



Operating Instructions for your new cycle



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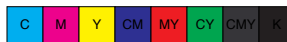
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CROSSWAVE *Elektrobike ED-3 EX*

Pedelec with Lithium-ion battery



Operating instructions

CROSSWAVE ED-3 EX

Bedienungsanleitung CROSSWAVE Elektrobike ED-3 EX

Pedelec mit Lithium-Ionen Batterie

Mode d'emploi de votre CROSSWAVE Elektrobike ED-3 EX

Pedelec avec batterie au lithium-ion

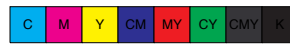
Operating instructions for CROSSWAVE Electro Bicycle ED-3 EX

Pedelec with Lithium-ion battery

Istruzioni d'uso CROSSWAVE Elektro-Bike ED-3 EX

Pedelec con batteria agli ioni di litio





Content

Welcome	100
QUICKSTART	102
Your CROSSWAVE Pedelec and its components	103
Before the first start-up	104
Regular inspections	105
- Inspection schedule	106
Loading the Pedelec / Braking response	106
Proper use of the Pedelec	106
Traffic safety tips	107
Guarantee	107
Wear parts	108
Start-up	110
- Start up of drive battery	110
- Charging the drive battery	113
- Long-term trickle charging	114
Adjustments before a ride	115
- Handle bar and handle bar stem	116
- Brake	117
- Pedals	117
- Lighting system	118
- Handle bar bearing	118
- Spokes	118
- Quick release	119
- Tyres	119
- Rims	120
- Torque specifications	120
Operating the CROSSWAVE Pedelec drive	120
- Recommended method	121
- Display & Funktionen	122
- Pedelec Functions	122

- Twix Grip Throttle / Boost-Button	123
- Bike Computer Functions	123
- Menu INFO	132
- Error Messages in the Display	133

Mileage and its factors	134
--------------------------------------	-----

General operation	135
- Gear	135
- Derailleur	135
- Auxiliary gear with coaster brake hub	135
- Brakes	135
- Coaster brake hub	136
- Hand brake	136
- V-Brake braking	136
- Hydraulic brakes	137
- Roller brakes	137
- Disk brakes	137

Load transportation	137
- Trailer	137
- Front wheel luggage carrier	138
- Rear wheel luggage carrier	138

Servicing instructions	138
- Maintenance of the Pedelec drive	138
- General maintenance instructions	139
- Maintenance in winter	139

Removal of the front wheel	140
Battery return / recycling	141
Technical data	142
Faults / cause / remedy	142



Welcome

PanTerra™ – Intelligent Electric!

Dear Customer,

Thank you for choosing the CROSSWAVE Pedelec – a model with PanTerra™ drive technology! PanTerra offers the technology for an easy, alternative mobility. You will enjoy this modern and eco-friendly mode of travel!

This CROSSWAVE electric bicycle is a so-called Pedelec¹, i.e., the additional electrical drive assists you up to a speed of 25 km/h while you are pedalling. The technical design of CROSSWAVE Pedelec complies with the European standard EN15194 for electric motor-assisted wheels and the European bicycle standard EN 14764. For driving this Pedelec on public roads in Switzerland, you must be at least 16 years old or have a driving license of the M category (motor cycles²). A Velovignette³ will take care of your liability obligation and insurance.

For your own safety, we recommend that you wear a bicycle helmet while riding the bicycle!

This quality product will be a source of joy wherever you go, whether for shopping, to office, for leisure, for picnics or as companion during vacations!

We have taken a lot of care in designing and selecting the components so that you have the right vehicle for joining the enthusiastic group of “electrified” bikers!

If you follow the numerous suggestions compiled in this manual, you can maintain your Pedelec in an optimal condition and ensure your own safety.

As you have purchased this Pedelec from a dealer, it is guaranteed that you have received a fully assembled cycle. In case of any problems or questions associated with repairs, assembly or accessories, you can always count on professional help.

This user manual is valid for different models of CROSSWAVE Pedelec. Frame and gear shift can vary. Hence, consider only those sections that are relevant to your cycle. The technical

¹ The newly created term Pedelec consists of the words pedal, electric and cycle, and denotes a special type of electric cycle that is different from the so-called e-bike, because law stipulates that its additional drive must work simultaneously with the paddle drive.

² Traffic Registration Act (VZV), Version on December 5, 2008

³ Traffic Insurance Act (VV), Version on January 1, 2009



Pedelec with Lithium-ion battery



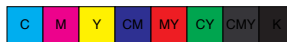
CAUTION! In the Operating Instructions, you find this sign wherever your safety is concerned. Please inform other users of your cycle about the safety instructions as well!

design of CROSSWAVE Pedelec complies with the upcoming European standard EN15194 for electric motor assisted cycles and with the statutory safety specifications, especially the European bicycle standard DIN-EN 14764.

Get ready to be electrified!

