly. The LEDs light up and display the current battery charge state.

SEAT TUBE BATTERY DISPLAY	BATTERY CHARGE STATE
••••• 5 LEDs light up	100-84%
•••• 4 LEDs light up	83-68%
••• 3 LEDs light up	67-51%
•• 2 LEDs light up	50-34%
• 1 LED lights up	33-17%
◦ 1 LED flashes	16-0%
••••• 5 LEDs flash quickly	0% or overloaded *
◦ 1st LED flashes quickly	Charging fault **

\* All 5 LEDs flash quickly: The battery is a) empty and is being switched off, or is b) overloaded.

- a) If the battery is overloaded, it will switch back on after a short idle period and can then be used normally.
- b) If the battery is empty, it will work again briefly following a short period of rejuvenation and will then switch back off. It must now be charged.

\*\* The 1st LED flashes quickly to indicate a charging fault.

Please take the battery to your specialist cycle shop.

## 5.2.2 Checking the capacity

a) **Down tube battery:** If you hold down the battery button for roughly five seconds, the LEDs show the current battery capacity.

DOWN TUBE BATTERY DISPLAY	CAPACITY
•••• 4 LEDs light up	approx. 81–100%
••• 3 LEDs light up	approx. 61–80%
•• 2 LEDs light up	approx. 41–60%
• 1 LED lights up	approx. 21–40%
◦ 1 LED flashes	approx. 0–20%

b) **Seat tube battery:** If you press the push button for five seconds, the LEDs show the current capacity of the battery.

SEAT TUBE BATTERY DISPLAY	CAPACITY
••••• 5 LEDs light up	100-97%
•••• 4 LEDs light up	96-80%
••• 3 LEDs light up	79-60%
•• 2 LEDs light up	59-40%
• 1 LED lights up	39-20%
◦ 1 LED flashes	< 20%



The range of the battery is less in winter due to the lower temperatures. Only move the battery (from the warm room where you store it) and fit it on your Pedelec just before you set off. This will help to prevent the effect of the low temperature on the range of the battery. ➡ Chapter 5.4 “Warranty and service life”.

## 5.3 Battery management

The battery management monitors the temperature of your battery and warns you of incorrect use.



If an external short-circuit has been caused at the contacts or the charging socket, please consult your specialist cycle shop.

Never leave the battery unattended during charging. Disconnect the charger after use.

### 5.3.1 Sleep mode

The battery management switches the battery to sleep mode to prevent a so-called deep discharge. At the latest, the battery management activates the sleep mode after ten days without use. The system exits sleep mode when you connect the battery to the charger or press the battery button or push button on the battery. This “wakes up” the battery.





**Down tube battery:** If the battery does not wake up, the cell voltage may be too low. In this case, connect up the charger and press the battery button. The battery is charged for one minute.

**Seat tube battery:** The battery can also be put into sleep mode manually by pressing the push button for eight seconds. Release the push button as soon as the second LED lights up.

## 5.4 Warranty and service life

Batteries are wear parts. Wear parts come with a two-year warranty.

If a fault occurs during this period, your specialist cycle shop will replace the battery. Normal ageing and battery wear do not constitute a fault.

The service life of the battery depends on different factors. The most important wear-relevant factors are:

- The **number of charges**

After 1,100 charging cycles, your battery will still have 60% of its initial capacity, providing it has been well looked after. This means 6.6 Ah in an 11 Ah battery and 7.2 Ah in a 15.5 Ah battery. A charging cycle is defined as the sum of the individual charges until the battery has been charged to full capacity once.

For example: You charge the battery with 5 Ah on the first day, 2 Ah on the second day and 4 Ah on the third day; the sum is 11 Ah. The battery has thereby completed one charge cycle.

According to the technical definition, the battery is exhausted when less than 60% of the initial capacity is available. If you can still ride the distances you require with the remaining battery capacity, you can of course continue using it. If the capacity is no longer sufficient, you can take your battery to a specialist cycle shop, which will dispose of your battery and sell you a new one.

- The **age** of the battery

A battery also ages during storage.

This means that even if you do not use your battery, its capacity reduces. You can expect the battery to age by approximately 3 to 5%.

