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I. Introduction

This user guide will help you to enjoy all the benefits of your S-Pedelec Impulse Evo and to use it correctly.

WARNING

Prior to initial use, carefully read the "Original User Guide | Pedelec Impulse Evo" and the "Original User Guide | General" (CD). Also follow the instructions from component suppliers. Familiarise yourself with the meaning and depiction of safety information in the user guide. Ensure to contact your cycle dealer in the event clarification is required. Failure to comply with safety symbols and instructions can cause electric shock, fire, serious injury and/or damage to the cycle. The manufacturer's liability and warranty are deemed null and void for damage and injury caused by a failure to adhere to safety symbols and instructions.

Keep the user guides for informational and reference purposes in the future. The guides must be passed on to all those using, looking after and repairing this S-Pedelec.

I.I CD

The accompanying CD contains the "Original User Guide | Pedelec Impulse Evo" in different languages. Also on the CD is the "Original User Guide | General", containing general information on cycles. Download the latest version of the user guide next time you are on the Internet. The CD can be played on any standard PC or laptop. Proceed as follows:

METHOD A
1. Insert the CD
2. Left-click twice the shelexec.exe file
3. Select the required language

METHOD B
1. Insert the CD
2. Right-click once "Open Folder to Show Files"
3. Left-click twice "Start"
4. Select the required language
5. Select "Open User Guide from CD" or "Check Online for New Version of User Guide"
The Adobe Reader application is required to read the user guide. It is on the CD and can also be downloaded free from www.adobe.com.

The print version of the "Original User Guide | General" can be ordered at no charge from:

Derby Cycle GmbH/Raleigh Univega GmbH
Siemensstraße 1-3
49661 Cloppenburg, Germany
+49 (0)4471 966-111
info@derby-cycle.com

I.II Service book

In the accompanying service book are the warranty regulations, a cycle passport, and forms to use for initial sale, maintenance and owner changes.

Keep the service book up-to-date accurately and adhere to the maintenance intervals. This will prolong the service life of your Impulse Evo and keep it safe.

I.III Declarations of conformity

Please take note of the accompanying declarations of conformity and keep them in a safe place.

We confirm with the declarations of conformity that all safety requirements in the directives applicable to the S-Pedelec and charger are satisfied.

I.IV Explanation of safety symbols

DANGER

This symbol in conjunction with the "Danger" word denotes a potentially dangerous situation. Failure to comply with this safety symbol may result in very serious injury or death.

WARNING

This symbol in conjunction with the "Warning" word denotes a potentially dangerous situation. Failure to comply with this safety symbol may result in serious injury.

CAUTION

This symbol in conjunction with the "Caution" word denotes a potentially dangerous situation. Failure to comply with this safety symbol may result in minor or slight injury.
II. General safety information

**WARNING**

Rim brakes: When cycling for long periods downhill, try to avoid continual, uninterrupted braking if possible. It may result in a reduction of braking effect or damage to the tyres. It is better to brake every now and then with "cooling times" in-between, allowing the head wind to cool the braking system. If absolutely necessary, take breaks to let the braking system cool down.

Regularly check wearing parts such as brakes, brake pads and tyres. Damaged parts can cause accidents and falls. The addition power means higher loads are applied to wearing parts on a S-Pedelec than on a normal cycle. Replace brake pads when their wear limit is reached. This is evident from the mark on a brake pad and when you can pull the brake lever all the way back to the handle bars.

Do not touch the motor after a long downhill ride - it can become very hot. Touching it can cause burns.

Also follow the safety instructions at the start of the next section.

---

**PLEASE NOTE**

This symbol in conjunction with "Please note" denotes a potentially dangerous situation. Failure to comply with this safety symbol may result in damage to the S-Pedelec and its components.

This symbol denotes user tips and particularly useful or important information on the product or its additional benefit. It is not an indication of a dangerous or harmful situation.

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I.V Customer service

If you have any questions on the cycle or its components, please contact a trained cycle dealer or the customer service team at Derby Cycle/Raleigh Univega:

Derby Cycle GmbH/Raleigh Univega GmbH
Siemensstraße 1-3
49661 Cloppenburg, Germany
+49 (0)4471 966-111
**CAUTION**

Only use the cycle for its intended purpose - otherwise there is a risk of technical failure ⇒ IV. Intended use Page EN-9.

Observe the overall weight of the S-Pedelec - exceeding it can result in the breaking or failing of safety parts ⇒ 4.5.1.2 Riding with a trailer and/or luggage Page EN-41.

Before setting off on a ride, always check all quick-release clamps are seated tightly and correctly.

**Disc brakes:** The brake disc and the quick clamping lever for a wheel must be on opposite sides. If they are on the same side, there is a risk they may collide.

**PLEASE NOTE**

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 S-Pedelec can be replaced and what rules apply: ⇒ 8. Replacing parts on the S-Pedelec Page EN-63

**III. Legal regulations**

**III.I General**

**DANGER**

Never ride "hands free". You must always have at least one hand on the handlebars. If you do not, you are liable to prosecution (and are also endangering your health).

Never perform any alterations to the drive unit (with which the cut-off speed is increased at speeds faster than 45 km/h). S-Pedelecs whose motor rating and/or ride characteristics have been modified may no longer satisfy the legal regulations of the country of use. You may be making yourself liable to prosecution when riding on public roads with a "tuned" S-Pedelec. This also presents a risk of technical failure. A cycle modified this way is excluded from guarantee and warranty cover.

**PLEASE NOTE**

Have assembly and adjustment work carried out by a specialist cycle dealer. If you need to tighten something yourself, refer to the comprehensive list of torques which must be observed - in the "Original User Guide | General" (CD).

If you carry out technical modifications to your S-Pedelec, bear in mind national traffic regulations and applicable standards. Remember also that the warranty may become void as a result.
S-Pedelecs must, as all cycles, satisfy the requirements laid down in the respective national road traffic acts.

### III.II Legal regulations in Germany

Other regulations may be in place in other countries. Find out about applicable local legislation before using your S-Pedelec abroad.

Some of the regulations in place in Germany at the time this user guide was written:

» From a legal standpoint, the S-Pedelec is a Class L1e moped. It must, as with other powered two-wheelers and motorised vehicles, satisfy the requirements laid down in the Road Traffic Licensing Regulations.

» The S-Pedelec may not travel at over 20 km/h with motor assistance only. You will therefore reach 15 to 18 km/h on the flat.

» Motor assistance cuts out when you reach about 45 km/h. You cannot reach this speed, for which you require about 700 Watt, with just the assist power from the electric motor. You reach speed of 35-45 km/h with the combination of the 350 Watt motor output and your own physical strength.

### IMPORTANT FOR THE RIDER

» Riders must wear a helmet. Please wear an appropriate helmet (such as a cycle helmet).

» A driving license is mandatory. Proof of having passed a moped test is required. If you have a German driving license, this is already included. If you were born before 01/04/1965, you may also ride the S-Pedelec without a driving license.

» Riders must have insurance. The small vehicle mark is available from all insurance companies.

» Cycle paths can be used with restrictions. You may ride on all cycle paths without restrictions if you use your S-Pedelec as a bicycle, i.e. with no assistance from the electric motor. A change to the road traffic regulations stipulates the following apply when a motor is used: As is also the case with mopeds, you must use cycle paths when using your fast S-Pedelec outside built-up areas. An additional sign on the cycle path, “No mopeds”, shows when this is not permitted by way of exception (as stipulated in § 2, Section 4 of the road traffic regulations (StVO)). Within built-up areas on the other hand, you may only use cycle paths when there is an additional sign on the cycle path (as laid down in § 41, Section 2, No. 5).

» Children may not be transported in trailers pulled by S-Pedelecs. Normal cycle trailers can be attached however, provided the tow attachment used has the general operating permit necessary for motorised vehicles.

» From a legal standpoint, the S-Pedelec is a Class L1e moped. It must, as with other powered two-wheelers and motorised vehicles, satisfy the requirements laid down in the Road Traffic Licensing Regulations.

» The S-Pedelec may not travel at over 20 km/h with motor assistance only. You will therefore reach 15 to 18 km/h on the flat.

» Motor assistance cuts out when you reach about 45 km/h. You cannot reach this speed, for which you require about 700 Watt, with just the assist power from the electric motor. You reach speed of 35-45 km/h with the combination of the 350 Watt motor output and your own physical strength.
IV. Intended use

IV.I  S-Pedelec

Its design and equipment mean the cycle is intended for use on public roads and paved pathways. It can also be used on easy terrain. The manufacturer and dealer accept no liability for damage resulting from use extending beyond this definition and/or failure to comply with the safety instructions in the user guide. This applies in particular for using the cycle off-road, when it is overloaded and when faults are not rectified properly. Also included in the definition of intended use are conformance to the operating, maintenance and repair conditions in the user guide and service book - stipulated by the manufacturer. Fluctuations in consumption and battery power, and a reduction in capacity due to the cycle's age, are commonplace and technically unavoidable - and as such do not represent material defects.