Your CROSSWAVE Team

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Quick start

Even though you might be eager to use your newly purchased CROSSWAVE Pedelec immediately, we request you to observe the following steps without fail before taking your first ride. PanTerra™ will not accept any guarantee obligations otherwise!

- 1) Remove all the protective foils from the battery. Please check the current charging status of your battery by pressing the key on the LED display (refer to Page 14). The CROSSWAVE Pedelec is powered by a Lithium-ion battery.
Now charge the battery fully first! Please use the original PanTerra™ Lithium-ion charging device only. Then insert the battery in the luggage carrier holder and secure the lock (refer to Page 14).
- 2) Adjust the handle bar and seat; check to ensure that the drive and brakes function and that all screws, especially the wheel nuts are properly fixed (refer to Page 17).
- 3) Switch the system on at the left of the handle bar: Press the switch to "I" on the control unit. The CROSSWAVE Pedelec is now ready for a ride. **The electronic circuit however is deactivated after approx. 8 min of inactivity in order to save energy!** If this happens, switch off and then on again.
- 4) By activating the four-mode panel, the energy-saving modes 1–3 can be selected via the Assist button.

- 5) Start pedalling. The motor is activated after a half-rotation of the pedals.
- 6) **If you are riding this bicycle for the first time, please try out the available operation modes in low-traffic areas.**
- 7) The available operation modes are 1, 2, 3 and 4. The modes 1–3 restrict the max. operational power level. This facilitates an increase in operating distance.
- 8) At the end of the ride, shut off the system by pressing the "ON/OFF" button (L.)
- 9) **The CROSSWAVE Pedelec will take you home even on an empty battery like an ordinary cycle.** The battery electronics prevents an excessive discharge of the battery.
- 10) **Recharge the fully empty Lithium-ion battery after completing the ride.** If the Lithium-ion battery is only partially empty, continue to use it for subsequent rides till the battery is completely empty.
- 11) If you do not use the battery for more than 6 month, recharge it fully.

Enjoy your drive on the CROSSWAVE Pedelec!

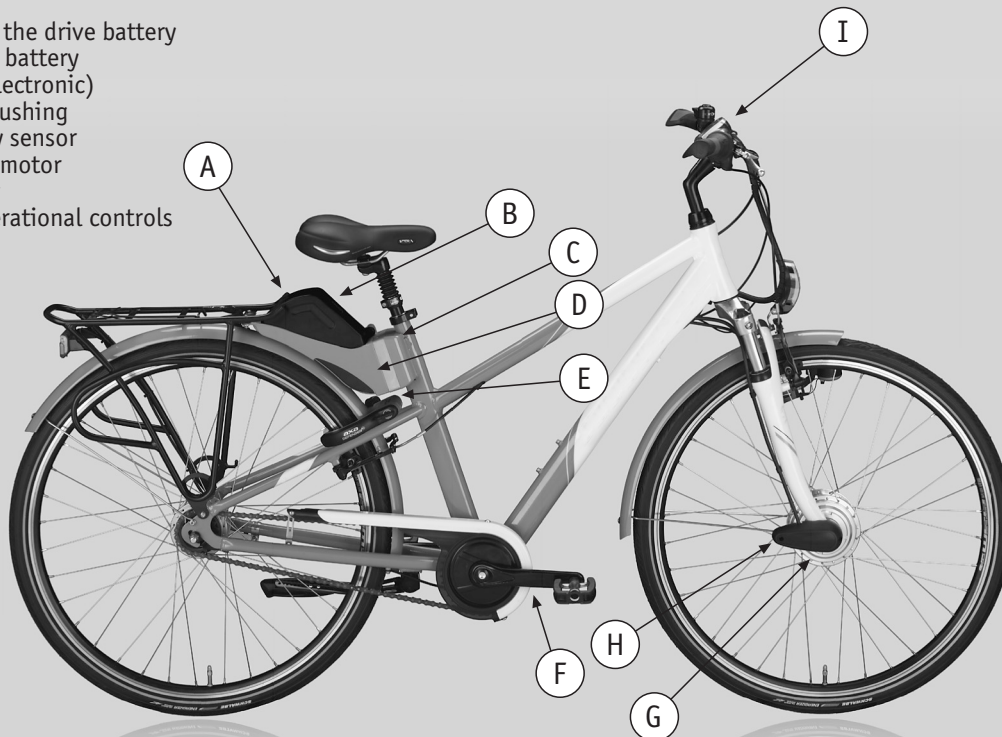


Pedelec with Lithium-ion battery

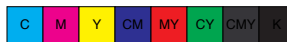
Your CROSSWAVE Pedelec and its components

Figure 1

- (A) Drive battery
- (B) Status display of the drive battery
- (C) Lock of the drive battery
- (D) Motor control (electronic)
- (E) Charging input bushing
- (F) Crank with rotary sensor
- (G) Front wheel hub motor
- (H) Motor plug cover
- (I) Handlebars: operational controls (panel)



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Before the first start-up

Specifications

Brakes: A cycle must have at least two brakes that function independently of each other.

