Introduction

Thank you for choosing the Pedelec Impulse 2.0 from Derby Cycle. This 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.

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

Structure of the User Manual

You will find information on how to use your 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 technical data for your Pedelec Impulse 2.0 in Chapter 11 “Technical data”.

The information in this User Manual specifically refers to your Pedelec Impulse 2.0. For general information, on the bike technology, for example, 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 2.0” in various languages. In addition, the CD also contains the “Original User Manual | General” with general information on the bike technology.

When connected to the Internet, you can download the latest version of the User Manual. There you will also find manuals for the individual bike components.

You can run the CD using any commercially available PC or laptop. To do so, proceed as follows:

PROCEDURE 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”.

PROCEDURE 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.

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

Derby Cycle GmbH
Siemensstrasse 1-3
49661 Cloppenburg, Germany
+ 49 (4471) 966-0
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 2.0” and the “Original User Manual | General” (CD) carefully before using your Pedelec for the first time.

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

Use your 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.

Keep this User Manual for your information and future reference.
Pass on the manual to anyone who uses, maintains or repairs this 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 Pedelec.

1.1 General

If risk-free operation of your Pedelec cannot be assumed, take it out of operation and make sure it cannot be used until you have it checked by a specialist cycle shop. Risk-free use is no longer possible if live parts 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 Pedelec before beginning work on the Pedelec.

Observe the maximum permitted gross weight of your Pedelec, as this could otherwise lead to breakage or failure of safety-relevant components ⇒ Chapter 11 “Technical data”.

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

1.2 Statutory requirements

The Pedelec, like all other bikes, must comply with the national regulations for road safety. Please observe the relevant explanations and general information provided in the “Original User Manual | General” (CD).

These statutory requirements apply for a Pedelec:

- The motor is designed only to provide pedalling assistance, i.e. it can only “assist” the rider when he/she turns the pedals.
- The average motor output must not exceed 250 W.
- As the speed increases, the rate at which the motor output reduces must also increase more intensely.
- The motor must switch off once the bike reaches a speed of 25 km/h.

1.2.1 Meaning for the rider

- You do not legally have to wear a helmet. However, in the interest of your own safety, you should never ride without a helmet.
- You do not legally have to have a driving licence.
- You do not legally have to have insurance.
- No age restriction applies for a Pedelec.
The regulations governing the use of cycle paths are the same as for normal bikes.

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 Pedelec abroad, find out about the applicable legislation in the relevant country.

It is generally permitted for children to be carried in bike trailers on Pedelecs. Observe the maximum permitted gross weight of the bike according to Chapter 30 “Technical data” of the “Original User Manual | General” (CD). The Impulse 2.0 mountain bike is an exception. Bike trailers may not be used on this bike.

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 destruction 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. The specialists here will discuss the next steps with you.

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

A battery must not be short-circuited. Batteries must not be stored unsafely in a box or compartment 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 which emerges in this context 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 the battery away from children.

Use the battery solely for your Pedelec.

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

Batteries not designed for use in 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: They may catch fire.

In case of fire, water should be used to extinguish any flames in the immediate vicinity, but not the battery itself. Fire extinguishers with metal fire powder (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 Pedelec operates using extra-low voltage (36 volts). Never attempt to operate the Pedelec using power from a source other than a suitable genuine battery. The designations of approved batteries are listed in "Chapter 11 “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 an even, 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 Pedelec. In this case, you must place the Pedelec so as to prevent any fire from spreading quickly (exercise caution with 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 warmer than this, suspend 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 may not be charged anymore.

The battery should not be left unattended while charging. Alternatively, charge the battery in a metal box.

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 may not be connected to the mains and must be replaced by a specialist. The same applies for extension cables that are not in perfect technical 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 the plug of the charger from the 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 continue to use damaged batteries and 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. However, you can maximise a battery’s service life by charging it at an ambient temperature of between 10°C and 30°C.
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 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.

1.7 Transportation of the Pedelec

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

1.7.1 The Pedelec and your car

If you transport your Pedelec on a bike rack, ensure that it is designed for the higher weight of a Pedelec. In order to relieve the load on the rack and protect the battery from climatic conditions, it must be transported inside the car.