IV.II  E-Mountainbike

Its design and equipment mean this cycle is not intended for use on public roads. The equipment stipulated must be fitted to the cycle before it may be used on public roads. This cycle is intended to be used off-road (but not for competition use). The manufacturer and dealer accept no liability for damage resulting from any use extending beyond this definition and/or failure to comply with the safety instructions in the user guide. This applies in particular when the cycle is used in competitions, when it is overloaded and when faults are not rectified properly. Also included in the definition of intended use are conformance to the operating, maintenance and repair conditions in the user guide and service book - stipulated by the manufacturer. Fluctuations in consumption and battery power, and a reduction in capacity due to the cycle's age, are commonplace and technically unavoidable - and as such do not represent material defects.
1. The S-Pedelec Impulse Evo RS Speed and its components

1. Back light
2. Luggage rack
3. Saddle
4. Seat post
4a. Mirror
5. Crossbar
6. Handle bars
7. Bell
8. Front stem
9. Easy-reach control
10. Front light
11. Headset
12. Headtube
13. Shock absorber
14. Display
15. Mudguard
16. Fork
17. Battery Include and docking station
18. Front brake
19. Hub
20. Spokes
21. Wheel rim
22. Tyre
23. Motor
24. Pedal
25. Crank
26. Inner bearing
27. Chain rings
28. Belt / chain
29. Chain stay
30. Rear stand
31. Gears
32. Sprocket assembly
33. Back brake
34. Seat stay
35. License plate holder
36. Down tube
37. Seat tube
38. Chargers
2. Quick-start guide

2.1 Charging the battery

1. Grip the battery with both hands and hold it to the left of the docking station. Ensure that the battery charge level display is pointing towards you.

2. Place the battery catches into the dents provided.

3. Roll the battery into the docking station until it clicks into place.

4. Turn the battery key clockwise. Now the battery is locked.

---

2.2 Inserting and locking into place a battery

You need not charge the battery if just taking a short test ride. You should charge it before your first longer cycle ride however, as the battery is only partially charged (transportation regulations dictate that batteries are supplied partially charged - by approx. 50%).

Perform a learn cycle. You should drain a new, fully charged battery once until the assist function stops, and without recharging it in-between. By doing so, the battery "learns" its capacity, and the actual capacity matches the charge level display. Please perform a learn cycle every six months or 5,000 kilometres. If you do not repeat the cycle from time to time, the difference between actual battery capacity and charge level display will become greater and greater.

---

PLEASE NOTE

Hold the battery tight so it does not fall. It might be damaged otherwise.
2.3 Switching on the S-Pedelec

1. Press for 1 second the button on the easy-reach control. The display lighting is switched on for about 30 seconds. The back light is also turned on. The front light is turned on when it has been switched on from the top of the lamp. After a short time, a welcome screen is shown, followed by the start menu. You can configure other settings from here.

2.4 Changing assist mode

1. You must be in the start menu to change assist mode. Briefly press the buttons to select the assist level.

<table>
<thead>
<tr>
<th>DISPLAY</th>
<th>ASSIST</th>
<th>POWER CONSUMPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULTRA</td>
<td>the assist function works extremely hard</td>
<td>very high</td>
</tr>
<tr>
<td>POWER</td>
<td>The assist function works very hard</td>
<td>High</td>
</tr>
<tr>
<td>SPORT</td>
<td>The assist function works medium hard</td>
<td>Medium</td>
</tr>
<tr>
<td>ECO</td>
<td>The assist function works with low power</td>
<td>Low</td>
</tr>
<tr>
<td>OFF</td>
<td>No assist</td>
<td>Very low</td>
</tr>
</tbody>
</table>

If the cycle does not start up despite you pressing the button, press the battery button for 1 second. Then briefly press the button on the easy-reach control. The S-Pedelec switches on. If it still does not switch on, check the battery.

Press the button

The recommendation is to remove the key now and keep it in a safe place so it does not break off and is not lost.

Make a note of the key number on the sales receipt/document. This number can be used to order a replacement key. 

⇒ 7.2 Battery Page EN-60.
2. Assistance is provided as soon as you start pedalling. Assistance is deactivated as soon as you stop pedalling or you reach a speed of 45 km/h.

Underneath the assist level selected is a display area showing the current assist level from the drive unit in the form of ten bars having increasing heights. The more bars are dark, the higher the assist level being provided. This display is only shown when an assist mode is selected.

2.6 Configuring settings in the menu

2.6.1 Go to the main menu

1. When you are in the start menu, press the \( \Theta \) button for 3 seconds. You access the main menu.

2.6.2 Navigating within a menu

1. Navigate to the required place using the \( \Theta/\Theta \) buttons. The option selected is shown with a black background.

2. Confirm your selection by briefly pressing the \( \Theta \) button. You access the next-lowest menu level.

2.5 Enabling push assist

**WARNING**

Push assist may only be used when the S-Pedelec is being pushed or started up. It is not intended to be used when a rider sits on the cycle for longer periods. There is a risk of injury when the wheels are not in contact with the ground. A maximum speed of 20 km/h is reached with push / start-up assistance.

It provides assistance when the cycle is being pushed. This is particularly helpful for steep hills you are unable to climb with pedalling.
2.6.3 Returning from the menu

There are three ways to return from a menu to the next-highest menu level or start menu:

a) Back option
1. Navigate to the Back option using the \( \oplus / \ominus \) buttons. It has a black background when selected.
2. Confirm with the \( \oplus \) button. You access the next-highest level.

b) Brief pressing of the \( \oplus \) button
1. If there is no Back option, and one of the options displayed is selected, briefly press the \( \oplus \) button to return to the next-highest level.

b) Prolonged pressing of the \( \oplus \) button
1. Pressing the \( \oplus \) button for about 3 seconds returns you to the start menu.

2.7 Changing ride profile

1. Press for 3 seconds the \( \oplus \) button in the start menu. You access the main menu.
2. Select main menu option "Settings" using the \( \oplus / \ominus \) buttons. The option selected is shown with a black background.
3. Confirm by briefly pressing the \( \oplus \) button. You access the menu options.

4. Select "Device settings" using the \( \oplus / \ominus \) buttons
5. Confirm with \( \oplus \)
6. Select "Drive" using the \( \oplus / \ominus \) buttons. The option selected is shown with a black background.
7. Confirm with the \( \oplus \) button. You access the menu sub-items.
8. Select "Biking profile" using the \( \oplus / \ominus \) buttons. The option selected is shown with a black background.
9. Confirm with the \( \oplus \) button. You access the ride profiles.

<table>
<thead>
<tr>
<th>Ride profile</th>
<th>Power on start-up</th>
<th>Power delivery</th>
<th>Maximum power</th>
<th>Power consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relax</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Regular</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Dynamic</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

10. Select the required option using the \( \oplus / \ominus \) buttons. It has a black background.
11. Briefly press the \( \oplus \) button to return to the menu sub-items.
2.8 Switching off the S-Pedelec

From the easy-reach control:

1. Press for 1 second the \( \) button on the easy-reach control. The goodbye screen is displayed and the Impulse Evo System is switched off.

From the battery:

1. Press the battery button twice

PLEASE NOTE

Hold the battery tight so it does not fall. It might be damaged otherwise.

2. Hold the battery with both hands and roll it out of the docking station.

2.9 Unlocking and removing the battery

1. Hold the battery, put the key into the battery lock and turn it anticlockwise. The battery is unlocked.

The recommendation is to remove the key now and keep it in a safe place so it does not break off and is not lost.
3. Drive unit, display and easy-reach control

3.1 Safety information

WARNING

Do not open the drive unit. This presents a risk of electric shock. The warranty also becomes null and void. Only have repairs to the drive unit carried out by trained cycle dealers.

Always remove the battery before working on the S-Pedelec. The cycle could switch on without warning, seriously injuring you.

Do not allow yourself to be distracted by the display. Only configure menu settings when the S-Pedelec is stationary. If you do not fully concentrate on traffic, you risk being involved in an accident or falling off.

PLEASE NOTE

All components mounted on the drive unit, and all other drive components, may only be replaced with identical components or those approved specially for your S-Pedelec by the manufacturer. Overloading and damage may result otherwise.

Do not open the display. It can be damaged beyond repair.

PLEASE NOTE

Do not tug at the display cables or display-cable plugs. If you do so, you may break the plug-retaining lugs. If you want to detach the display – e.g. because it is no longer functioning – the best thing is to contact your dealer. You can also detach the cables yourself. To do this, you will need a small screwdriver. Proceed as follows:

1. Lift the display up carefully.

2. Press the head of the screwdriver lightly against the display cable plug, while sliding the retaining lug back. The display cable will detach.
### 3.2 Technical details

#### Drive unit

<table>
<thead>
<tr>
<th>Type</th>
<th>Brushless electric motor with gear unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal power</td>
<td>350 W</td>
</tr>
<tr>
<td>max. torque</td>
<td>80 Nm</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>36 V</td>
</tr>
<tr>
<td>Cut-out speed</td>
<td>45 km/h</td>
</tr>
<tr>
<td>Permissible ambient temperature for operation</td>
<td>-10 to +40˚C</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Weight</td>
<td>4 kg</td>
</tr>
</tbody>
</table>

#### Impulse Evo display

<table>
<thead>
<tr>
<th>Type</th>
<th>LCD with easy-reach control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissible ambient temperature for operation</td>
<td>-10 to +40˚C</td>
</tr>
<tr>
<td>Dimensions L</td>
<td>W</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Weight</td>
<td>127 g</td>
</tr>
<tr>
<td>Languages</td>
<td>DE</td>
</tr>
</tbody>
</table>

#### Easy-reach control

<table>
<thead>
<tr>
<th>Type</th>
<th>Easy-reach control with 4 buttons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissible ambient temperature for operation</td>
<td>-10 to +40˚C</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Weight</td>
<td>27 g</td>
</tr>
<tr>
<td>Languages</td>
<td>DE</td>
</tr>
</tbody>
</table>
3.3 Overview and basic functions

Impulse Evo Smart display / Impulse Evo display

<table>
<thead>
<tr>
<th>NO.</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Battery charge level + remaining range</td>
</tr>
<tr>
<td>2</td>
<td>Time ⇒ 3.4.2.9 Time Page EN-29</td>
</tr>
<tr>
<td>3</td>
<td>Assist mode ⇒ 3.3.4 Changing assist mode Page EN-20</td>
</tr>
<tr>
<td>4</td>
<td>Assist display ⇒ 3.3.4 Changing assist mode Page EN-20</td>
</tr>
<tr>
<td>5</td>
<td>SET favourites ⇒ 3.3.6 SET favourites Page EN-21</td>
</tr>
<tr>
<td>6</td>
<td>Speed</td>
</tr>
<tr>
<td>7</td>
<td>Light</td>
</tr>
</tbody>
</table>

Easy-reach control

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYMBOL</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>⚫</td>
<td>ON/OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⇒ 3.3.1 Switching on the S-Pedelec Page EN-19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⇒ 3.3.2 Switching off the S-Pedelec Page EN-19</td>
</tr>
<tr>
<td>2</td>
<td>⚫</td>
<td>a) Increase value / scroll up</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Push assist ⇒ 3.3.5 Using push assist Page EN-2120</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) Enable display light for 30 seconds</td>
</tr>
<tr>
<td>3</td>
<td>⚫</td>
<td>a) Reduce value / scroll down</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Enable display light for 30 seconds</td>
</tr>
<tr>
<td>4</td>
<td>⚫</td>
<td>a) Configure/confirm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) In the main menu, switch between the SET favourites</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⇒ 3.3.6.1 Display of SET favourites in the start menu Page EN-21.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) Enable display light for 30 seconds</td>
</tr>
</tbody>
</table>
### 3.3.1 Switching on the S-Pedelec

The system can only be activated when a sufficiently charged battery is used.