Bell: A clear sounding bell is mandatory.

Lights: Both bulbs must function simultaneously. The centre of the light beam of the front bulb should fall on the road at a maximum of 10 m ahead of the cycle. The rear light must be mounted at a height of minimum 25 cm above the road surface.

Reflectors: A white reflector with a large surface area at the front that can be combined with the headlight. In the rear, at least one red reflector should be installed. Optionally, the rear light can be combined with a spot light. Two yellow pedal reflectors per pedal – one towards the front and one to the rear! A parking light or a battery light can be installed additionally.

Special rules for sports cycles

The following special rules are applicable for racing and mountain bikes: Headlights and taillights can be battery-operated. They need not be mounted permanently on the cycle, but must be used when the light conditions so demand. Nevertheless, sports bicycles must have reflectors. The provisions are not applicable to official tournaments, provided these take place on cordoned off roads.



Warning Note: Carry out repairs, servicing or adjustments on your bicycle only if you have the requisite knowledge and tools! For your safety, please assign all repair jobs on your bicycle to a specialized workshop or to the Service Department in case of doubt. Components that are bent or damaged due to accidents or improper handling must be replaced immediately to avoid the risk of breakage – e.g., frame, fork, handle bar, handle bar stem, seat support, pedals or crank arms.

Info:

Ride very carefully in wet conditions. The braking distance increases if the road is slippery. Under wet conditions, the braking distance is two or three times as long. Adjust your manner of driving to the changed conditions. Ride slower and apply the brakes early.

Switch the lights on under unfavourable conditions of visibility such as fog, rain, twilight and darkness.

If you leave the public roads, drive only on lanes and never on open ground. Adjust your speed according to your riding abilities. Wear tight fitting trousers or use trouser clamps. Wear a helmet for your own safety. Bright, conspicuous clothing is better seen under bad visibility conditions.

Do not ride with your hands off the handle bar – risk of accident and fall.



Pedelec with Lithium-ion battery

Before the first start-up:

Your cycle was tested several times during manufacture and subjected to a final control. Since during transportation of the cycle the settings can change, please check the following without fail before each ride:

Info:

- Proper mounting of the wheels and quick release levers.
- The minimum insertion depth of handle bar stem and seat support and their mounting.
- Effectiveness and adjustment of the brakes.
- Adjustment and bolting of the spring components.
- Function of the gear and the lights.
- Safe seat of all screws, nuts and the pedals.
- The air pressure and the profile depth of the tyres.

Regular inspections

Check periodically, e.g., **after 300–500 km** or every 3–6 months, depending on the intensity of use of the cycle to ensure that all screws, nuts and the quick release are fixed properly. Check or service for the first time after approximately 100 km. Checks or servicing is thereafter necessary at regular intervals. The indicated amount of kilometres gives only a rough orientation. You have to take into account the use pattern and the number of kilometres driven in rain. In addition to the jobs that you undertake during the regular inspection, please

- Clean cycle and oil moveable components.
- Treat paint rub-offs and rusted areas.
- Apply protective coating on metal parts.
- Replace non-functional or damaged parts.



IMPORTANT NOTE: Caution! To be able to undertake all the jobs on your cycle on your own, you will need some experience, suitable tools and skills. While tightening the screws, please pay attention to the correct tightening torques. These are given on Page 22 of this Operating Instructions or in the instructions of the component manufacturers. Difficult and safety-related jobs are better to be done by an expert.

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When?	Servicing / check	Action
After approximately 100 km and subsequently at least 1x per annum	Check the tightening torque of screws, cranks, pedals, handle bar, seat support and seat. Adjustment of gear, control set, spring elements and brakes. Check the wheels and tyres	Customer Service, Service Department or specialized workshop
After every ride	Check the rims, spokes, tyres, bell, brakes, quick release, lights and the function of the gear and springs	Check the rims for concentricity and wear marks. Check tyres for foreign bodies
Regularly after 300–500 km	Check the cranks, sprocket wheel and pinion. Check chain wear and tear, stability of all screws, wear indication on the rim	Clean and apply chain grease
After 1000 km	Back pedal brake, VR-HR hubs	Dismantle, clean and apply grease. Check brake jacket, replace if necessary
After 3000 km	Control set, pedals, hubs, brake and control wires*)	Let Service check, dismantle, clean, lubricate and replace if necessary
After rain	Chain, brake, wiring	Clean, lubricate

* Do not oil Teflon coated cable jackets!

Loading the Pedelec

- The permissible total load (rider and luggage) on the CROSSWAVE Pedelec is 120kg.
- The permissible load of the luggage carrier is mentioned on the luggage carrier.
- If your cycle is equipped with a front basket, the additional load allowed here is 5kg.