1.7.2 The Pedelec on trains

In Germany, you can take your Pedelec with you on trains which are marked with the bike symbol. To do so on German Intercity (IC) and EuroCity (EC) trains, you must book a place for your bike in advance. As a rule, you may not take bikes with you on German Intercity Express (ICE) trains.

1.7.3 The 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 Composition of the vehicle

Battery (on down tube or seat tube)

Seatpost clamp (with quick-release lever or screw)

Frame
1. Seat tube
2. Down tube

Control panel

Handlebar

Seatpost

Saddle

Motor

Pedal

Fork

Wheel
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 important screw connections and the prescribed tightening torques 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 Pedelec have yet to be fitted on delivery:

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 screw

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

As a rule of thumb, you can be confident that the quick-release device clamp is sufficiently secure if the quick-release lever can only be closed using the heel of the hand and a certain level of force. During the closing process, you will feel an increasing level of counterpressure from the lever, beginning when the lever 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 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 reach the lowest pedal position. By contrast, the balls of your feet should reach the centre of the pedal in the lowest pedal position with your leg bent slightly.
4 Quick start

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

Charging the battery

1. Remove the cover from the charging socket.

2. Connect the plug of the charger to the battery.

3. Insert the mains plug for the charger into the 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 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 take the mains plug of the charger out of the 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 the battery into the holder on the Pedelec from the left-hand side. Tilt the battery outwards at an angle of roughly 45° as you do so. Move the battery into the upright position until the locking mechanism engages.

Installing the battery

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

Locking the battery

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

8. Press the button on the control panel to switch on the drive system.

9. a) Pedelec without backpedal function: 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) 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.

b) Pedelec with backpedal function: After the welcome screen, the display shows “Please move the pedals” or “PEDAL”. This instruction will disappear as soon as you start riding. Press the buttons to select the level of assistance: ECO (low), SPORT (medium),
POWER (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.

If you cannot feel any assistance, simply back-pedal briefly and then pedal forwards again to trigger the system check. If there is still no assistance being delivered, the instruction “Please move the pedals” or “PEDAL” will continue to be displayed. In this case you should consult your specialist bike shop.

10. 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 on, you have full assistance. Practice starting up in a safe location before venturing into the road traffic.

If your bicycle is an Impulse 2.0 Offroad, wait five seconds after switching on before turning the pedals. If you do not wait, you may not get full assistance.

5 Battery

Your battery is a lithium-ion battery, the ideal type of battery for this application. One of the main benefits of this battery 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

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.
### 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.

2. **a) Down tube battery:** Grip the battery with both hands and lift it forwards/upwards out of its holder. In doing so, hold on tight to the battery to avoid dropping it. Place the battery down on a suitable surface. This should be dry, even and non-flammable.

   **b) Seat tube battery:** Grip the battery by the handle and remove it from the Pedelec by tilting it sideways. In doing so, hold on tight to the battery to prevent it from falling out.

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 operation

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

1. **a) Down tube battery:** Take the charger provided out of its packaging and plug the mains plug into a 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 briefly in red and then permanently in green.

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

   - **Seat tube battery:** The charger must be supported on its four feet. This is the only way to ensure that the hot air around the battery can dissipate via the surrounding ventilation slots.

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 in green.

3. **a) Down tube battery:** The charging process begins. If your charger has an LED, this lights up red. The battery is charged in five stages. When charging of one
If this stage has been fully charged, the LED will light up permanently. Now the next LED will begin to flash. After all five LEDs have gone out, the battery is fully charged.

b) **Seat tube battery:** The charging process begins. The LED of the charger lights up in green. The battery LEDs light up one by one to indicate the progress of the charging operation. The battery is charged in five stages. When charging of one stage is in progress, the corresponding LED flashes. If this stage has been fully charged, the LED will light up permanently. 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, it may be that this flashes red permanently. If this is the case, a charging fault has occurred. Have the charger and battery checked by your specialist cycle shop.

4. Pull the charger plug out of the socket once the charging operation is complete.

Damaged batteries may 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 warmer than this, suspend the charging process immediately.

There is no memory effect. You can therefore fully recharge your battery after every trip so 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°.

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.

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 key or push button. The LEDs light up as soon as you press the battery key or push button. Information about the charge state and capacity of the battery is provided based on the number of LEDs that light up and the way in which they light up.