1. Press for 1 second the button on the easy-reach control. The display lighting is switched on for about 30 seconds. The back light is also turned on. The front light is turned on when it has been switched on from the top of the lamp. After a short time, a welcome screen is shown, followed by the start menu. You can configure other settings from here.

If the cycle does not start up despite you pressing the button, press the battery button for 1 second. Then briefly press the button on the easy-reach control. If it still does not switch on, check the battery ⇒ 5.2.1 Battery management system (BMS) Page EN-47.

The back light has a sidelight function. It cannot be turned off.

### 3.3.2 Switching off the S-Pedelec

**From the easy-reach control:**

1. Press for 1 second the button on the easy-access control. The goodbye screen is displayed and the Impulse Evo System is switched off.

**From the battery:**

1. Press the battery button twice

You can switch off the S-Pedelec anywhere within the menus. The start menu does not need to be displayed for this.

The most recent setting changes remain saved.

If the drive unit is not required to deliver power for 20 minutes or so (because the S-Pedelec is stationary for example), the Impulse Evo switches off by itself.
3.3.3 Battery charge level and remaining range

The battery charge level and range are shown in the top left of the display. A battery-shaped icon shows the remaining range, telling you how long the Impulse Evo system can continue to assist you. The lower the battery charge level, the shorter the black part in the battery. The range also shows a lower value.

- **High battery charge level and long remaining range**
- **Low battery charge level and short remaining range**

The value displayed can change quickly when the circumstances change, such as when riding up an incline after a long, flat stretch.

3.3.4 Changing assist mode

1. You must be in the start menu to change assist mode. Briefly press the Θ/Θ buttons to select the assist level.

<table>
<thead>
<tr>
<th>DISPLAY</th>
<th>ASSIST</th>
<th>POWER CONSUMPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULTRA</td>
<td>the assist function works extremely hard</td>
<td>very high</td>
</tr>
<tr>
<td>POWER</td>
<td>The assist function works very hard</td>
<td>High</td>
</tr>
<tr>
<td>SPORT</td>
<td>The assist function works medium hard</td>
<td>Medium</td>
</tr>
<tr>
<td>ECO</td>
<td>The assist function works with low power</td>
<td>Low</td>
</tr>
<tr>
<td>OFF</td>
<td>No assist</td>
<td>Very low</td>
</tr>
</tbody>
</table>

Underneath the assist level selected is a display area showing the current assist level from the drive unit in the form of ten bars having increasing heights. The more bars are dark, the higher the assist level being provided. This display is only shown when an assist mode is selected.

- The drive unit is not assisting
- The drive unit is providing medium assist
- The drive unit is providing maximum assist
3.3.5 Using push assist

It provides assistance when the cycle is being pushed.

**WARNING**

„Push assist may only be used when the S-Pedelec is being pushed or started up. It is not intended to be used when a rider sits on the cycle for longer periods. There is a risk of injury when the wheels are not in contact with the ground. A maximum speed of 20 km/h is reached with push / start-up assistance.“

It provides assistance when the cycle is being pushed. This is particularly helpful for steep hills you are unable to climb with pedalling.

1. Keep the ⊗ button pressed. Push assist is activated after 3 seconds. A warning is sounded at the same time.
   "Hint (1/1) Pushing assistance" is shown on the display. Keep the button pressed until you no longer need push assist.

3.3.6 SET favourites

3.3.6.1 Display of SET favourites in the start menu

Proceed as follows to display another SET favourite in the start menu:

1. Briefly press the ⊗ button in the start menu. If you have selected more than one SET favourite in the main menu ⇒ 3.3.6.2 Preselecting SET favourites Page EN-21, the next SET favourite is shown.
2. Keep pressing the ⊗ button until the required SET favourite is displayed.

3.3.6.2 Preselecting SET favourites

You can choose which SET favourites can be shown in the start menu.

» Trip km/time
» Trip max/Ø
» Tour km/Ø
» Cadence

You can select all SET favourites or just one. Proceed as follows for this:

1. Press for 3 seconds the ⊗ button in the start menu. You access the main menu.
2. Select main menu option "Settings" using the ⊗/⊘ buttons. The option selected is shown with a black background.
3. Confirm by briefly pressing the ⊘ button. You access the menu options.
4. Select "Personalise" using the ⊗/⊘ buttons. The option selected is shown with a black background.
3.4.1.2 Navigating within a menu
1. Navigate to the required place using the ⊕/⊖ buttons. The option selected is shown with a black background.
2. Confirm your selection by briefly pressing the ⊕ button. You access the next-lowest menu level.

3.4.1.3 Returning to the next-highest menu level
There are two ways to return from a menu to the next-highest menu level:

a) Back option
1. Navigate to the Back option using the ⊕/⊖ buttons. It has a black background when selected.
2. Confirm with the ⊕ button. You return to the next-highest level.

b) Brief pressing of the ⊕ button
1. If there is no Back option, and one of the options displayed is selected, briefly press the ⊕ button to return to the next-highest level.

3.4.1.4 Returning to the start menu
1. Pressing the ⊕ button for 3 seconds returns you to the start menu.
## 3.4.2 Menu structure

<table>
<thead>
<tr>
<th>Main menu options</th>
<th>Menu options</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Show ride data&quot;</td>
<td></td>
</tr>
<tr>
<td><a href="#">3.4.2.1 Show ride data Page EN-26</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trip (in km)</td>
</tr>
<tr>
<td></td>
<td>Trip time (in 00:00:00 format)</td>
</tr>
<tr>
<td></td>
<td>Trip max (in km/h)</td>
</tr>
<tr>
<td></td>
<td>Trip Ø (in km/h)</td>
</tr>
<tr>
<td></td>
<td>Tour (in km)</td>
</tr>
<tr>
<td></td>
<td>Tour Ø (in km/h)</td>
</tr>
<tr>
<td></td>
<td>Total (in km)</td>
</tr>
<tr>
<td>&quot;Delete trip data&quot;</td>
<td></td>
</tr>
<tr>
<td><a href="#">3.4.2.2 Deleting trip data Page EN-26</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confirm delete?</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>&quot;Delete tour data&quot;</td>
<td></td>
</tr>
<tr>
<td><a href="#">3.4.2.3 Deleting tour data Page EN-27</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confirm delete?</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Menu options

<table>
<thead>
<tr>
<th>Settings</th>
<th>Menu sub-items</th>
<th>Sub-items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device settings</td>
<td>Display</td>
<td>Contrast <a href="#">3.4.2.4 Contrast Page EN-27</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brightness <a href="#">3.4.2.5 Brightness Page EN-27</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Language <a href="#">3.4.2.6 Language Page EN-28</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deutsch</td>
</tr>
<tr>
<td></td>
<td></td>
<td>English</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Francais</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nederlands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Espanol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Italiano</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suomi</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dansk</td>
</tr>
<tr>
<td>Main menu options</td>
<td>Menu options</td>
<td>Menu sub-items</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Settings</td>
<td>Device settings</td>
<td>Display</td>
</tr>
<tr>
<td>Main menu options</td>
<td>Menu options</td>
<td>Menu sub-items</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Settings</td>
<td>Personalise</td>
<td>Name 3.4.2.15 Name Page EN-31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SET favourites 3.3.6.2 Preselecting SET favourites Page EN-21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Factory settings 3.4.2.17 Factory settings Page EN-32</td>
<td>Reset to factory settings? No Yes</td>
</tr>
<tr>
<td></td>
<td>Software</td>
<td>Version 3.4.2.18 Version Page EN-32</td>
</tr>
</tbody>
</table>
### 3.4.2.1 Show ride data

You can display the following menu options in the "Show ride data" main menu option:

<table>
<thead>
<tr>
<th>Menu sub-items</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trip (in km)</td>
<td>Trip (e.g. day trip, short trip) in kilometres.</td>
</tr>
<tr>
<td>Trip time (in 00:00:00 format)</td>
<td>Duration of trip (e.g. day trip, short trip) in hours, minutes and seconds.</td>
</tr>
<tr>
<td>Trip max (in km/h)</td>
<td>Maximum speed (in kilometres per hour) achieved on the trip (e.g. day trip, short trip).</td>
</tr>
<tr>
<td>Trip Ø (in km/h)</td>
<td>Average speed (in kilometres per hour) achieved on the trip (e.g. day trip, short trip).</td>
</tr>
<tr>
<td>Tour (in km)</td>
<td>Tour (e.g. cycle tour over several days) in kilometres.</td>
</tr>
<tr>
<td>Tour Ø (in km/h)</td>
<td>Average speed (in kilometres per hour) achieved on the tour (e.g. cycle tour over several days).</td>
</tr>
<tr>
<td>Total (in km)</td>
<td>Total number of kilometres ridden.</td>
</tr>
</tbody>
</table>

1. Select the required option using the Ω/⊕ buttons. A box on the right shows how far you can scroll up and down. The option selected is shown with a black background.