Braking response

- Use the front wheel brake carefully on wet, sandy and slippery roads, wet asphalt and ice, to keep the front wheel from skidding and to retain the Pedelec under control!
- The brakes must be used with care. Blocked wheels have a reduced braking effect and can lead to loss of balance and fall!
- As a matter of principle, do not apply the brakes in curves but before them; braking increases the risk of skidding!
- The braking lever mounted on the handle bar must always be tight. Check regularly to ensure that they are not loose, and tighten if necessary.
- Work on the brake system should be entrusted exclusively to the dealer!

Proper use of the Pedelec:

Your Pedelec has been designed and equipped like a bicycle for the use on public roads and paved lanes. Please bear this in mind when using the Pedelec under off-road conditions and in case of overloading and improper rectification of faults.



Pedelec with Lithium-ion battery

Caution! Traffic safety tips:

- > Always observe the traffic rules.
- > Drive carefully. Do not endanger or provoke other vehicle drivers.
- > Switch the lights on early if it is getting dark.
- > Cycling is prohibited on the highways. Danger to life!
- > Keep sufficient distance from automobiles in front; these normally have a shorter braking distance.
- > Wear bright clothes so that you are detected early.
- > Always wear a helmet.
- > Ensure that your cycle is always in roadworthy condition.
- > Children below 6 years should always use the footpath. Children must always climb down from the cycle before crossing a traffic lane. For reasons of safety, the rider must avoid listening to music with headphones in the midst of vehicular traffic.

Caution! Learn the traffic rules before venturing out onto busy roads. Learn to anticipate the errors of other drivers!

- > Please ride only on the designated lanes and roads, not over meadows and fields or across forests.
- > Never ride the bicycle through water.
- > Pay attention to pedestrians and hikers; your hands should be ready to apply the brakes at blind curves/corners and while riding downhill, pay attention to your speed and do not leave any skid marks.

Caution! Riding in the open fields requires a lot of skill, good fitness and high concentration. Start with easy tours and increase your difficulty level gradually.

Guarantee

1) Guarantee: Your decision to buy a cycle from our company entitles you to own a top quality product. Migros gives you a guarantee of 2 years.

2) The guarantee does not cover the following:

- All damages attributable to improper use and application of force (refer to information about proper use of the Pedelec).
- Components of the cycle that are subject to use-related wear and tear, unless there are production faults or material defects. (Refer to list of possible wear parts on Page 12).
- Damages to the cycle attributable to improper or faulty maintenance and to unprofessionally executed repairs, alterations or replacement of parts. Detailed servicing or maintenance instructions are given in this Operating Instructions.
- Accident damages or other such unusual external effects, unless these are attributable to improper information or product faults.
- Repairs made with used parts or damages ensuing there of.
- Damages on account of use of the product in competitions. (Refer to information about proper use of the Pedelec according to manufacturer instructions).
- For subsequent attachments that were not a part of the delivery scope of the product on the hand over date, or damages that occur on account of unprofessional assembly of these attachments.

Info: For valid warranty claims, the buyer must present the original purchase receipt to the vendor.

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Parts subjected to regular wear and tear

Please note: List of parts subjected to regular wear and tear

- 1) Tyres
- 2) Rim in connection with rim brake
- 3) Brake jackets
- 4) Chain and drive belt
- 5) Sprockets, pinions, inner bearings and transmission rollers
- 6) Bulbs and lighting system
- 7) Handle bar tapes / handle covers
- 8) Hydraulic oils and lubricants
- 9) Gear and brake jackets
- 10) Paint

1) Tyres

The cycle tyres are subject to use related wear and tear. The extend depends on the use of the cycle and can be influenced to a great deal by the rider. Sharp braking that leads to the blocking of the tyre reduces the life of the tyre significantly. Moreover, the air pressure should be checked regularly and if necessary, increased to the value specified by the tyre manufacturer. Excessive exposure to the sun, petrol, oils etc. can damage the tyres.

2) Rims in connection with rim brakes

Not only the brake pad but also the rim is subjected to use related wear on account of the interaction between the rim brake and the rim. Hence, the rim should be checked at regular intervals for wear and tear. The occurrence of fine cracks or deformation of the rim horns when increasing the air pressure indicates heavy wear and tear. Rims with wear indicators enable the rider to detect the wear condition of the rim easily.

3) Brake pads

The brake pads for rim brakes, drum brakes and disk brakes are subject to use related wear and tear. This depends on the use of the cycle. Riding the cycle in rough or hilly terrain or using it for sports activities can necessitate the replacement of the brake pads at shorter intervals. Check the wear condition of the covers and let your service partner replace them.

4) Chains and drive belts

The cycle chain is subject of use related wear and tear. The extent of the wear depends on the servicing and maintenance and the type of use of the cycle (mileage, riding in rain, dirt and pollution, salt etc.). Regular cleaning and oiling can increase the life, but replacement is necessary on reaching the wear limit (approximately 2000–3000 km).