Ensure that the battery does not become too hot. The rate at which the battery ages increases significantly at temperatures above 40°C. Direct sunlight can heat the battery considerably. Be sure not to leave the battery in a hot car, and always stand your Pedelec in the shade during breaks in cycle trips. If you cannot prevent exposure to heat, do not charge the battery until it has cooled down.

A fully charged battery ages at an even greater rate than a partially charged one at high temperatures.

- If you always ride with maximum motor output, your motor will always require a higher current. Higher currents cause the battery to age more quickly.
- You can also extend the service life of the battery by using the assistance selectively. Use a low assist level when riding. With lower discharge currents, you conserve your battery.



Make sure that the battery is fully charged before you ride your bike for the first time or if you have not used it for a while.

## 5.5 Storage

If you do not need your battery for a while, store it at a temperature of 18–23°C at 50–70% of its full charge capacity. If you do not use the battery for six months, you must recharge it.

## 5.6 Ordering a replacement key

We recommend you note down the key number on the receipt. If you lose the key, you can order a replacement key using this number.

If you no longer have the key number, the only option is to remove the bicycle lock. Contact your specialist cycle shop in this case.

## 5.7 Shipping



Never send your battery by post or courier! A battery is a hazardous article which can overheat and catch fire in certain conditions.

The preparation and shipping of a battery may only be carried out by trained personnel.

If you would like to return your battery for repair or replacement, please always arrange this via your specialist cycle shop. Specialist cycle shops can have the battery picked up free of charge and in compliance with dangerous goods legislation.

## 5.8 Disposal

Batteries must not be disposed of with domestic waste. Consumers are legally bound to dispose of used or damaged batteries at the locations designated for the purpose (battery collection point or specialist cycle shop). The disposal of batteries is clearly regulated in each country's laws.

## 6 Charger



If used incorrectly, the charger may be damaged or cause injury.

- Only use the charger in dry rooms.
- Only place the charger in a secure, stable position on a suitable surface.
- Do not cover the charger or place any objects on it, as otherwise it could overheat and catch fire.



Do not use any other charger. Only charge your battery using the charger provided, or a charger approved by us.

Read the type plates on the charger before using it for the first time.

You can charge your Pedelec Impulse Speed 2.0 directly via a charging socket in the battery. The battery can remain on the S-Pedelec whilst charging is in progress.



SEAT TUBE BATTERY  
*Charging the battery*

Alternatively, you can take the battery out of its holder and charge it elsewhere. This is recommended if it is cold outside, in order to charge the battery in a warmer room. The battery can be charged at temperatures between 0°C and 45°C.



SEAT TUBE BATTERY  
*Battery in the docking station*



If a charging fault occurs, the LED (where present) in the charger flashes red. In this case, the charging current is too high. Consult your specialist cycle shop.

## 7 Control unit and display

The Pedelec Impulse Speed 2.0 can be controlled via the control unit on the handlebar grip and the display in the middle of the handlebar.

### 7.1 Control unit



- 1 button, on and off button
- 2 button, increase value/scroll up
- 3 button, decrease value/scroll down
- 4 button

Press the button to switch the system on and off. Buttons 2 to 4 have different functions depending on the menu item you have selected.

#### 7.1.1 Switching on/off

Press the button on the control unit to switch the Impulse system on. After a few seconds, the welcome screen appears, followed by the start menu. From there you can carry out further settings ➡ Chapter 7.3 “Programming and settings”.



After switching on, the system is always in the same display mode as when you last switched it off.

To switch your Pedelec off, press the button on the control unit.

#### 7.1.2 Pushing assistance

The pushing assistance moves the Pedelec slowly (at a maximum speed of 20 km/h) without you having to pedal, e.g. if you are manoeuvring in a tight space or are pushing your S-Pedelec out of a basement garage.

To activate the pushing assistance, press the button for three seconds.



The pushing assistance is suitable for starting up from standstill.

#### 7.1.3 buttons

- You can specify the power-assist level via the / buttons.
- Each time you press one of these two buttons, the power assist changes by one level. If you press the button once, the level of assistance increases by one level. If you press the button once, the assistance becomes weaker by one level.

## 7.2 Display



- 1 Speed
- 2 Power-assist mode
- 3 Battery charge state
- 4 Remaining range
- 5 Information area

The display in the middle of the handlebar is divided into five different display fields.