2. Confirm your selection by briefly pressing the Ω button. You return to the menu sub-items.

### 3.4.2.2 Deleting trip data

In main menu option "Delete trip data", you can reset to 0 options Trip (in km), Trip time (in 00:00:00), Trip max (in km/h) and Trip Ø (in km/h). Proceed as follows for this:

1. Navigate to "Delete trip data" as described in ➔ 3.4.1 Configuring settings in the menu Page EN-22.

2. Prompt "Confirm delete?" is shown on the display, with "Yes" and "No" underneath

3. Select the required option using the Ω/⊕ buttons. The selection has a black background.

4. Confirm your selection by briefly pressing the Ω button. You return to the menu sub-items.
2. Use the \( \oplus/\ominus \) buttons to select the contrast strength required. The strength selected is shown with a black background.
3. Press the \( \ominus \) button to return to the sub-menu

### 3.4.2.3 Deleting tour data

In main menu option "Delete tour data", you can reset to 0 options Tour (in km) and Tour \( \bar{\Omega} \) (in km). Proceed as follows for this:

1. Navigate to "Delete tour data" as described in \( \Rightarrow 3.4.1 \) Configuring settings in the menu Page EN-22.
2. Prompt "Confirm delete?" is shown on the display, with "Yes" and "No" underneath
3. Select the required option using the \( \oplus/\ominus \) buttons. The selection has a black background.
4. Confirm your selection by briefly pressing the \( \ominus \) button. You return to the menu sub-items.

### 3.4.2.4 Contrast

You can change the contrast of the display to improve readability:

1. Navigate to "Contrast" as described in \( \Rightarrow 3.4.1 \) Configuring settings in the menu Page EN-22.

Pick from:

```
-5 -4 -3 -2 Default +1 +2 +3 +4 +5
```

- Weak contrast                       Strong contrast

2. Use the \( \oplus/\ominus \) buttons to select the contrast strength required. The strength selected is shown with a black background.
3. Press the \( \ominus \) button to return to the sub-menu

### 3.4.2.5 Brightness

You can change the brightness of the display to improve readability:

1. Navigate to "Brightness" as described in \( \Rightarrow 3.4.1 \) Configuring settings in the menu Page EN-22.

Pick from:

```
-5 -4 -3 -2 Default +1 +2 +3 +4 +5
```

- Low brightness                       High brightness
#### 3.4.2.6 Language

The language in which text is displayed can be changed in the "Language" sub-item. Select from:

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

1. Navigate to "Language" as described in [3.4.1 Configuring settings in the menu Page EN-22](#).
2. Use the Θ/Ω buttons to select the language required. The language selected is shown with a black background.
3. Confirm by briefly pressing Θ. You return to the sub-menu.

#### 3.4.2.7 Unit

1. Navigate to "Unit" as described in [3.4.1 Configuring settings in the menu Page EN-22](#).

Pick from:

- Kilometres
- Miles

2. Use the Θ/Ω buttons to select the unit required. It has a black background.
3. Confirm by briefly pressing Θ. You return to the sub-menu.

#### 3.4.2.8 Date

1. Navigate to sub-item "Date"

Select from:

<table>
<thead>
<tr>
<th>Day</th>
<th>01 to 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month</td>
<td>January to December</td>
</tr>
<tr>
<td>Year</td>
<td>2015 to 2114</td>
</tr>
</tbody>
</table>

2. Use the Θ/Ω buttons to select the option required. The selection has a black background.
3. Confirm by briefly pressing Θ. You move to the next option.
4. Once you confirm the year with Θ, you return to the sub-menu.
3.4.2.9 Time

The time is shown in the start menu. Proceed as follows to set or change the time:

1. Navigate to "Time" as described in 3.4.1 Configuring settings in the menu Page EN-22.

Pick from:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hour</td>
<td>00 to 23</td>
</tr>
<tr>
<td>Minute</td>
<td>00 to 59</td>
</tr>
<tr>
<td>Second</td>
<td>00 to 59</td>
</tr>
</tbody>
</table>

2. Use the / buttons to select the option required.
   The selection has a black background.

3. Confirm by briefly pressing . You move to the next option.

4. Once you confirm the seconds with , you return to the sub-menu

3.4.2.10 Wheel circumference

Ask your cycle dealer for the wheel circumference. You can also measure it yourself:

1. Wheel diameter in mm x 3.14 = Wheel circumference in mm.

2. Push your cycle by one full revolution and measure how far it travels (in mm).

1. Navigate to "Wheel circumference" as described in 3.4.1 Configuring settings in the menu Page EN-22.

You can pick values between:
» 1,510 mm and 2,330 mm

2. Use the Θ/Θ buttons to select the option required. The option selected is shown with a black background.

3. Once you confirm the wheel circumference with Θ, you return to the sub-menu

3.4.2.11 Light reserve

When enabled, the Light reserve function keeps back part of the battery power for long-term light function. This power is kept for two hours after the assist power has ended.

1. Navigate to "Light reserve" as described in 3.4.1 Configuring settings in the menu Page EN-22.

2. Use the Θ/Θ buttons to select "Yes" or "No". The option selected is shown with a black background.

3. Once you confirm with Θ, you return to the sub-menu

### 3.4.2.12 Shift sensor

The shift sensor detects changes of gear and interrupts motor assist for fractions of a second. This enables switching to be smoother and much quicker, especially for gear hubs. The higher this value is set, the longer the time without assist - and more time is provided for shifting gear.

1. Navigate to "Shift sensor" as described in 3.4.1 Configuring settings in the menu Page EN-22.

Pick from:

<table>
<thead>
<tr>
<th></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>
<tbody>
<tr>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Use the Θ/Θ buttons to select the option required. The option selected is shown with a black background.

3. Once you confirm with Θ, you return to the sub-menu

### 3.4.2.13 Climb assist

When the cycle is being ridden, the power sensor integrated in the motor registers the pedal power you require. The motor controller interprets the pedal power signals and responds (differently depending on the climb assist value setting). The lower the value set (e.g. 1), the more sluggish the response of the motor during the assist phase. The higher the value set (e.g. 7), the more sensitive the motor responds to the pedal power. For uphill rides in particular, it is beneficial when the power sensor does not respond so sensitively, so that it is possible to ride with motor assist which is as uniform and harmonic as possible.
1. Navigate to "Biking profile" as described in 3.4.1 Configuring settings in the menu Page EN-22.

You can select from the following:

<table>
<thead>
<tr>
<th>Ride profile</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power on start-up</td>
</tr>
<tr>
<td>Relax</td>
<td>Low</td>
</tr>
<tr>
<td>Regular</td>
<td>Medium</td>
</tr>
<tr>
<td>Dynamic</td>
<td>High</td>
</tr>
</tbody>
</table>

2. Use the ⊗/⊕ buttons to select the option required. The option selected is shown with a black background.

3. Once you confirm with ⊗, you return to the sub-menu

3.4.2.14 Ride profile

In the ride profile, it is possible to specify the maximum assist level to be achieved by the motor.

Select the ride profile in line with the routes you ride. For a leisurely tour with friends at the weekend, the "Relax" assist level is the right choice. If you often speed from one appointment to the next, the "Dynamic" setting can inject the necessary pace.

The most recent setting remains saved.

3.4.2.15 Name

In "Name", you can set the text for the welcome screen.

1. Navigate to "Name" as described in 3.4.1 Configuring settings in the menu Page EN-22.
2. Use the Θ/Θ buttons to select the letters required. Letters selected have a black background.

3. Confirm with the Θ button

4. Once you have made your selection, press "OK" to return to the sub-menu or for the start menu

3.4.2.18 Version

Proceed as follows if you want to display the name of the software version currently on your display:

1. Navigate to "Version" as described in 3.4.1 Configuring settings in the menu Page EN-22. This shows the current display software.

2. Press the Θ button to return to the sub-menu

   Ask as part of maintenance work in the service book whether there is new software for your S-Pedelec.

3.4.2.19 Speed

In the „Speed“ sub-item, you can set the speed up to which the drive provides assistance.

1. Navigate to „Speed“ as described on Page 22 in Section 3.4.1 Configuring settings in the menu Page EN-22. You can select a value in range 6 km/h to 45 km/h. Selecting „OFF“ means the drive unit provides assistance up to 45 km/h.