Pedelec with Lithium-ion battery

5) Sprockets, pinions, inner bearings and transmission rollers

In cycles with derailleur, the pinion, sprockets, inner bearings and transmission rollers are subject to use related wear and tear. Regular cleaning and lubrication can increase their life, but replacement is necessary on reaching the wear limit. The extent of wear depends on maintenance, servicing, the type of use of the cycle (mileage, riding in the rain, dirt and pollution, salt etc.).

6) Bulbs of the lighting system

Light bulbs and other lamps are subject to use related wear. Hence, replacement may be necessary. The user must always carry spare light bulbs to enable timely replacement.

7) Handle bar tapes and handle covers

Handle bar tapes and handle covers are subject to use related wear. Replacement may be necessary regularly for this reason. Ensure that the handles are connected tightly to the handle bar.

8) Hydraulic oils and lubricants

Hydraulic oils lose their efficacy in the course of time. All lubrication points should be cleaned regularly and re-lubricated. Non replaced lubricants increase the wear in the attached parts and bearings.

9) Cable and brake housing

All Bowden housings must be serviced regularly and replaced if necessary. This can be the case especially if the cycle is placed in the open frequently and is exposed to weather influences.

10) Paintwork

Paintwork requires regular maintenance. Check all painted surfaces regularly for damages and rectify them immediately. This will also preserve the good look of your cycle.



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Start-up of the CROSSWAVE Pedelec

The following chapters of the user manual of the CROSSWAVE Pedelec presume that all basic ergonomic settings and necessary safety checks of your bike have already been done:

- Handle bar and seat have been brought to the desired position and tightened appropriately.
- The wheels have sufficient tyre pressure and their axle nuts have been tightened too.
- The function of the brakes and pedal drive has been checked.
- The lighting system is functioning.

For more information refer to the Chapter **“Adjustments before ride”**.

Start-up of the drive battery:

Now take the drive battery out of the holder in the luggage carrier of the CROSSWAVE Pedelec. Remove any protective foils – especially the ones on the electrical contacts located at the lower end.



Now check the charging state of the battery by pressing the key on the LED-charging status display. If less than two LEDs or no LED lights up, the battery may be damaged. In this case please contact your dealer.



Pedelec with Lithium-ion battery

Check the charging status of the battery. To do this, press the knob at the LED display on the top side of the battery. Refer to Figure 2




Figure 2

If all the 5 LEDs do not light up, PanTerra™ recommends that you first charge the battery fully.

To do this, connect the drive battery to the charging device included in the scope of delivery. Refer to the Chapter **“Charging the drive battery”** on Page 113.



Lithium-ion batteries get self-discharged much slower than Nickel batteries and can therefore be stored for approximately 6 months without recharging. However, if the battery is not recharged after this period, the chemical structure can be damaged, which affects the performance of the battery considerably and can make it unusable.

The compartment for the battery-fuse is located on the side. (cover with symbol ).

Slide the battery into the support slot on the Pedelec as demonstrated in Graphic 4 and 5. Ensure that the contact pins, which are fixed into the support slot, slide smoothly into the connectors of the battery.

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The battery should now be firmly positioned in the support slot as demonstrated in Graphic 3. The push cylinder lock should be cleanly locked into the battery housing.



Figure 3



Figure 4

Locking the battery ensures that it is firmly held so that damage caused through vibration is prevented; thereby guaranteeing that optimal electrical contact is maintained between the battery and the electronics of the Pedelec.



The key can be removed in both the locked and unlocked position! PanTerra™ recommends that the key is always removed!

This ensures that neither can the lock accidentally open by itself with the battery falling out nor can the key be lost.

**The CROSSWAVE Pedelec
is now ready to go!**



Pedelec with Lithium-ion battery

Charging and care of the battery

The ED-3 EX Pedelec operates with a 37V 8.8Ah lithium-ion battery. PanTerra™ uses top-quality cells which are combined into a 37V cell pack. In addition, the battery also contains an electronic protection system which prevents deep discharging and overcharging.

Avoid storing a completely empty battery over several weeks.

Always use the high-quality lithium-ion charger supplied (Graphic 6) or the corresponding original PanTerra™ replacement part for charging your battery. The original charger operates using CC-CV⁴ technology. In conjunction with the battery's electronic protection system, the possibility of any damage occurring to the battery at any time can therefore be ruled out as can any possibility of overcharging through an incorrect charging current.

The charger is for indoor use only! Please read the charger manual attached prior to initial use.

Remove the charger (Graphic 6) from the box, loosen the bundle of cables and connect it to the multi-pole charging socket located on the side of the battery. A rubber cover protects it from spray.

The battery can also be charged on the bicycle.