5.2.1 Checking the charge state

a) Down tube battery: Press the battery key briefly, the LEDs light up and display the current battery charge state.

<table>
<thead>
<tr>
<th>DISPLAY</th>
<th>BATTERY CHARGE STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>•••••</td>
<td>5 LEDs light up</td>
</tr>
<tr>
<td>••••</td>
<td>4 LEDs light up</td>
</tr>
<tr>
<td>•••</td>
<td>3 LEDs light up</td>
</tr>
<tr>
<td>••</td>
<td>2 LEDs light up</td>
</tr>
<tr>
<td>•</td>
<td>1 LED lights up</td>
</tr>
<tr>
<td>o</td>
<td>1 LED flashes</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>SEAT TUBE BATTERY DISPLAY</th>
<th>BATTERY CHARGE STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>•••••</td>
<td>5 LEDs light up</td>
</tr>
<tr>
<td>••••</td>
<td>4 LEDs light up</td>
</tr>
<tr>
<td>•••</td>
<td>3 LEDs light up</td>
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<tr>
<td>••</td>
<td>2 LEDs light up</td>
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<tr>
<td>•</td>
<td>1 LED lights up</td>
</tr>
<tr>
<td>o</td>
<td>1 LED flashes</td>
</tr>
<tr>
<td>-----</td>
<td>5 LEDs flash quickly</td>
</tr>
<tr>
<td>*</td>
<td>1st LED flashes quickly</td>
</tr>
</tbody>
</table>

* 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 once again briefly following a short period of rejuvenation and will then switch back off. It must now be charged.

** The 1st LED flashes quickly: A charging fault is present. 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 key for roughly five seconds, the LEDs show the current battery capacity.

<table>
<thead>
<tr>
<th>SEAT TUBE BATTERY DISPLAY</th>
<th>CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>•••••</td>
<td>4 LEDs light up approx. 81–100%</td>
</tr>
<tr>
<td>••••</td>
<td>3 LEDs light up approx. 61–80%</td>
</tr>
<tr>
<td>•••</td>
<td>2 LEDs light up approx. 41–60%</td>
</tr>
<tr>
<td>••</td>
<td>1 LED lights up approx. 21–40%</td>
</tr>
<tr>
<td>o</td>
<td>1 LED flashes approx. 0–20%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>SEAT TUBE BATTERY DISPLAY</th>
<th>CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>•••••</td>
<td>5 LEDs light up 100–97%</td>
</tr>
<tr>
<td>••••</td>
<td>4 LEDs light up 96–80%</td>
</tr>
<tr>
<td>•••</td>
<td>3 LEDs light up 79–60%</td>
</tr>
<tr>
<td>••</td>
<td>2 LEDs light up 59–40%</td>
</tr>
<tr>
<td>•</td>
<td>1 LED lights up 39–20%</td>
</tr>
<tr>
<td>o</td>
<td>1 LED flashes &lt; 20%</td>
</tr>
</tbody>
</table>

* 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 once again briefly following a short period of rejuvenation and will then switch back off. It must now be charged.

** The 1st LED flashes quickly: A charging fault is present. Please take the battery to your specialist cycle shop.
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.

Please always supervise the battery charging process and disconnect the charger afterwards.

5.3.1 Sleep mode

The battery management switches the battery to sleep mode to prevent a so-called total 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 key 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 key. The battery is charged for one minute.

Seat tube battery: The battery can also be put into sleep mode manually. To do so, press 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 charging processes

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 charges reach the overall capacity of the battery.

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. Providing you can still cover the journey distances 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 who will dispose of your battery and sell you a new one.

- The age of the battery

A battery also ages during storage.

This means: 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, please ensure that the battery is not charged during this period.
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 stronger current. Stronger 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.

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 Shipping

Do not ship batteries! 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 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.

5.7 Disposal

Batteries are not to 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 device may be damaged or inflict injuries.

- 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 other chargers. Only charge the battery using the charger provided, or a charger approved by us for the purpose.

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

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

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.

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 panel and display

The Pedelec Impulse 2.0 can be controlled via two elements. The control panel can be found on the handlebar grip; the display is located in the middle of the handlebar.

7.1 Control panel

Press the  button to switch the system on and off.

Buttons 2 to 4 have different functions depending on the item of the settings menu in which you are located.