- At the top the left is your current **1** speed.
- To the right of the current speed is a display showing the selected **2** power-assist mode  
➔ Chapter 7.2.1
- At the top right is the **3** battery symbol, which tells you the current battery charge state of your Pedelec ➔ Chapter 7.2.2
- Below this the remaining **4** range is displayed  
➔ Chapter 7.2.3
- Along the bottom section of the display is a long **5** **information field** that can be used to call up the following information:
  - How much of its potential output the motor is currently delivering.
  - The costs incurred in the course of the current trip and during the entire service life.



The Pedelec Impulse 2.0 Offroad with down tube battery does not have this function. The display value is always 0.

- Savings achieved in both euros and CO<sub>2</sub> in comparison with the same journey by car.
- Total number of kilometres covered.
- Kilometres covered during the day and overall.

- Journey time during the current trip and the top speed reached on this trip.
- Average speed during the current trip and the total distance covered.



You can switch between the various displays in the information area by pressing the **SET** button in the main menu.

### 7.2.1 Assistance indicator







The display shows you how much assistance the motor is currently providing.

DISPLAY	ASSISTANCE
POWER SPORT ECO	This means the assistance is working very hard.
POWER SPORT ECO	This means the assistance is working hard.
POWER SPORT ECO	This means the assistance is working at medium output.
POWER SPORT ECO	This means the assistance is working at low output.
POWER SPORT ECO	No assistance. Battery indicator is still lit.

Use the **⊕/⊖** buttons to switch between the individual power-assist modes.

### 7.2.2 Battery charge state indicator

The battery charge state indicator is located at the top right of the display. Using a battery symbol divided into seven segments, it shows the charge remaining in the battery. The lower the charge state of the battery, the fewer segments are displayed.

DISPLAY	BATTERY CHARGE STATE
	100-85.5%
	85.5-71.5%
	71.5-57.5%
	57.5-42.4%
	42.5-28.5%
	28.5-14.5%

If the battery charge state falls below a minimum level, the motor assistance switches off. Then the entire display fades and goes off, too.




If you do not use your Pedelec for ten minutes, the system switches off automatically. If you then want to ride using the assistance, you will have to switch it back on via the control unit.

If the riding conditions change, for example, when you come to a hill after a long, flat stretch, the value displayed can also change at short notice. Please consider this factor when planning your trips. You are probably familiar with this effect from the remaining range indicator of your car. The remaining range depends on the current battery charge state and the assist mode which has been set (POWER + SPORT, POWER, SPORT or ECO).

## 7.2.3 Remaining range indicator






On the right, below the battery symbol, the distance in km which you can still travel with power assist is displayed. This is the remaining range indicator.

## 7.3 Programming and settings

After switching on the Impulse system, you can switch from the main menu to the menu sub-items, by pressing the  button for three seconds.

This takes you to the menu sub-items:

- Drive data ➡ *Chapter 7.3.1*
- Delete trip data ➡ *Chapter 7.3.2*
- Delete overall data ➡ *Chapter 7.3.3*
- Device settings ➡ *Chapter 7.3.4*
- Personalize ➡ *Chapter 7.3.5*
- Target cost ➡ *Chapter 7.3.6*
- Back

You can select the menu sub-items using the / buttons on the control unit. Confirm your selection by pressing the  button. The respective contents are then displayed for you. To return to the main menu display from the menu sub-items, you must select "Back" and confirm by pressing the  button. You can also return to the main menu by pressing and holding the  button for three seconds.




### 7.3.1 Drive data

The following data are displayed in the menu sub-item "Drive data":

- Trip (in km)
- Trip time (in 00:00:00)
- Trip max (in km/h)
- Trip Ø (in km/h) = Trip average
- Trip cost (in €)
- Tour (in km)
- Tour Ø (in km/h) = Tour average
- Tour cost (in €)
- Overall (in km)
- Overall savings (in €)
- Tot. sav. CO2 (in kg)
- Back



The Pedelec Impulse 2.0 Offroad with down tube battery does not have the functions "Trip cost (in €)" and "Tour cost (in €)". The display values are always 0.

Select the desired item using the / buttons. The selected item is highlighted in bold. Confirm your selection by tapping the  button. This takes you back to the menu sub-items.

### 7.3.2 Delete trip data

Under the menu sub-item “Delete trip data”, you can delete the kilometres indicated for the current day trip. The following question appears on the display: “Confirm delete?”, and below it “Yes” or “No”. Select one of these using the  $\oplus/\ominus$  button. The selection is highlighted in bold. Confirm your selection by tapping the  $\text{SET}$  button. This takes you back to the menu sub-items.