2. Use the / buttons to select the value required. The value selected has a black background.

3. Confirming the wheel circumference returns you to the sub-menu.
4. **App: Impulse E-Bike navigation**

### Technical details

<table>
<thead>
<tr>
<th>Operating system</th>
<th>iOS</th>
<th>≥ 7</th>
<th>Download -&gt; App store</th>
<th><a href="https://itunes.apple.com/app/id988052596">https://itunes.apple.com/app/id988052596</a></th>
</tr>
</thead>
</table>

### Menu structure

**Calculate route**

- **Start-destination**
  - Start 📍 / destination 🚲

- Current location
- Find location
- Contact location
- Location from map ➜ 4.1 Location from map Page EN-35
- Place of interest
  - Accommodation
  - Place to eat/drink
  - Cycle service
- Place used recently
<table>
<thead>
<tr>
<th>Record route</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Round trip</td>
<td>Start</td>
<td></td>
</tr>
<tr>
<td>Current location</td>
<td>Find location</td>
<td></td>
</tr>
<tr>
<td>Contact location</td>
<td>Location from map</td>
<td></td>
</tr>
<tr>
<td>Place of interest</td>
<td>Accommodation</td>
<td></td>
</tr>
<tr>
<td>Place to eat/drink</td>
<td>Cycle service</td>
<td></td>
</tr>
<tr>
<td>Place used recently</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Every day

- [4.2 Every day Page EN-36](#)

### Leisure time

- [4.3 Leisure time Page EN-36](#)

<table>
<thead>
<tr>
<th>Settings</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigation instructions</td>
<td>Activate voice instructions</td>
<td>Volume</td>
</tr>
<tr>
<td>My E-Bike and me</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle class</td>
<td>Pedelec</td>
<td></td>
</tr>
<tr>
<td>S-Pedelec</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle type</td>
<td>City trekking cycle</td>
<td></td>
</tr>
<tr>
<td>Mountain bike</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (including trailer) in kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Me</td>
<td>Body weight</td>
<td></td>
</tr>
<tr>
<td>Average speed in km/h (manual)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use display speed of my vehicle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.1 Location from map

Proceed as follows to select a location from a map:

1. Select "Calculate route". You access the menu.

2. Select "Location from map"

3. Use your finger to tap the place required. Keep it there for 2 seconds. The place is selected.
4.2 Every day

Appropriate route planning to reach your every day destinations speedily. It prefers these options whenever possible:

» Secondary routes
» Cycle lanes and paths
» Short and direct routes
» Easily accessible, paved surfaces

4.3 Leisure time

Appropriate route planning - especially for leisure time and tourist activities. It prefers these options whenever possible:

» Sign-posted, official themed routes and long-distance cycle paths
» Easily accessible, paved surfaces
» Secondary routes
» Beautiful surroundings as regards countryside

4.4 Impulse Evo Smart display: Show route

You can show on your Impulse Evo Smart display the route to a desired location.

Prerequisites

You require a smartphone with the following:

<table>
<thead>
<tr>
<th>Wireless technology</th>
<th>BTLE (Bluetooth Low Energy) 4.0, BTLE 4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>iOS ≥ 7</td>
</tr>
<tr>
<td></td>
<td>Android ≥ 4.3.3</td>
</tr>
<tr>
<td>App installed</td>
<td>Impulse E-Bike navigation</td>
</tr>
</tbody>
</table>

Procedure

**WARNING**

Safely secure the smartphone and its charger cable whilst the cycle is moving. They may otherwise get caught up in rotating parts, causing a serious fall. Ask your cycle dealer for a suitable smartphone holder.
1. Switch on the S-Pedelec ⇒ 3.3.1 Switching on the S-Pedelec Page EN-19.
2. Open the "Impulse E-Bike Navigation" App

3. Go to "Settings"

4. Select "My E-Bike and me"

5. Select "Connect to Impulse display". The App starts to look for the S-Pedelec. After a short time, all Bluetooth-capable S-Pedelecs are displayed in the form of a number combination.
6. Select the S-Pedelec you want to connect to your smartphone. The number of your S-Pedelec is on the back of the display. This is an 8-digit serial number. Use the last digits of the number.

7. Once you have selected the required S-Pedelec in the App, the selection is ticked red. The smartphone is connected to the S-Pedelec.

8. Now go to "Calculate route"

9. Enter the start and destination, or the round trip
10. Select "Calculate". The title, length (in km) and journey time (in h) of the route are displayed.

11. Select "Start navigation". Navigation is shown in partial steps on the Impulse Evo Smart display.

12. Select how you want the route displayed on the smartphone:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Display</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heights</td>
<td><img src="chart.png" alt="Chart showing elevation changes" /></td>
<td>As elevations: A chart provides information on elevation changes over the entire route. Also displayed are the highest and lowest points on the route, and the steepest uphill and downhill inclines.</td>
</tr>
<tr>
<td>Map</td>
<td><img src="map.png" alt="Map of route" /></td>
<td>As a map</td>
</tr>
</tbody>
</table>
4.5 Impulse Evo Smart display: Charging the smartphone

You can use the USB charge socket on the display to charge your smartphone battery.

![USB power jack]

**WARNING**

Safely secure the smartphone and its charger cable whilst the cycle is moving. They may otherwise get caught up in rotating parts, causing a serious fall. Ask your cycle dealer for a suitable smartphone holder.

**Requirements:**

- **Cable type**: USB OTG (on the go) micro cable

1. Use the correct cable to connect the smartphone to the display
4.5  Tips

4.5.1 Transportation and shipping

**WARNING**

Always remove the battery before transporting the S-Pedelec. Unintentionally pressing the button represents a risk of injury. This also protects the battery from the weather.

» **By car:** The bike carrier must be designed for the greater weight of the S-Pedelec. Always use appropriate rain protection to transport S-Pedelecs on vehicle cycle racks. Rain can otherwise damage the motor and its components. Suitable covers are available from your dealer and online.

» **By train:** Only transport your S-Pedelec in trains having the bicycle symbol. Reservations are required for InterCity and EuroCity trains. No bicycles may be taken in InterCity Express trains.

» **By plane:** Find out in good time whether the cycle regulations for your airline permit transportation of S-Pedelecs. Batteries may not be taken on passenger planes, neither in the hold nor cabin. They are subjected to hazard goods legislation.

Do not send any batteries. Batteries are hazardous goods which can overheat and catch fire in certain conditions. Only trained personnel may prepare and transport batteries. If you have a complaint about a battery or batteries, please always go through your cycle dealer. They are able to have batteries picked up at no charge under the hazard goods legislation.

**4.5.1.2 Riding with a trailer and/or luggage**

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. Please note the following:

» The total weight for the bicycle may not be exceeded.

**Total weight = weight of cycle + weight of rider + weight of trailer + weight of luggage**

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>Overall weight permitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-Pedelec Impulse Evo</td>
<td>120 kilograms</td>
</tr>
<tr>
<td>S-Pedelec Impulse Evo semi XXL</td>
<td>150 kilograms</td>
</tr>
<tr>
<td>S-Pedelec Impulse Evo XXL</td>
<td>170 kilograms</td>
</tr>
</tbody>
</table>

Batteries are subjected to the requirements in hazardous goods legislation. They may be transported by road by private users without any further stipulations. When transported by commercial third parties (such as by air, freight forwarders and logistics firms), special requirements of packaging and labelling must be observed. Please contact your cycle dealer if you have any questions about transportation.
Weight on the luggage rack

**WARNING**

Do not attach a luggage rack to the seat post. It is not designed for this purpose. Overloading of the seat post by a luggage rack can cause component breakages and serious falls.

When transporting storage bags or other loads on luggage racks, ensure they are fastened securely. If they are not, straps, etc. can get caught up in the spokes and/or rotating wheels. Serious falls can result.

**PLEASE NOTE**

Only transport luggage on the luggage racks provided.

Weight changes riding characteristics. The braking distance becomes longer, so brake earlier. Also, steering becomes sluggish - so adapt how you ride to the changed ride characteristics.

» The maximum weight for the luggage rack may not be exceeded.

<table>
<thead>
<tr>
<th>Luggage rack position</th>
<th>Overall weight permitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front: Load area above the front wheel</td>
<td>10 kilograms</td>
</tr>
<tr>
<td>Front: Low loading area</td>
<td>18 kilograms</td>
</tr>
<tr>
<td>Rear</td>
<td>25 kilograms</td>
</tr>
</tbody>
</table>

A trailer changes the ride characteristics. The braking distance becomes longer, so brake earlier. Also, steering becomes sluggish - so adapt how you ride to the changed ride characteristics.

Practise starting off, braking, and riding round corners and on inclines with a trailer - initially with an unloaded one.

Only use a trailer which satisfies relevant national laws. Non-approved trailers can cause accidents. Contact your cycle dealer for recommendations regarding suitable trailers.

Trailers
PLEASE NOTE

Look out for different specifications on the luggage rack itself and in the instructions provided by the luggage rack manufacturer. Breakages to the luggage rack may result otherwise.

-> Transport your luggage in luggage bags on the sides. Spread the luggage to guarantee the weight is distributed evenly. This gives you safe riding characteristics.

4.5.1.3 Storage

1. Remove the battery from the S-Pedelec
2. Store the battery in a dry, not excessively warm room. The battery should not be exposed to direct sunshine. The recommended storage temperature range is 18 to 23°C.

4.5.1.4 Cleaning

WARNING

Remove the battery before cleaning the S-Pedelec. Unintentionally pressing the button and touching live parts represent a risk of injury.

PLEASE NOTE

Do not spray the S-Pedelec with a water hose or wash it down with a high-pressure cleaner. Although the components are sealed off, damage to the cycle may still result. Clean the cycle with a slightly damp cloth.

Do not immerse the drive unit or components into water. Although the components are sealed off, damage may still result.

Do not use any cleaners which contain alcohol or solvent, or which scour. No coarse sponges or brushes may be used either. They leave scratches and cause the surface to become matt. To clean your cycle, it is best to use a soft cloth moistened with water or mild cleaning agent.

i

Do not allow dirt to dry out. It is best to clean the cycle immediately after your ride.
5. Battery

5.1 Safety information

**WARNING**

All those (including children) who are unable to use the battery due to their physical, sensory or mental aptitude, or their lack of experience or knowledge, may not use it without being under the supervision or instruction of a person responsible. A risk of misuse and injury may otherwise result.

Always remove the battery before working on the S-Pedelec. The cycle could switch on without warning and pose a risk of serious injury.

Only use your S-Pedelec with the correct, original battery. Using other batteries can result in explosions, serious burns and fire. Malfunction and limited service life can also entail. A list of permitted batteries is in ⇒ 5.2 Technical details Page EN-46.

Only charge your battery with the correct, original charger. Using other chargers can result in explosions, serious burns and fire. Malfunction and limited service life can also entail. A list of permitted chargers is in ⇒ 6.3 Overview and functions Page EN-55.

Batteries may not be exposed to fire, sparks or heat (such as from radiators and continual sunshine).