7.1.1 Switching on/off

Press the  button on the control panel 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 7.4 “Programming and settings”.

After switching on, the system is always in the display mode in which you switched it off.

To switch your Pedelec off, press the  button on the control panel in the start menu.

7.1.2 Push assist

The pushing assistance moves the Pedelec slowly (at a maximum speed of 6 km/h) without you having to turn the pedals, e.g. if you are manoeuvring in a tight space or are pushing your Pedelec out of a basement garage.

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

The pushing assistance is not suitable for use as starting assistance.

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, the level of assistance increases by one level each time you press it. If you press the  button, the assistance becomes weaker each time you press it.
7.2 Display small

The display in the middle of the handlebar is divided into four different display panels.

- At the top on the left is your current [1] speed.
- Below this is a display showing the selected [2] power-assist mode "Chapter 7.2.1."
- At the top on the right is the [3] battery symbol which tells you the current battery charge state of your Pedelec "Chapter 7.2.2."
- Below this is the display of [4] kilometres covered during the day and overall.

7.2.1 Assistance indicator

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

<table>
<thead>
<tr>
<th>DISPLAY SCREEN</th>
<th>ASSISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>This means the assistance is working hard.</td>
</tr>
<tr>
<td>SPORT</td>
<td>This means the assistance is working with a medium level of effort.</td>
</tr>
<tr>
<td>ECO</td>
<td>This means the assistance is working with a low level of effort.</td>
</tr>
<tr>
<td>POWER</td>
<td>No assistance. Battery indicator still lights up.</td>
</tr>
<tr>
<td>SPORT</td>
<td></td>
</tr>
<tr>
<td>ECO</td>
<td></td>
</tr>
</tbody>
</table>

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 on the right of the display. Using a stylised battery 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.

<table>
<thead>
<tr>
<th>DISPLAY</th>
<th>BATTERY CHARGE STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100–85.5%</td>
</tr>
<tr>
<td></td>
<td>85.5–71.5%</td>
</tr>
<tr>
<td></td>
<td>71.5–57.5%</td>
</tr>
<tr>
<td></td>
<td>57.5–42.5%</td>
</tr>
<tr>
<td></td>
<td>42.5–28.5%</td>
</tr>
<tr>
<td></td>
<td>28.5–14.5%</td>
</tr>
</tbody>
</table>

If the battery charge state falls below a minimum level, the assistance switches off via the motor. 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 subsequently want to ride using the assistance, you will have to switch it back on via the control panel.

If the conditions of the journey change, for example, by riding up an incline 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 or ECO).
7.2.3 Units
Press and hold the button for three seconds to switch between kmh (speed)/km (remaining range indicator) and mph/mi.

7.3 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 panels.

- At the top on the left is your current speed.
- To the right of the current speed is a display showing the selected power-assist mode.
- At the top on the right is the battery symbol which tells you the current battery charge state of your Pedelec.
- Below this the remaining range is displayed.
- Along the bottom section of the display is a long information area that can be used to display the following information:
  - How much of its potential output the motor is currently delivering.
  - The costs that have been incurred in the course of the current trip and during the entire service life.
  - The savings achieved in both euros and CO2 in comparison with the same journey by car.
  - The total number of kilometres covered.
  - The display of kilometres covered during the day and overall.
  - The display of journey time during the current trip and the top speed reached on this trip.
  - The average speed during the current trip and the total distance covered.

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

7.3.1 Assistance indicator

7.3.2 Battery charge state indicator

7.3.3 Units

7.3.4 Remaining range indicator

Below and to the right of the battery charge state indicator, the distance in km over which you can still travel with power assist is displayed. This is the remaining range indicator.

7.4 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.

You are taken to the menu sub-items:

- Drive data
- Delete trip data
- Delete overall data
- Device settings
- Personalize
- Target cost
- Back

You can select the menu sub-items using the buttons on the control panel. You can confirm your selection by
Under the menu sub-item “Device settings”, you can select the following items by pressing the \( \mathbb{O}/\mathbb{O} \) button:

- Display \( \Rightarrow \) Chapter 7.4.4.1
- Drive \( \Rightarrow \) Chapter 7.4.4.2
- Miscellaneous \( \Rightarrow \) Chapter 7.4.4.3
- Back

Confirm your selection by tapping the \( \mathbb{O}/\mathbb{O} \) button.