### 7.3.3 Delete overall data

Under the menu sub-item “Delete overall data”, you can delete the tour data. The following question appears on the display: “Confirm delete?”, and below it “Yes” or “No”. Select one of these using the  $\oplus/\ominus$  button. Your selection is highlighted in bold. Confirm your selection by tapping the  $\text{SET}$  button. This takes you back to the menu sub-items.

### 7.3.4 Device settings

Under the menu sub-item “Device settings”, you can select the following items by pressing the  $\oplus/\ominus$  button:

- Display  $\Rightarrow$  Chapter 7.3.4.1
- Drive  $\Rightarrow$  Chapter 7.3.4.2
- Miscellaneous  $\Rightarrow$  Chapter 7.3.4.3
- Back

Confirm your selection by tapping the  $\text{SET}$  button.

#### 7.3.4.1 Display

Choose from the following using the  $\oplus/\ominus$  button:

- Contrast
- Brightness
- Language
- Unit
- Back

Confirm your selection by tapping the  $\text{SET}$  button.

**Contrast:** You can select the following values using the  $\oplus/\ominus$  button:

Very low contrast	-35%
	-30%
	-25%
	-20%
	-15%
	-10%
	-5%
Average	“Standard”
	5%
	10%
	15%
Very high contrast	20%

The change in contrast is implemented immediately. Tapping the  $\text{SET}$  button confirms your selection and then takes you back to the menu sub-item display.

**Brightness:** You can select the following values using the  $\oplus/\ominus$  button:

Very bright	50%
	45%
	40%
	35%
	30%
Average	“Standard”
	5%
	10%
	15%
Very dull	20%

The change in brightness is implemented immediately. Pressing the  $\text{SET}$  button confirms your selection and then takes you back to the menu sub-item display.

**Language:** You can choose to have the information shown on the display in the following languages:

- Deutsch
- English
- Francais
- Nederlands
- Espanol
- Italiano
- Suomi
- Dansk

Select a language using the  $\oplus/\ominus$  buttons. Tapping the  $\text{SET}$  button confirms your selection and takes you back to the menu sub-item display.

**Unit:** Under the item “Unit”, you can choose whether the distance travelled and speed are displayed in kilometres (km) or miles (mi). Use the  $\oplus/\ominus$  buttons to choose kilometres (kmh) or miles (mph). Tapping the  $\text{SET}$  button confirms your selection and then takes you back to the menu sub-item display.

#### 7.3.4.2 Drive

Choose from the following using the  $\oplus/\ominus$  button:

- Wheel circumference
- Shift Sensor
- Climb Assist
- Back

Confirm your selection by tapping the  $\text{SET}$  button. This takes you back to the menu sub-item display.

**Wheel circumference:** You can set the “wheel circumference” to any value between **1540 mm** and **2330 mm** by pressing the  $\oplus/\ominus$  buttons on the control unit. Tapping the  $\text{SET}$  button confirms your selection and then takes you back to the menu sub-item display.



This setting needs to be changed if, for example, you fit new tyres of a different size on your S-Pedelec. In order to display the correct data, the new wheel circumference must be entered. You can enquire about the wheel circumference at your specialist cycle shop.

**Shift Sensor:** Choose from the following values using the  $\oplus/\ominus$  button.

OFF	50 ms	100 ms	150 ms	200 ms	250 ms	300 ms
-----	-------	--------	--------	--------	--------	--------

Confirm your selection by tapping the  $\text{SET}$  button.



The Shift Sensor recognises gear shifting and imperceptibly interrupts the power assist for fractions of a second. This enables you to move more smoothly and considerably faster through the gears. The higher the value you set, the longer the assistance is interrupted for, and the more time there is for shifting gears.

**Climb Assist:** Choose from the following values using the  $\oplus/\ominus$  button.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Confirm your selection using the  $\text{SET}$  button.



You can influence the response time of the power sensor with the Climb Assist. The lower the value you set, the less responsive the system becomes. The higher the value you set, the more dynamic the system becomes, but beware a yo-yo effect.

#### 7.3.4.3 Miscellaneous

Choose from the following using the  $\oplus/\ominus$  button.