---

### Drive unit

**CAUTION**

Do not clean the drive unit when it is warm (such as immediately after a ride). Wait until it has cooled down. You may burn yourself otherwise.

1. Remove the battery from the S-Pedelec
2. Clean the drive unit from outside using a slightly moist, soft cloth

### Display and easy-reach control

1. Clean the display and easy-reach control from outside using a slightly moist, soft cloth

### 4.5.1.5 Disposal

Do not throw the drive system, display or easy-access control out with the household waste. Take these components to the appropriate places (such as recycling stations).
**WARNING**

They can explode, causing serious burns and fire. High temperatures can also shorten the service life of your battery. Always ensure there is sufficient ventilation when charging the battery.

**Batteries may not be submersed in water.** This presents a risk of explosion. Do not extinguish a burning battery with water - only its immediate surroundings. Fire extinguishers with metal fire powder (Class D) are more suitable. If the battery can be taken outside safely, smother the fire with sand.

**Batteries may not be short-circuited.** A short-circuit between the contacts can cause burns and fire. Keep the battery away from nuts, bolts, paper clips, keys, coins, nails and other small metal objects which can cause bridging of the contacts.

**Batteries may not be destroyed, shredded, taken apart, opened or repaired.** They can explode, causing serious burns and fire. Contact your cycle dealer for help if you have problems with the battery.

**Damaged batteries may not be charged, used or transported.**

- They can explode, causing serious burns and fire.
- Vapour can escape and irritate the air ways. Ensure there is a supply of fresh air and consult a doctor in the event of discomfort.

**PLEASE NOTE**

**Batteries may not be subjected to any mechanical impacts.** This poses a risk of damage.

**WARNING**

- Liquid can escape and cause skin irritation. Prevent contact with it. In the event of accidental contact, wash off the liquid with water. If liquid enters the eyes, also seek medical assistance.

A battery can still be damaged after a drop or impact even if no external damage is evident. Battery which looks fine on the outside should therefore also be subjected to an inspection. Contact your cycle dealer.

**Perform a learn cycle.** You should drain a new, fully charged battery once until the assist function stops, and without recharging it in-between. By doing so, the battery "learns" its capacity, and the actual capacity matches the charge level display. Please perform a learn cycle every six months or 5,000 kilometres. When the battery becomes older and you do not repeat the cycle from time to time, the difference between actual battery capacity and charge level display will become greater and greater.
### 5.2 Technical details

<table>
<thead>
<tr>
<th></th>
<th>15 Ah</th>
<th>17 Ah</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>15 Ah</td>
<td>17 Ah</td>
</tr>
<tr>
<td><strong>Position</strong></td>
<td>Down tube</td>
<td>Down tube</td>
</tr>
<tr>
<td><strong>Part number</strong></td>
<td>170516007</td>
<td>170516008</td>
</tr>
<tr>
<td><strong>Nominal capacity</strong></td>
<td>14.25 Ah</td>
<td>16.75 Ah</td>
</tr>
<tr>
<td><strong>Nominal voltage</strong></td>
<td>36 V</td>
<td>36 V</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>520 Wh</td>
<td>630 Wh</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>3120 g</td>
<td>3185 g</td>
</tr>
<tr>
<td><strong>Charge cycles</strong>*</td>
<td>1,100 full cycles</td>
<td>1,100 full cycles</td>
</tr>
<tr>
<td><strong>Charge time</strong>**</td>
<td>Approx. 3.5 hours</td>
<td>Approx. 4 hours</td>
</tr>
<tr>
<td><strong>Cell</strong></td>
<td>Li-ion</td>
<td>Li-ion</td>
</tr>
<tr>
<td><strong>Range</strong>*</td>
<td>180 km</td>
<td>205 km</td>
</tr>
<tr>
<td><strong>Permitted charge temperature</strong></td>
<td>0 - 40 °C</td>
<td>0 - 40 °C</td>
</tr>
</tbody>
</table>

| **Recommended charge temperature** | +10 to +30°C | +10 to +30°C |
| **Operating temperature**         | -10 to 40 °C | -10 to 40 °C |
| **Recommended storage temperature** | +18 to +23°C | +18 to 23°C |

* * 3 LEDs up to wear limit in consideration of battery age
** 4 A charger up to 95% FCC
*** For the lowest assist level under optimal conditions and with a fully charged battery of the highest capacity

### 5.3 Overview and basic functions
5.2.1 Battery management system (BMS)

On the outside of the battery are a button and a display panel with five LEDs. Three LEDs show percentage values. The LEDs light up when you press the battery button. The number lighting up, and how, provides information on the battery.

5.2.1.1 Checking the charge level

1. Press the battery button for 1 second. The LEDs light up.

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Charge level</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>5 LEDs ON</td>
<td>100 – 84%</td>
</tr>
<tr>
<td></td>
<td>4 LEDs ON</td>
<td>83 – 68%</td>
</tr>
<tr>
<td>50%</td>
<td>3 LEDs ON</td>
<td>67 – 51%</td>
</tr>
<tr>
<td></td>
<td>2 LEDs ON</td>
<td>50 – 34%</td>
</tr>
<tr>
<td>0%</td>
<td>1 LED ON</td>
<td>33 – 17%</td>
</tr>
<tr>
<td>0%</td>
<td>1 LED flashing</td>
<td>17 – 0%</td>
</tr>
</tbody>
</table>

5.2.1.2 Checking the capacity

1. Press the battery button for 3 seconds. The battery capacity is displayed.

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Charge level</th>
</tr>
</thead>
<tbody>
<tr>
<td>(100%)</td>
<td>At least 4 LEDs ON</td>
<td>The battery has a capacity of over 68%</td>
</tr>
</tbody>
</table>

The battery may have to be replaced when the capacity is below 68%. Discuss how to proceed with your cycle dealer.
5.2.1.3 Sleep mode

To prevent total discharge, the battery management system switches the battery to Sleep mode. Your battery transitions to Sleep mode after 2 days regardless of the charge level.

Proceed as follows to find out whether the battery is in Sleep mode:

1. Press the battery button for 1 second. The following is displayed:

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>· ·</td>
<td>The first and fifth LEDs are ON</td>
</tr>
</tbody>
</table>

Waking from Sleep mode

1. Connect the battery to the charger.
2. Briefly press the battery button. The battery is now "woken up".

5.3 Fitting

PLEASE NOTE

Hold the battery tight so it does not fall.
5.3.1 Inserting and locking into place a battery

1. Grip the battery with both hands and hold it to the left of the docking station. Ensure that the battery charge level display is pointing towards you.

2. Place the battery catches into the dents provided.

3. Roll the battery into the docking station until it clicks into place.

4. Turn the battery key clockwise. Now the battery is locked.

PLEASE NOTE

Hold the battery tight so it does not fall. It might be damaged otherwise.

5.3.2 Unlocking and removing the battery

1. Hold the battery, put the key into the battery lock and turn it anticlockwise. The battery is unlocked.

2. Hold the battery with both hands and roll it out of the docking station.

The recommendation is to remove the key now and keep it in a safe place so it does not break off and is not lost.
5.4 Tips

5.4.1 Range

How far you can ride with your battery depends on several factors.

Ride profile: You need the most power in the highest ride profile (Dynamic). The range becomes shorter.

Select the ride profile in line with the routes you ride. For a leisurely tour with friends at the weekend, the "Relax" assist level is the right choice. If you often speed from one appointment to the next, the "Dynamic" setting can inject the necessary pace.

Assist mode: You need the most power in the highest assist mode (ULTRA). The range drops drastically the higher the assist level selected is.

Vary the assist modes. With the wind behind you or on level ground for example, you can also speed along with a lower assist mode. It makes sense to switch off assist completely when riding downhill.

Tyre pressures: The front tyre is difficult to turn when its pressure is too low. The drive unit needs to provide more assistance and the range decreases.

Get your cycle dealer to show you which air pressure is best for your tyres, and how you can check the pressure. Caution - excessively high tyre pressures can also be dangerous.

Riding style: A low pedalling speed combined with high gears results in high power consumption.

For a constant pedalling speed, change to a low gear in good time - especially when starting off.

Physical condition: The better your physical condition, the lower the level of assistance needed.

Overall weight: The lower the overall weight on the cycle, the "easier" it is to ride it.

A recommendation when planning longer journeys is to take a replacement battery and/or a charger.

Outside temperatures: The lower the outside temperatures (e.g. cold in winter), the shorter the range.

Insert the battery just before starting off with your S-Pedelec. This way you prevent low temperatures shortening the range.

Battery capacity: A much shorter service life after the charging process indicates that the battery has lost considerable capacity. ⇒ 5.2.1.2 Checking the capacity Page EN-47.
**WARNING**

» By train: Only transport your S-Pedelec in trains having the bicycle symbol. Reservations are required for InterCity and EuroCity trains. No bicycles may be taken in InterCity Express trains.

» By plane: Find out in good time whether the cycle regulations for your airline permit transportation of S-Pedelecs. Batteries may not be taken on passenger planes, neither in the hold nor cabin. They are subjected to hazard goods legislation.

**Do not send any batteries.** Batteries are hazardous goods which can overheat and catch fire in certain conditions. Only trained personnel may prepare and transport batteries. If you have a complaint about a battery or batteries, please always go through your cycle dealer. They are able to have batteries picked up at no charge under the hazard goods legislation.

**Batteries may not be short-circuited.** A short-circuit between the contacts can cause burns and fire. Keep the battery away from nuts, bolts, paper clips, keys, coins, nails and other small metal objects which can cause bridging of the contacts.

---

**Route selected:** You need to pedal harder when cycling uphill or against strong head wind. This is registered by the power sensor, which in turn requires the motor to work harder.