7.4.4.1 Display

Choose from the following using the \( \mathbb{O}/\mathbb{O} \) button:

- Contrast
- Brightness
- Language
- Unit
- Back

Confirm your selection by tapping the \( \mathbb{O}/\mathbb{O} \) button.

**Contrast:** You can select the following values using the \( \mathbb{O}/\mathbb{O} \) button:

<table>
<thead>
<tr>
<th>Very low contrast</th>
<th>-35%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-30%</td>
</tr>
<tr>
<td></td>
<td>-25%</td>
</tr>
<tr>
<td></td>
<td>-20%</td>
</tr>
<tr>
<td></td>
<td>-15%</td>
</tr>
<tr>
<td></td>
<td>-10%</td>
</tr>
<tr>
<td></td>
<td>-5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average</th>
<th>“Standard”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>15%</td>
</tr>
</tbody>
</table>

| Very high contrast | 20% |

The change in contrast is implemented immediately. Tapping the \( \mathbb{O}/\mathbb{O} \) button confirms your selection and then takes you back to the menu sub-item display.
**Brightness**: You can select the following values using the button:

<table>
<thead>
<tr>
<th></th>
<th>50%</th>
<th>45%</th>
<th>40%</th>
<th>35%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very bright</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The change in brightness is implemented immediately. Pressing the 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

You can select the relevant language using the buttons. Tapping the button confirms your selection and takes you back to the menu sub-item display.

**Unit**: Under the item “Unit”, you can choose whether information on distance travelled and speed is displayed in kilometres (km) or miles (mi). Use the buttons to choose between kilometres (km) or miles (mph). Tapping the button confirms your selection and then takes you back to the menu sub-item display.

### 7.4.4.2 Drive

Choose from the following using the button:
- Wheel circumference
- Shift Sensor
- Climb Assist
- Back

Confirm your selection by tapping the button. You are taken 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 buttons on the control panel. Tapping the button confirms your selection and then takes you back to the menu sub-item display.

A change to the setting becomes necessary, for example, when you have the tyres on your Pedelec exchanged for some of a different size. In order to continue to display the correct data, the new wheel circumference must be entered.

**Shift Sensor**: Choose from the following values using the button.

<table>
<thead>
<tr>
<th></th>
<th>OFF</th>
<th>50 ms</th>
<th>100 ms</th>
<th>150 ms</th>
<th>200 ms</th>
<th>250 ms</th>
<th>300 ms</th>
</tr>
</thead>
</table>

Confirm your selection by tapping the 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 button.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

Confirm your selection using the 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.
7.4.3 Miscellaneous

Choose from the following using the button.

- Factory settings
- Software
- Back

Confirm your selection by tapping the button.

**Factory settings:** The following question appears: “Restore factory settings?”. Select “Yes” if you wish to reset the system to its condition upon delivery. Select “No” if you wish to retain all the settings you have made previously. Confirm your selection by tapping the button.

**Software:** You are taken to the items:

- Version
- Update
- Back

Make a selection using the button, confirm and go to that item by tapping the 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.

7.4.5 Personalize

Choose from the following using the button.

- Name
- SET-Favourites
- Back

Confirm your selection by tapping the button.

**Name:** Under the sub-item “Name”, you can enter a name or some text with a maximum of 21 characters which will be displayed when the display is turned on and off. Navigate using the button and select the desired character. Tap the button briefly then release it. Select the desired text from the following options:

7.4.6 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
You can select the sub-items using the \( \bigcirc / \bigcirc \) buttons. Pressing the \( \bigcirc \) button takes you to the respective sub-item. By selecting the sub-item “Back” and the \( \bigcirc \) button to confirm, you are taken to the menu sub-item display once more.

The information regarding the price, average consumption and the fuel type is necessary to enable calculation of the money and CO\(_2\) saved in comparison with the use of a car. This is displayed in the main menu of the information area under “Overall savings” ⇒ Chapter 7.3 “Display”.