- Factory settings
- Software
- Back

Confirm your selection by tapping the  $\text{SET}$  button.

**Factory settings:** The following question appears: “Restore factory settings?”. Select “Yes” if you wish to reset the system to its original settings. Select “No” if you wish to retain all the settings you have made. Confirm your selection by tapping the  $\text{SET}$  button.

**Software:** This takes you to the items:

- Version
- Update
- Back

Make a selection using the  $\oplus/\ominus$  button, then confirm and go to that item by tapping the  $\text{SET}$  button.



- **Version:** Here the current software version of the motor is displayed.
- **Update:** Here you can bring the software up to date. Your specialist cycle shop will perform a software update.

### 7.3.5 Personalize

Choose from the following using the  $\oplus/\ominus$  button.

- Name
- SET-Favourites
- Back

Confirm your selection by tapping the  $\text{SET}$  button.

**Name:** Under the sub-item “Name”, you can enter a name or other text with a maximum of 21 characters which will be displayed when the display is turned on and off. Navigate using the  $\oplus/\ominus$  button and select the desired character. Tap the  $\text{SET}$  button briefly. Create your text from the following characters:



Display capital letters



The use of spaces is not possible, so underscores must be used in their place.



Display lower case letters

**SET-Favourites:** Navigate using the  $\oplus/\ominus$  buttons. Deselect or confirm the selection of the following items by tapping the  $\text{SET}$  button:

- Trip max/Ø = Trip max/ave.
- Tour km/Ø = Trip km/ave.
- Cadence/Assistance
- Power cost
- Total saving
- Total km
- Back



The Pedelec Impulse 2.0 Offroad with down tube battery does not have the item "Power cost". The display value is always 0.

### 7.3.6 Target cost

Via the menu sub-item “Target cost”, you can access the sub-items:

- Fuel price
- Fuel consumption Ø
- Fuel type
- Power cost
- Back



The Pedelec Impulse 2.0 Offroad with down tube battery does not have the sub-item "Power cost". Inputting a value has no effect.

You can select the sub-items using the  $\oplus/\ominus$  buttons. Pressing the  $\text{SET}$  button takes you to the respective sub-item. Select “Back” and confirm with the  $\text{SET}$  button to return to the menu sub-item display.



The fuel price, average consumption and fuel type need to be entered to enable calculation of the money and CO<sub>2</sub> saved in comparison using a car. This is displayed in the main menu of the information area under “Overall savings” ➔ Chapter 7.2 “Display”.

**Fuel price:** Under the sub-item “Fuel price”, you can specify the price of petrol or diesel in euros and cents. Set a price between 0 and 9 euros and between 0 and 99 cents by using the  $\oplus/\ominus$  buttons on the control unit to move in 1-euro and 1-cent steps respectively. Once you have confirmed both values by pressing the  $\text{SET}$  button, this takes you back to the menu sub-item display.

**Fuel consumption Ø:** You can enter the average fuel consumption for driving a car in half-litre steps from 0 and 20 litres. Navigate using the  $\oplus/\ominus$  buttons. Pressing the  $\text{SET}$  button confirms your selection and then takes you back to the menu sub-item display.

**Fuel type:** Under the sub-item “Fuel type”, you can choose “Petrol” or “Diesel” by pressing the  $\oplus/\ominus$  buttons. Pressing the  $\text{SET}$  button confirms your selection and then takes you back to the menu sub-item display.

**Power cost:** Under the sub-item “Power cost”, you can specify the price of electricity from 0 to 99 cents (ct) using the  $\oplus/\ominus$  buttons on the control unit to move in 1-cent steps. Pressing the  $\text{SET}$  button confirms your selection and then takes you back to the menu sub-item display.