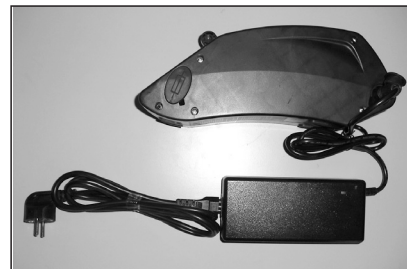


Figure 5



Figure 6

Connect the charger to the mains socket using the mains cable supplied. The LED of the charger changes from green to red. Charging begins.

⁴ CC-CV = Constant Current – Constant Voltage: Controlled current strength is first used to charge quickly and the battery voltage increases. On approaching the maximum capacity, the current strength is reduced and the remaining capacity is filled only with exact maximum specified voltage.



If the battery pack is nearly full (95 %), the LED changes from red to yellow. The first phase of charging has been completed. The battery pack can be taken out of the charger at any time. A full charge can require up to nine hours (CC-CV charging means that after 5.5 hours, approximately 95 % of the charge has been completed. It can be estimated that a further four hours are still required for the remaining 5 % capacity in the slow CV-mode).

Charging device LED	Mode
Steady green light	Charging completed/no battery
Steady red light	Normal charging (CC) 0-95%
Flashing green	normal Charging (CV) 95-100%
Flashing green	Charging completed



Danger of short circuit! Ensure that no metallic objects come close to the battery contacts and the charging plug.

The battery should not be charged at very high and very low temperatures (below -10 °C and above +40 °C). We recommend that the cycle should not be exposed to bright sunlight during charging.

Long-term trickle charging:

Lithium-ion batteries do not receive any long-time trickle charging. Their self discharge is too low and the associated charging devices therefore are not designed for it.

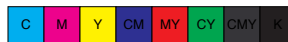
It is therefore not recommended to connect the battery to the charging device continuously over a prolonged period of absence especially in winter. The safety electronic circuit in the battery will prevent any damage, but the charging device would be working all the time.



Electrical devices should not be connected to the mains over long periods without supervision. Hence, you should pull out the power plug from the mains socket during vacations or during long periods of absence.

Tip:

If you do not use the Pedelec for long intervals, please recharge the Lithium-ion battery once every six months. Pull out the fuse from the battery during storage to rule out consumption of electricity (very little) by the protective electronic circuit itself. Of course, you must reinsert this fuse before charging again.



Adjustments before a ride

Check the following before each ride

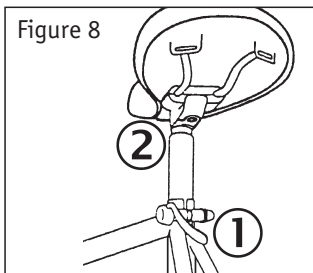
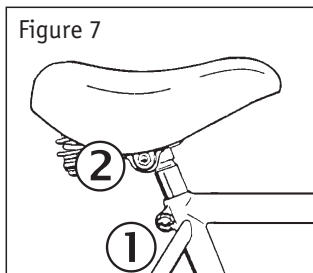
- All screws, wheel nuts or quick release are tight
- The brakes function
- The air pressure of the tyres is sufficient
- The lighting system is intact
- The bell is OK.

Seat and handle bar:

You bicycle is assembled by the dealer and is in a road-worthy condition. The handle bar and seat position is adjusted to your height. While adjusting the seat and handle bar height, pay attention to the minimum insertion depth marked on the handle stem shaft and seat support. Never pull out the handle bar or seat above the marking!

Seat:

The seat can be adjusted in three directions: height, inclination and distance from handle bar (Figures 7, 8):



Height:

- Loosen the seat clamping bolts (Figure 7 Pos. 1) or quick release (Figure 8 Pos. 1)
- Move the seat support in or out
- Tighten the clamp after making the adjustment.

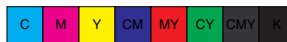
You have adjusted the seat height according to your body size, so that, while sitting on the seat, the tips of your toes touch the ground on both sides.



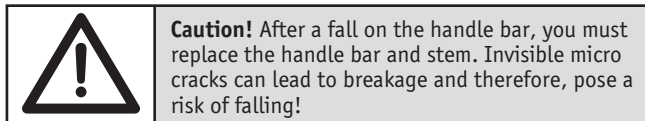
Caution! The seat support must remain clamped at least up to the mark. Otherwise it might break, leading to a fall! Leather seats can discolour clothes when used initially under wet conditions. Frequent re-adjustments of the seat can leave permanent scratches on the surface of the seat support due to the mechanical action. These damages fall under normal wear and tear, and do not constitute a case of materials defect liability.