**Fuel price:** Under the sub-item “Fuel price”, you can specify the price of the fuels petrol or diesel in euros and cents. You can set this to a value in euros between 0 and 9 euros and a value in cents between 0 and 99 cents by using the \( \bigcirc / \bigcirc \) buttons on the control panel to move in 1-euro and 1-cent steps respectively. Once you have confirmed both values by pressing the \( \bigcirc \) button, you are taken back to the menu sub-item display.

**Fuel consumption \( \bar{\bar{\theta}} \):** You can enter the average fuel consumption which would arise from the use of a car. You can set the consumption in half-litre steps to between 0 and 20 litres. Navigate using the \( \bigcirc / \bigcirc \) buttons. Pressing the \( \bigcirc \) 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 between the options “Petrol” and “Diesel” by pressing the \( \bigcirc / \bigcirc \) buttons. Pressing the \( \bigcirc \) 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 in cents (ct). You can set this to a value of between 0 and 99 cents by using the \( \bigcirc / \bigcirc \) buttons on the control panel to move in 1 cent steps. Pressing the \( \bigcirc \) 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 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 have set, the more distinct this assistance characteristic becomes.

- **The level of assistance you have selected.**
  In the highest assist level (POWER), the motor assists you with 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 25 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.

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).

- **Handling**
  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 energy by keeping the load on the pedals even throughout the entire crank revolution.

- **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 Pedelec.

As the battery discharges when the motor is in use, it generates enough heat to not lose too much of its power at low ambient temperatures. The battery cells can discharge at temperatures of -15 to +60°C.
8.3 Riding your Pedelec efficiently

You can monitor and influence the cost of your journeys with the Pedelec yourself. You can reduce your consumption and therefore costs by following the tips for achieving a long range.

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

- A new battery costs roughly 599 euros.
- Throughout the total service life of a battery, you can cover roughly 80 kilometres with one charge cycle.
- You can charge the battery roughly 1,100 times.
- 1,100 charging cycles x 80 km = 88,000 km.
- 599 euros: 88,000 km = 0.68 euro cents / km
- You use roughly 0.565 kWh to fully charge the battery. Assuming a unit price of 20 euro cents / kWh, it costs you 11.3 euro cents to fully charge the battery.
- It costs you 0.14 euro cents to cover the average range of 80 km.
- This means the cost of consumption and the battery is a maximum of 0.82 euro cents/km.

The sample calculation has been carried out 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. As their power outputs are higher, wear parts such as the drive and brakes are subject to higher loads than they would be on a normal bike. Due to the greater force acting on these components, wear is more pronounced.
## Troubleshooting

<table>
<thead>
<tr>
<th>TEXT</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery heats up to more than 45°C during charging.</td>
<td>High ambient temperatures</td>
<td>Suspend 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.</td>
</tr>
<tr>
<td>Damaged battery</td>
<td>Damaged batteries must neither be charged nor used for another application. Contact your specialist cycle shop; the battery may need to be replaced.</td>
<td></td>
</tr>
<tr>
<td>Battery is not charging.</td>
<td>Ambient temperature is too high or too low</td>
<td>You can charge the battery at temperatures between 0°C and 45°C.</td>
</tr>
<tr>
<td>Damaged battery</td>
<td>Damaged batteries must neither be charged nor used for another application. Contact your specialist cycle shop; the battery may need to be replaced.</td>
<td></td>
</tr>
<tr>
<td>Battery is damaged.</td>
<td>Accident or fall involving the Pedelec or the battery has fallen out.</td>
<td>A damaged battery must neither be charged nor used for another application. Contact your specialist cycle shop; the battery may need to be replaced.</td>
</tr>
<tr>
<td>Range of the battery seems low.</td>
<td>Capacity of the battery cells depends on the temperature.</td>
<td>Protect the battery from heat by standing your Pedelec in the shade, for example. ➔ Chapter 5.4 “Warranty and service life”</td>
</tr>
<tr>
<td>“Speed sensor signal missing” / “SPEED”</td>
<td>Spoke magnet has slipped out of position</td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Spoke magnet and sensor" /></td>
</tr>
<tr>
<td>Speed sensor defective</td>
<td>Consult your specialist cycle shop.</td>
<td></td>
</tr>
<tr>
<td>Cable connection defective</td>
<td>Consult your specialist cycle shop.</td>
<td></td>
</tr>
<tr>
<td>“Battery communication error”</td>
<td>No connection between motor and battery</td>
<td>Use a different battery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consult your specialist cycle shop.</td>
</tr>
<tr>
<td>Charging process of your 17 Ah battery ends before completion.</td>
<td>Consult your specialist cycle shop. The specialists here will discuss the next steps with you.</td>
<td></td>
</tr>
<tr>
<td>The LED in the charger (where present) is flashing red.</td>
<td>In this case, the charging current is too high</td>
<td>Disconnect the battery from the charger and consult your specialist cycle shop. Have the staff there check the battery and charger.</td>
</tr>
</tbody>
</table>
10 Cleaning

Remove the battery before you clean your Pedelec.