## 8 The motor

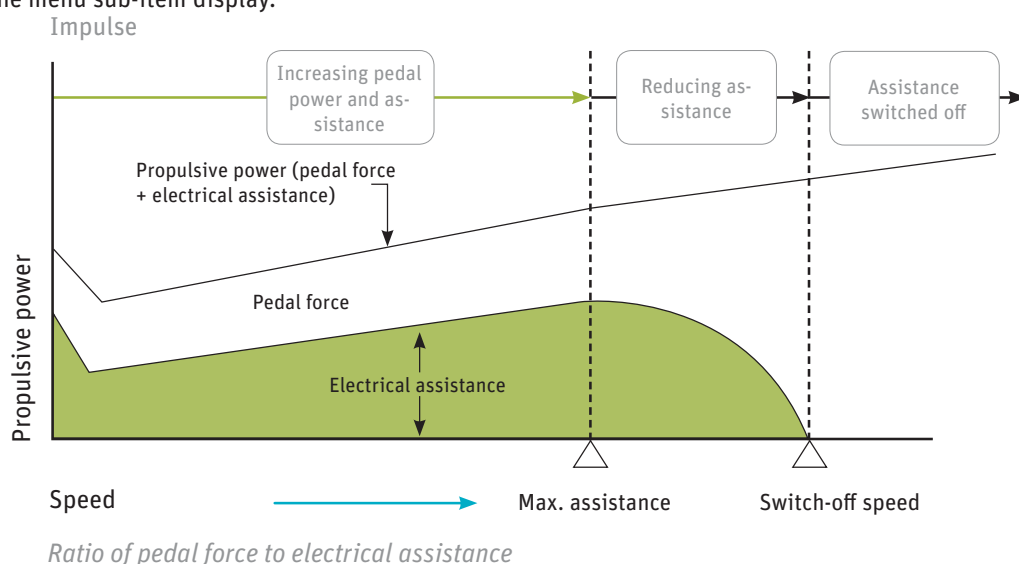
### 8.1 Operation

If you switch on the assistance and start pedalling, the motor starts as soon as the rear wheel is turning.

The level of thrust delivered by the motor depends on three factors:

- **Your own pedalling effort.**

The motor adapts to the force you apply. If you pedal harder, e.g. uphill or when setting off, the power sensor detects this and delivers more power than if you were only pedalling gently. The assistance increases proportionally if you pedal harder. The higher the assist level you set, the more pronounced this assistance characteristic becomes.



The Pedelec Impulse 2.0 Offroad with down tube battery does not have the sub-item "Power cost". Inputting a value has no effect.

- **The level of assistance you have selected.**

In the highest assist level (POWER + SPORT), the motor delivers the highest output and therefore also uses the most energy. With the *SPORT* assist level, the motor produces slightly less power. If you have selected *ECO*, you receive the least amount of assistance but have the battery's maximum range at your disposal.

- **How fast you ride.**

When you set off on your Pedelec, the assistance increases as you build up speed until it reaches its maximum, just before the highest assisted speed is achieved. Then it reduces automatically and switches off at roughly 45 km/h, irrespective of

the gear you are in. Depending on the power-assist mode you are riding in, the transition between riding with and without power assist may seem more or less abrupt.

- **Topography**

You pedal harder when riding uphill. This is detected by the power sensor which then allows the motor to work harder.

## 8.2 Range

The distance you can travel using the power assist with the battery fully charged depends on several factors:

- **Selected assist level**

If you want to cover a large distance with power assist, select the smaller gears, i.e. the ones that are easier to pedal. Also select a low assist level (*ECO*).

- **How you ride**

If you are riding in gears that are harder to pedal and select a high assist level, the motor will produce plenty of power to help you along. However, just as with driving a car at high speed, this leads to higher consumption. You will therefore have to recharge the battery sooner. You can conserve battery power by pedalling with even force throughout the complete revolution of the pedals.

- **Ambient temperature**

If it is colder, you will travel a shorter distance with the same battery charge. To maximise the distance you can travel, keep the battery in a heated room so that it is at room temperature when you fit it on your S-Pedelec.

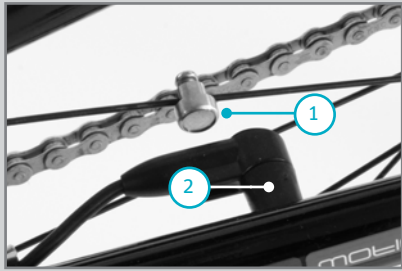
When the motor is in use, the battery generates enough heat to not lose too much of its power at low ambient temperatures. The battery cells can operate at temperatures of -15°C to +60°C.

- **Technical condition of your fast Pedelec** Make sure the tyre pressure is correct. If you ride your bike with too little air in the tyres, this can significantly increase the rolling resistance, especially on smooth surfaces, e.g. tarmac. If the ground is uneven, as on a country path or gravel track, a somewhat reduced tyre pressure can lead to less rolling resistance. At the same time, the risk of a puncture increases. Please consult your specialist cycle shop about this. The range of your S-Pedelec also decreases if the brakes are rubbing.