Inclination of the seat and distance from handle bar (Figures 7, 8):

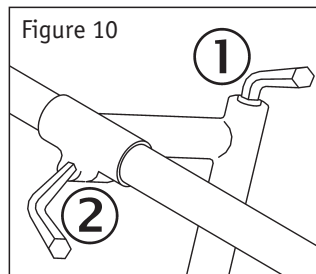
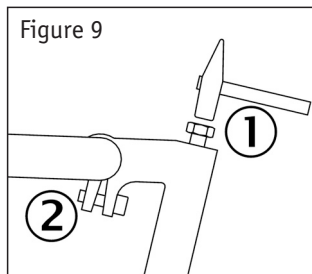
- Loosen the nut of seat piston or inner hexagon bolt (2)
- Move seat forward or backward
- Incline the seat
- Tighten the nut or inner hexagon bolt



Handle bar and handle bar stem

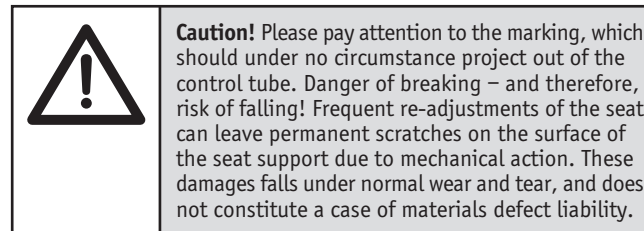


The handle bar can be adjusted as follows (Figures 9, 10):



Adjusting height:

- Loosen the nut or inner hexagon bolt of the expander bolt (Figure 9, 10, pos.1)
- Loosen the bolt with a gentle hammer blow and adjust the correct handle bar height.
- Tighten the expander bolt finally.

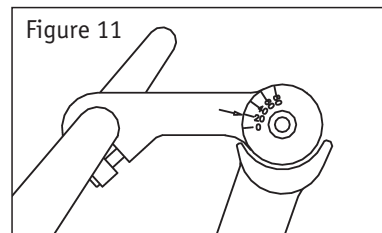


Adjusting the inclination of the handle bar:

- Loosing the joint (Figure 9, 10, pos. 2)
- Rotate to the correct position
- Tighten the joint

Angular adjustment of handle bar stem:

This stem offers more flexibility in adjusting the handle bar position:



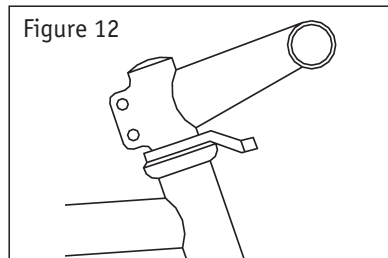
Adjustment:

- Loosen the screw joint.
- Rotate the handle bar to the desired position.
- Tighten the screw joint.



Pedelec with Lithium-ion battery

“Front-stem”



Brake

The brake system must be checked before each ride. Only the dealer should be entrusted with the job of adjusting the brakes.

Readjustment of the brakes is required when you observe an increasing idle travel of the hand brake lever. The same comes closer and closer to the handle bar grip due to the wear and tear of the brake rubber (shoe). Regular readjustment is necessary.

The brake rubbers are parts subjected to wear and tear and they do not constitute a materials defect liability.

Rear wheel back pedal brake

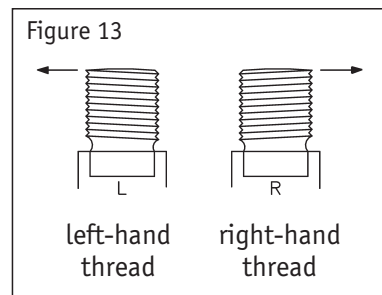
This brake cannot be adjusted. Please note that the brake becomes ineffective the moment the chain is damaged or comes off.

Pedals

The pedals must be fixed tightly at all times. During assembly and dismantling, please keep in mind that the pedals have two types of threads. The threads on the pedals and the treadle are exposed to strong forces. They hold only if the pedals are screwed tightly.

The right pedal (chain side) is marked with R at the axle end and has right-hand threads.

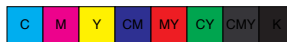
The left pedal is marked with L at the axle end and has left-hand threads.



The right pedal must therefore be screwed in the clockwise direction, while the left pedal must be screwed in the opposite direction.

Foot pedals

The foot pedals are mounted with hexagon bolts on the square attachments of the bottom bracket axle. The stable hub of the foot pedal must be checked regularly. Remove the safety caps and tighten the screws located below them.



Lighting system

The CROSSWAVE Pedelec is equipped with a lighting system that draws power from the drive battery. It is switched on and off via a switch on the front headlight (Figure 14). An electronic circuit in the headlight converts the 25V of the drive battery into 6V for the light.