**Charging a smartphone:** Connecting a smartphone to your Impulse Evo Smart display to charge it also requires power.

---

5.4.2 **Transportation and shipping**

**WARNING**

Always remove the battery before transporting the S-Pedelec. Unintentionally pressing the button represents a risk of injury. This also protects the battery from the weather.

» By car: The bike carrier must be designed for the greater weight of the S-Pedelec.
5.4.4 Cleaning

**WARNING**
Remove the battery from the S-Pedelec before cleaning the cycle. Unintentionally pressing the button and touching live parts represent a risk of injury.

**CAUTION**
When cleaning the cycle, ensure no water enters the battery. If it does, electric shock may result.

When wiping down the battery, prevent touching the contacts as this presents a risk of electric shock.

**PLEASE NOTE**
Do not spray the battery with a water hose or wash it with a high-pressure cleaner. Although the components are sealed off, damage to the battery may still result. Clean the battery with a slightly damp cloth.

Do not submerge the battery in water. Although the components are sealed off, damage may still result.

Do not use any cleaners which contain alcohol or solvent, or which scour. No coarse sponges or brushes may be used either.

---

**5.4.3 Storage**

1. Remove the battery from the S-Pedelec
2. Store the battery in a dry, not excessively warm room. The battery should not be exposed to direct sunshine. The recommended storage temperature range is 18 to 23°C.

A battery should not be stored when fully charged. A charge level between 50 and 70% is ideal.

Because a battery loses energy very slowly, it should be recharged every two to three months (six months at the latest).
6. Chargers

6.1 Safety information

WARNING

All those (including children) who are unable to use the charger due to their physical, sensory or mental aptitude, or their lack of experience or knowledge, may not use it without being under the supervision or instruction of a person responsible. A risk of misuse and injury may otherwise result.

Only use the correct, original charger to charge the battery. Using other chargers can result in explosions, serious burns and fire. Malfunction and limited service life can also entail. A list of permitted chargers is in 6.3 Overview and functions Page EN-55.

The mains voltage must match the voltage specified on the charger nameplate. The supply voltage for the charger is specified on the label on the back of the device.

Only charge the correct, original battery with the charger. Using other batteries can result in explosions, serious burns and fire. Malfunction and limited service life can also entail. A list of permitted batteries is in 5.2 Technical details Page EN-46.

Prior to using them, always inspect the charger, cable and connector. Do not use the charger if you ascertain any damage.

PLEASE NOTE

They leave scratches and cause the surface to become matt. To clean your cycle, it is best to use a soft cloth moistened with water or mild cleaning agent.

Do not allow dirt to dry out. It is best to clean the battery immediately after your ride.

1. Remove the battery from the S-Pedelec
2. Clean the casing with a slightly damp, soft cloth.
3. If the battery terminals are dirty, clean them with a dry, soft cloth.

5.4.5 Disposal

Do not throw S-Pedelec batteries out with household waste. Take them to the appropriate places (such as recycling stations).
**WARNING**

Do not open the charger yourself, and only have it repaired by qualified experts using original spare parts. A damaged charger, cable or connector increases the risk of electric shock.

The charger is only intended to be used indoors. Keep the charger away from rain and moisture. Penetration of water into the charger represents a risk of electric shock. If it happens, immediately unplug the mains connector from the socket and have the charger checked by a dealer. Condensation may form on the charger when the temperature suddenly changes from cold to warm. When this happens, wait about an hour. This is the time a charger needs to reach the temperature of the warm surroundings. Prevent this happening by storing the charger where it is used.

Do not use the charger and battery on materials which can catch fire easily (such as paper and textiles) or within a combustible environment. This also applies when the battery is charged when fitted to the S-Pedelec. In this case, the S-Pedelec must be positioned such that a potential fire cannot spread quickly (exercise caution with carpeted floors). The charger heat generated during the charge process represents a risk of fire. When the temperature is higher than 85 °C, or there is smoke or an unusual smell, immediately unplug the mains connector of the charger from the socket and disconnect the battery from the charger. An overheated battery is damaged and may not be used again. Always stay with the charger when it is in use.

Always place the charger and battery on a flat surface for the charging process. The charger and battery may not be covered during the charging process.

**WARNING**

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

Keep the charger clean. Dirt represents a risk of electric shock.

**PLEASE NOTE**

Do not charge batteries over longer periods if they are already fully charged.

When they are not going to be used for long periods, unplug the mains connector from the socket and disconnect the charger cable from the battery.

### 6.2 Technical details

**Charger 1**

<table>
<thead>
<tr>
<th>Part number</th>
<th>170714001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery voltage</td>
<td>36 V</td>
</tr>
<tr>
<td>AC input voltage</td>
<td>230 – 240 V</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 - 60 Hz</td>
</tr>
<tr>
<td>Max. DC output voltage</td>
<td>42 V</td>
</tr>
<tr>
<td>Max. charge current</td>
<td>4 A</td>
</tr>
<tr>
<td>Power</td>
<td>185 W</td>
</tr>
<tr>
<td>Dimensions (L</td>
<td>W</td>
</tr>
</tbody>
</table>
6.3 Overview and functions

Charger 1

<table>
<thead>
<tr>
<th>Operating temperature</th>
<th>0°C to +40°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended storage temperature</td>
<td>18 to 23°C</td>
</tr>
<tr>
<td>Weight</td>
<td>720 g</td>
</tr>
<tr>
<td>Protection class</td>
<td>Only in dry conditions</td>
</tr>
</tbody>
</table>

Charger 2

<table>
<thead>
<tr>
<th>Part number</th>
<th>170515042</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery voltage</td>
<td>36 V</td>
</tr>
<tr>
<td>AC input voltage</td>
<td>230 – 240 V</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 - 60 Hz</td>
</tr>
<tr>
<td>Max. DC output voltage</td>
<td>42 V</td>
</tr>
<tr>
<td>Max. charge current</td>
<td>4 A</td>
</tr>
<tr>
<td>Power</td>
<td>185 W</td>
</tr>
<tr>
<td>Dimensions (L</td>
<td>W</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to +40°C</td>
</tr>
<tr>
<td>Recommended storage temperature</td>
<td>18 to 23°C</td>
</tr>
<tr>
<td>Weight</td>
<td>753 g</td>
</tr>
<tr>
<td>Protection class</td>
<td>Only in dry conditions</td>
</tr>
</tbody>
</table>
6.3.1 Charging a battery

A battery can stay fitted to the S-Pedelec for the charging process. It can also be removed and charged elsewhere.

Charger 1:

1. Plug the mains connector into a socket
2. Remove the protective cap on the battery
3. Connect the charger cable to the battery (it clicks into place)
4. When the charge process has finished, unplug the charger cable from the power jack of the battery
5. Unplug the connector from the socket
6.3.1.1 Battery display during the charge process

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Charge level</th>
</tr>
</thead>
<tbody>
<tr>
<td>●●●●●</td>
<td>5 LEDs are ON and no LED flashes</td>
<td>100 – 97%</td>
</tr>
<tr>
<td>●●●●●</td>
<td>4 LEDs are ON and the 5th LED flashes</td>
<td>80 – 97%</td>
</tr>
<tr>
<td>●●●●</td>
<td>3 LEDs are ON and the 4th LED flashes</td>
<td>60 – 79%</td>
</tr>
<tr>
<td>●●●</td>
<td>2 LEDs are ON and the 3rd LED flashes</td>
<td>40 – 59%</td>
</tr>
<tr>
<td>●●</td>
<td>1 LED is ON and the 2nd LED flashes</td>
<td>20 – 39%</td>
</tr>
<tr>
<td>●</td>
<td>1 LED flashes</td>
<td>0 – 19%</td>
</tr>
</tbody>
</table>

Charger 2:

1. Plug the mains connector into a socket. The green LED flashes.
2. Remove the protective cap on the battery.
3. Connect the charger cable to the battery. The LED flashes at a constant rate and indicates that the charge process has started.
4. The charger switches off once the battery is fully charged. The green LED lights continually.
5. When the charge process has finished, unplug the charger cable from the power jack of the battery.
6. Unplug the connector from the socket.
6.4 Tips

6.4.1 Cleaning

**CAUTION**

When cleaning, ensure no water enters the charger. If it does, electric shock may result.

Before cleaning the charger (especially when wiping it down), always unplug the mains connector and generally avoid touching the contacts, as this presents a risk of electric shock.

**PLEASE NOTE**

Do not submerge the charger in water. Although the components are sealed off, damage may still result.

Do not use any cleaners which contain alcohol or solvent, or which scour. No coarse sponges or brushes may be used either. They leave scratches and cause the surface to become matt. To clean your charger, it is best to use a soft cloth moistened with water or mild cleaning agent.

1. Unplug the mains connector from the socket
2. Unplug the charger connector from the power jack
3. Clean the casing with a slightly damp, soft cloth
4. If the terminals are dirty, clean them with a dry, soft cloth

6.4.2 Storage

1. Store the charger in a dry, not excessively warm room. The charger should not be exposed to direct sunshine. The recommended storage temperature range is 18 to 23°C.