- **Battery capacity**

The current battery capacity ➡ *Chapter 5.2.2 "Checking the capacity"*.

## 8.3 Riding your Pedelec efficiently

TEXT	CAUSE	REMEDY
Battery heats up to above 45°C during charging.	High ambient temperatures	Stop the charging process and allow the battery to cool down. Then charge the battery in a cooler environment. If the problem still occurs, contact your specialist cycle shop; the battery may need to be replaced.
	Damaged battery	Damaged batteries must neither be charged nor used in any way. Contact your specialist cycle shop; the battery may need to be replaced.
Battery will not charge.	Ambient temperature is too high or too low	You can charge the battery at temperatures between 0°C and 45°C.
Battery is damaged.	Accident or fall with your Pedelec, or the battery has been dropped.	Batteries must neither be charged nor used in any way. Contact your specialist cycle shop; the battery may need to be replaced.
Range of the battery seems low.	Capacity of the battery cells depends on the temperature.	Protect the battery from heat by standing your S-Pedelec in the shade, for example.
“Speed sensor signal missing” / “SPEED”	Spoke magnet has slipped out of position	Make sure the spoke magnet has not slipped. It should be as close as possible to the sensor on the chain stay (max. 5 mm clearance).
		
	<p>1 Spoke magnet 2 Sensor on chain stay</p>	
	Speed sensor defective	Consult your specialist cycle shop.
	Cable connection defective	Consult your specialist cycle shop.
“Battery communication error”	No connection between motor and battery	Use a different battery. Consult your specialist cycle shop.
Charging of your 17 Ah battery ends before completion.		Consult your specialist cycle shop for advice.
The LED in the charger (where present) is flashing red.	In this case, the charging current is too high	Disconnect the battery from the charger and get your specialist cycle shop to check the battery and charger.
“Motor temperature is too high”	The motor has overheated. For example, after riding up a long, steep incline in a high gear.	Allow the motor to cool down before resuming your journey.

You can monitor and influence the cost of your journeys with the Pedelec yourself.



The Pedelec Impulse 2.0 Offroad with down tube battery does not have this function.

You can reduce your consumption and therefore costs by following the tips for increasing the range.

The operating costs for power assist with an 11 Ah battery are calculated as follows:

- A new battery costs roughly 599 euros.
- You can cover approximately 80 km with one battery charge.
- You can charge the battery roughly 1,100 times.
- 1,100 charging cycles x 80 km = 88,000 km.
- 599 euros: 88,000 km = 68 cents / km
- You use roughly 0.565 kWh to fully charge the battery. Assuming a unit price of 20 cents / kWh, it costs you 11.3 cents to fully charge the battery.
- It costs you 14 cents to cover the average range of 80 km.
- This means the cost of consumption and the battery is a maximum of 82 cents / km.

This sample calculation is based on German energy prices. The operating costs may therefore be different in locations where other energy prices apply.

## 8.4 Warranty and service life

The Impulse centre motor is a durable maintenance-free drive. It is a wear part with a two-year warranty. The electric drive puts an additional strain on parts such as chain, sprockets and brakes, causing increased wear, compared to a normal bike.

## 9 Troubleshooting

## 10 Cleaning



Remove the battery before you clean your Pedelec.

Never use white spirits, thinners, acetone or similar agents for cleaning. Non-neutral cleaning agents can strip the paint and cause discolouration, deformation, scratches or defects. Also avoid using abrasive or harsh cleaners.

Only use household cleaners and disinfectants (isopropyl alcohol) or water. You can obtain suitable cleaning products and additional information from your specialist cycle shop. We recommend you clean your S-Pedelec with a damp cloth, a sponge or a brush.

### 10.1 Battery

Make sure that water does not enter the battery when cleaning. Although the electrical components are sealed, it is not advisable to clean your bike with a hose or high-pressure cleaner, as it could cause damage. When wiping down the battery, be careful not to touch and connect the contacts on the underside. This could cause the battery to switch off. If the battery connections are dirty, clean them with a clean, dry cloth.

### 10.2 Motor

The motor of your S-Pedelec should be cleaned regularly to remove external dirt, ideally using a dry brush or a damp (not wet) cloth. Do not use running water such as a hose pipe or even a high-pressure cleaner.