Do not use benzine, thinner, acetone or similar agents in the cleaning procedures under any circumstances. Non-neutral cleaning agents can strip the paint and cause discolouration, deformation, scratches or defects. Likewise, the use of abrasive cleaners and aggressive cleaning agents must also be avoided.

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

10.1 Battery

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

10.2 Motor

Dirt should be removed from the motor of your Pedelec regularly, ideally using a dry brush or a damp (not wet) cloth. Running water such as that from a hose pipe or even a high-pressure cleaner must not be used for cleaning.

10.3 Display

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

10.4 Control panel

The control panel can be cleaned with a damp cloth where necessary.

10.5 Charger

Always remove the plug from the socket before cleaning the charger. In this way, you avoid a short-circuit and physical injury.

The ingress of water can destroy the motor. Therefore, ensure that neither fluids nor 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 the motor is removed, e.g. for cleaning purposes, it must not be held or carried by the cables under any circumstances, as otherwise there is a risk that the cable will break.

If the motor has been removed from the frame of the Pedelec, the plug from the motor and the socket of the cable leading to the battery must be checked for possible contamination and, if necessary, cleaned carefully with a dry cloth before reconnecting.

"Motor temperature is too high" The motor has become too hot. For example, after riding up a long, steep incline in a high gear. Allow the motor to cool down before resuming your journey.

Constant display “PEDAL” Backpedal brake switch defective Consult your specialist cycle shop.
## 11 Technical data

### MOTOR

**Brushless electric motor with gear unit and freewheel**

<table>
<thead>
<tr>
<th></th>
<th>Freewheel motor</th>
<th>Backpedal brake motor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output</strong></td>
<td>250 W</td>
<td></td>
</tr>
<tr>
<td><strong>Gross weight</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of electric drive, battery, control unit</td>
<td>11 Ah 15 Ah</td>
<td>12 Ah 17 Ah</td>
</tr>
<tr>
<td></td>
<td>6.65 kg 6.75 kg</td>
<td>6.75 kg 6.75 / 6.85 kg</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>via torque sensor and rotational speed sensor in motor and speed sensor (on rear wheel)</td>
<td></td>
</tr>
</tbody>
</table>

### BIKE TYPE

**MAXIMUM PERMITTED GROSS WEIGHT** (bike, rider, luggage, trailer + load)

<table>
<thead>
<tr>
<th>BIKE TYPE</th>
<th>MAXIMUM PERMITTED GROSS WEIGHT</th>
<th>WEIGHT OF RIDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedelec</td>
<td>130 kg</td>
<td>max. 105 kg</td>
</tr>
<tr>
<td>Pedelec semi XXL</td>
<td>150 kg</td>
<td>max. 125 kg</td>
</tr>
<tr>
<td>Pedelec XXL</td>
<td>170 kg</td>
<td>max. 145 kg</td>
</tr>
</tbody>
</table>

### IMPULSE LI-ION DOWN TUBE BATTERY

**Voltage** 36 V

**Capacity** 11 Ah 17 Ah

**Energy content** 396 Wh 612 Wh

**Weight** 2.9 kg 2.9 kg

**Charging time** 3 hours 4.5 hours

**Cell** 2.25 Ah 3.4 Ah

### IMPULSE LI-ION SEAT TUBE BATTERY

**Voltage** 36 V

**Capacity** 11 Ah 15 Ah

**Energy content** 396 Wh 540 Wh

**Weight** 2.85 kg 2.95 kg

**Charging time** 4 hours 5 hours

**Cell** 2.25 Ah 3.1 Ah
We hope you thoroughly enjoy using your new Pedelec with Impulse drive.

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