6.4.3 Disposal

Do not throw the charger out with household waste. Take it to the appropriate places (such as recycling stations).
## 7. Faults

### 7.1 Drive unit, display and easy-reach control

<table>
<thead>
<tr>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display does not light up and has no function</td>
<td>a) Battery in Standby mode</td>
<td>a) Press battery button ⇒ 3.3.1 Switching on the S-Pedelec Page EN-19.</td>
</tr>
<tr>
<td></td>
<td>b) Battery flat or defective</td>
<td>b) Insert a new or fully charged battery ⇒ 6.3.1 Charging a battery Page EN-56.</td>
</tr>
<tr>
<td></td>
<td>c) S-Pedelec is OFF. If the drive unit is not required to deliver power for 20 minutes or so (because the S-Pedelec is stationary for example), the Impulse Evo switches off by itself.</td>
<td>c) Switch on the S-Pedelec ⇒ 3.3.1 Switching on the S-Pedelec Page EN-19.</td>
</tr>
<tr>
<td></td>
<td>d) Battery in Sleep mode</td>
<td>d) Connect the battery to the charger ⇒ 5.2.1.3 Sleep mode Page EN-48.</td>
</tr>
<tr>
<td>No speed display</td>
<td>Spoke magnet has slipped out of position</td>
<td>Check to see whether the spoke magnet has slipped out of position. It should be as close as possible to the sensor on the chain stay (max. 10 mm).</td>
</tr>
<tr>
<td>Speed display incorrect</td>
<td>Incorrect unit set</td>
<td>Check the unit setting (mph or km/h) ⇒ 3.4.2.7 Unit Page EN-28.</td>
</tr>
<tr>
<td></td>
<td>Wheel circumference set incorrectly</td>
<td>Set the correct wheel circumference ⇒ 3.4.2.10 Wheel circumference Page EN-29.</td>
</tr>
<tr>
<td>Motor assist level too weak</td>
<td>Flat battery</td>
<td>Insert a new or fully charged battery ⇒ 6.3.1 Charging a battery Page EN-56.</td>
</tr>
<tr>
<td>Motor runs idly</td>
<td>Gear changing is not set correctly</td>
<td>Check this setting. Contact your cycle dealer.</td>
</tr>
</tbody>
</table>
Motor noise

The reasons for motor noise are diverse - mechanical faults are not always to blame. For example, the following factors can negatively influence noise:

- Excessively high cadence with low load
- Very high power required (when riding uphill for example)
- The shape of the cycle frame
- Chain drive (as opposed to gear hub)

### 7.2 Battery

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐☐☐☐☐</td>
<td>5 LEDs flash quickly</td>
<td>a) Battery is flat and is disabled</td>
<td>a) If the battery is flat, it will work again briefly following a short recovery period, then switch off again. It needs to be charged now. ⇒ 6.3.1 Charging a battery Page EN-56.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) The battery is overloaded</td>
<td>b) If the battery is overloaded, it switches on again after a short recovery and can be used normally</td>
</tr>
<tr>
<td>☐☐☐☐☐</td>
<td>The 1st LED flashes quickly</td>
<td>There is a charge fault</td>
<td>Immediately unplug the charger from the socket. If the problem persists, a new charger is required.</td>
</tr>
<tr>
<td>☐☐☐☐☐</td>
<td>Range seems too short</td>
<td>a) The range depends on:</td>
<td>a) There are many reasons why the range appears too short. Defective components are not always to blame. ⇒ 5.4.1 Range Page EN-50.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Ride profile</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Assist mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Tyre pressure</td>
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<tr>
<td></td>
<td></td>
<td>» Riding style</td>
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<tr>
<td></td>
<td></td>
<td>» Physical condition</td>
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<td></td>
<td></td>
<td>» Overall weight</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>» Outside temperatures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Battery capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» The route selected</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Smartphone charging via display</td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td>Description</td>
<td>Cause</td>
<td>Remedy</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Range seems too short</td>
<td>b) No learn cycle performed</td>
<td><strong>Perform a learn cycle:</strong> You should drain a new, <strong>fully charged</strong> battery once until the assist function stops, and without recharging it in-between. By doing so, the battery &quot;learns&quot; its capacity, and the actual capacity matches the charge level display. Please perform a learn cycle every six months or 5,000 kilometres. If you do not repeat the cycle from time to time, the difference between actual battery capacity and charge level display will become greater and greater.</td>
<td></td>
</tr>
<tr>
<td>Battery key lost</td>
<td>Order another key. We recommend making a note of the key number on the sales receipt/document. This number can be used to order a replacement key. If you no longer have the key number, replacing the lock is the only option. Contact your cycle dealer for this.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Go to website <a href="http://www.trelock.de">www.trelock.de</a></td>
<td><strong>Battery key lost</strong>: Order another key. We recommend making a note of the key number on the sales receipt/document. This number can be used to order a replacement key. If you no longer have the key number, replacing the lock is the only option. Contact your cycle dealer for this.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Select your language</td>
<td><strong>Battery key lost</strong>: Order another key. We recommend making a note of the key number on the sales receipt/document. This number can be used to order a replacement key. If you no longer have the key number, replacing the lock is the only option. Contact your cycle dealer for this.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Select &quot;Services&quot; then &quot;Replacement key&quot;</td>
<td><strong>Battery key lost</strong>: Order another key. We recommend making a note of the key number on the sales receipt/document. This number can be used to order a replacement key. If you no longer have the key number, replacing the lock is the only option. Contact your cycle dealer for this.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Follow the instructions</td>
<td><strong>Battery key lost</strong>: Order another key. We recommend making a note of the key number on the sales receipt/document. This number can be used to order a replacement key. If you no longer have the key number, replacing the lock is the only option. Contact your cycle dealer for this.</td>
<td></td>
</tr>
<tr>
<td>During the charge</td>
<td>High ambient temperatures</td>
<td><strong>During the charge process, the battery heats up to higher than 45˚C</strong>: During the charge process, the battery heats up to higher than 45˚C. Immediately stop the charge process and allow the battery to cool. Then charge the battery in a cooler environment. If the problem persists, contact your cycle dealer (the battery may have to be replaced).</td>
<td></td>
</tr>
<tr>
<td>process, the battery</td>
<td>Battery is damaged</td>
<td><strong>During the charge process, the battery heats up to higher than 45˚C</strong>: During the charge process, the battery heats up to higher than 45˚C. Immediately stop the charge process and allow the battery to cool. Then charge the battery in a cooler environment. If the problem persists, contact your cycle dealer (the battery may have to be replaced).</td>
<td></td>
</tr>
<tr>
<td>heats up to higher than</td>
<td>Battery is damaged</td>
<td><strong>During the charge process, the battery heats up to higher than 45˚C</strong>: During the charge process, the battery heats up to higher than 45˚C. Immediately stop the charge process and allow the battery to cool. Then charge the battery in a cooler environment. If the problem persists, contact your cycle dealer (the battery may have to be replaced).</td>
<td></td>
</tr>
<tr>
<td>45˚C</td>
<td><strong>During the charge process, the battery heats up to higher than 45˚C</strong>: During the charge process, the battery heats up to higher than 45˚C. Immediately stop the charge process and allow the battery to cool. Then charge the battery in a cooler environment. If the problem persists, contact your cycle dealer (the battery may have to be replaced).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The battery does not</td>
<td>Excessively high or low ambient temperature</td>
<td><strong>The battery does not charge</strong>: The battery does not charge. You can charge the battery in temperature range 0˚C to 40˚C.</td>
<td></td>
</tr>
<tr>
<td>charge</td>
<td>Battery is damaged</td>
<td><strong>The battery does not charge</strong>: The battery does not charge. You can charge the battery in temperature range 0˚C to 40˚C.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Battery is damaged</td>
<td><strong>The battery does not charge</strong>: The battery does not charge. You can charge the battery in temperature range 0˚C to 40˚C.</td>
<td></td>
</tr>
<tr>
<td>Battery is damaged</td>
<td>Accident or fall with the S-Pedelec, or battery dropped</td>
<td><strong>Battery is damaged</strong>: <strong>Battery is damaged</strong>: Damaged batteries may not be charged or used in any way. Contact your cycle dealer. The battery may have to be replaced.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Battery is damaged</strong>: <strong>Battery is damaged</strong>: Damaged batteries may not be charged or used in any way. Contact your cycle dealer. The battery may have to be replaced.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Battery is damaged</strong>: <strong>Battery is damaged</strong>: Damaged batteries may not be charged or used in any way. Contact your cycle dealer. The battery may have to be replaced.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 7.3 Chargers

**Charger 1**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charger gets hotter than 85 °C</td>
<td>The charger is defective</td>
<td>Immediately unplug the charger from the socket. If the problem persists, a new charger is required.</td>
</tr>
</tbody>
</table>

**Charger 2**

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>🌡️</td>
<td>The red LED flashes</td>
<td>There is a charge fault</td>
<td>Immediately unplug the charger from the socket. If the problem persists, a new charger is required.</td>
</tr>
</tbody>
</table>

### 7.4 Other

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot pedal has come away from the drive unit</td>
</tr>
<tr>
<td>A hammer may never be used to fit the crank to the shaft. This can damage the pedal force sensor, resulting in malfunction of the electric drive. Have this work carried out by your cycle dealer.</td>
</tr>
</tbody>
</table>
8. Replacing parts on the S-Pedelec

Because your S-Pedelec is a Class L1e moped, registration approval from the TÜV and Federal Office for Motor Vehicles must be sought (as is the case for other motorised vehicles). This approval is in place for the S-Pedelec. During the authorisation process, certain parts for which use on this vehicle is permitted were determined. This means the approval of your S-Pedelec only remains valid when exactly the same parts as the types approved are used. If parts are subsequently modified or replaced, the same specifications as for other motorised vehicles take effect. You may only use replacement parts for which expert reports on approval for your S-Pedelec are in place. Alternatively, you can have individual approvals carried out at the TÜV.

Listed below are the parts of your S-Pedelec you may replace with which specifications.

8.1 Add-on parts which may only be replaced by identical parts or parts with approval

» Frame
» Forks
» Motor unit
» Battery
» Tyres

» Rims
» Brake system
» Front light
» Back light
» License plate holder

8.2 Add-on parts not requiring approval

» Cranks
» Pedals (when type-approved pedal reflectors are used)
» Mudguards (the front edge of the front mudguard must be rounded)
» Pannier rack
» Saddle
» Handle bars
» Gear change components (only when the highest gear ratio is not changed)
» Seat post
» Bell (can be changed for another comparable high-pitch bell)
» Mirrors (can be replaced by other type-approved mirrors)
» Chain
» Headset
» Tubes
» Nubs