The ingress of water can damage the motor, so ensure that no fluids or moisture enter the motor at any time during cleaning.

Do not clean the motor when it is warm, e.g. immediately after a trip. Wait until it has cooled down. Otherwise, the motor may be damaged.

If you remove the motor, e.g. for cleaning purposes, never hold or carry it by the cables, as there is a risk that they will break.

If you remove the motor from the frame of your Pedelec, check the plug from the motor and battery cable socket for dirt. If necessary, clean carefully with a dry cloth before reconnecting.

### 10.3 Display

The housing of the display must only be cleaned with a damp (not wet) cloth.

### 10.4 Control unit

The control unit can be cleaned with a damp cloth if necessary.

### 10.5 Charger



Always unplug the charger from the wall socket before cleaning to avoid a short-circuit and physical injury.

Make sure that water does not enter the charger when cleaning.

## 11 Replacing components of the fast Pedelec

As your S-Pedelec is a Category L1e moped, it is necessary to obtain a permit from the Federal Motor Transport Authority and the technical inspection authority (TÜV), as is the case with other motor vehicles in Germany. This S-Pedelec has such a permit.

During the approval process, specific components were defined as being suitable for use with this vehicle. This means that the permit for your S-Pedelec only remains valid if exactly the same approved components are used.

If components are modified or replaced, the same requirements apply as for other motor vehicles. You must only use replacement parts that are certified as approved for your S-Pedelec. Alternatively, you can have components approved individually by the technical inspection authority (TÜV).

The following lists show which components of your fast Pedelec can be replaced and what rules apply.

### 11.1 Components that can only be replaced with the same or approved parts

- Frame
- Fork
- Motor unit
- Battery
- Tyres
- Wheel rims
- Brake system
- Front light
- Rear light
- Licence plate holder
- Side stand
- Handlebar
- Handlebar stem

### 11.2 Components that do not require a certificate of approval

- Cranks
- Pedals: Providing type-approved pedal reflectors are used.
- Mudguard: The front edge of the front mudguard must be rounded.
- Pannier rack
- Saddle
- Handlebar grips

- Gear-shift components: Only if the largest gear ratio is not modified.
- Seatpost
- Bell: Can be replaced with an equivalent high-pitched bell.
- Rear-view mirror: Can be replaced with a different type-approved rear-view mirror.
- Chain
- Headset
- Inner tube
- Hubs

## 12 Technical data

MOTOR			
<b>Brushless electric motor with gear unit and freewheel</b>			
<b>Output</b>	350 W rated output		
<b>Gross weight</b> of electric drive, battery, control unit	Freewheel motor		
	11 Ah	15 Ah	17 Ah
	6.65 kg	6.75 kg	6.75 kg
<b>Control</b>	via torque sensor and rotational speed sensor in motor and speed sensor (on rear wheel)		

BIKE TYPE	MAXIMUM PERMITTED GROSS WEIGHT (bike, rider, luggage, trailer + load)	WEIGHT OF RIDER
<b>Pedelec</b>	120 kg	105 kg max.

IMPULSE LI-ION DOWN TUBE BATTERY		
<b>Voltage</b>	36 V	36 V
<b>Capacity</b>	11 Ah	17 Ah
<b>Energy content</b>	396 Wh	612 Wh
<b>Weight</b>	2.9 kg	2.9 kg
<b>Charging time</b>	3 hours	4.5 hours
<b>Cell</b>	2.25 Ah	3.4 Ah

IMPULSE LI-ION SEAT TUBE BATTERY			
<b>Voltage</b>	36 V	36 V	36 V
<b>Capacity</b>	11 Ah	15 Ah	17 Ah
<b>Energy content</b>	396 Wh	540 Wh	612 Wh
<b>Weight</b>	2.85 kg	2.95 kg	2.95 kg
<b>Charging time</b>	4 hours	5 hours	6 hours
<b>Cell</b>	2.25 Ah	3.1 Ah	3.4 Ah



**We hope you thoroughly enjoy using your S-Pedelec with  
Impulse drive.**

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Derby Cycle Werke GmbH / Raleigh Univega GmbH  
Siemensstrasse 1–3  
49661 Cloppenburg, Germany  
+ 49 (4471) 966-0