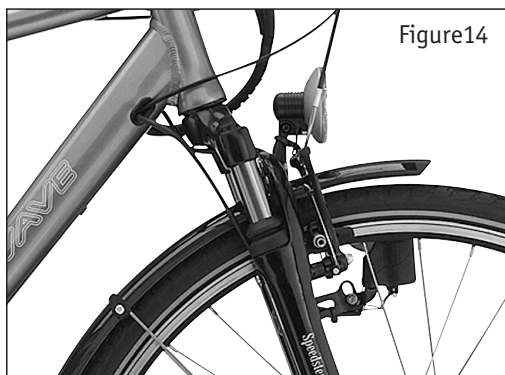


Figure 14

As the power requirement of the bicycle lighting is very low, a light left on would last about 2-3 days. Moreover, the protective electronic circuit prevents a depth discharge of the battery if the light remains switched on inadvertently.



Caution! Nevertheless, always switch the light off while parking the Pedelec else you might suddenly find the battery empty.

Handle bar bearing

Check:

- Apply the brake for the front wheel and move the cycle forward and backward.

If there is too much tolerance due to wear and tear, the bearing must be adjusted without delay.

The adjustment should be done by a specialized workshop.

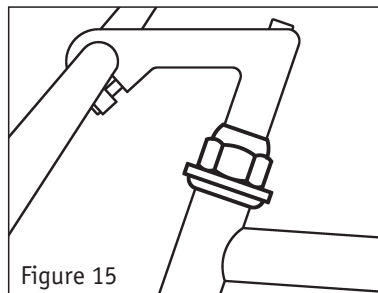


Figure 15

Spokes

The spokes expand and become loose in course of time. They must be centred regularly according to the degree of use.

The centring of the wheel and tightening of the spokes should be entrusted to a specialized workshop. A uniform and proper tightening of the spokes is necessary for a uniform rotation of the wheels. Loose spokes, non-uniform spanning or overload may lead to broken spokes.



Pedelec with Lithium-ion battery

Quick release

Quick release is found at the front and rear wheels as well as at the seat tube clamp, depending on the model.

Before going on a ride, check that the quick release is closed and fixed. If the front wheel clamp gets loose when you apply the brakes, stop right away and tighten the quick release.

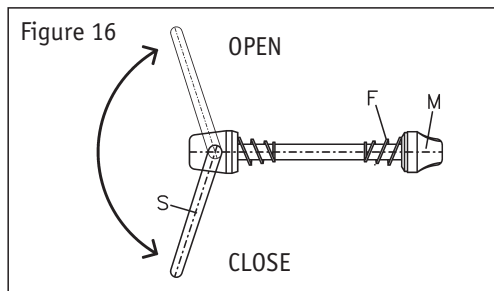


Caution!

A loose wheel, especially a loose front wheel poses maximum risk of falling!

The quick release lever has two positions, **CLOSE** and **OPEN**.

First adjust the tightness with the nut M. Then press the lever with a little force to the position **CLOSE**.

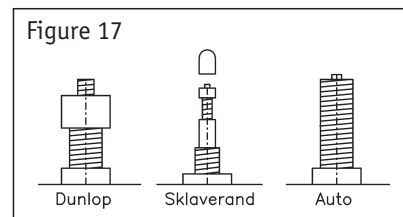


Tyres and rims

The maximum permissible tyre pressure is specified on the outer side of the tyre. Do not ride the cycle with too little air (wheel skims) or too much air (tube explodes). Wrong air pressure or flat tyres lead to increased wear and tear even if the bicycle is not used. Our recommendation:

Tyre size	Air pressure (bar)	
	Front	Rear
47-559 (26"x1,75x2)	2,5	3,0
50-559 (26"x1,90)	2,0	2,5
52-559 (26"x2,25x2)	2,0	2,5
57-559 (26"x2,125)	2,0	2,5
37-622 (28"x1 3/8x1 5/8)	3,5	4,0
40-622 (28"x1 3/8)	3,0	3,5
47-622 (28"x1,75x2)	2,5	3,0
50-622 (28"x1,90)	2,5	3,0

There are 3 valve systems for cycle tubes:



Please note that in case of Sklaverand valves, you must first remove the dust cap and loosen the knurled screw to pump or vent air. Always make sure that the tyres have sufficient profile and an undamaged body.



Rims



CAUTION against rim wear!

Check the condition of your rims regularly. Please contact your dealer in time.

RISK OF FALL AND ACCIDENT!

Rim wear indicator:

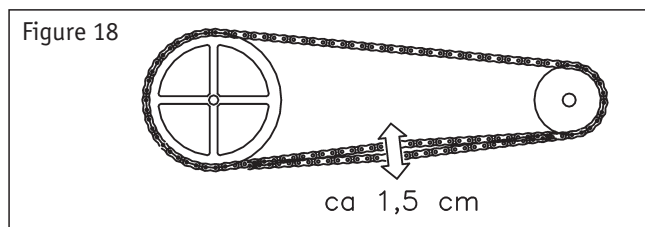
Many aluminium rims are equipped with a wear indicator.

Request your dealer to provide detailed information.

Chain tensioning

Ensure that the chain is tensioned correctly; it is the most important part of the drive module. A regular check is necessary since the chain stretches in course of time. If necessary get the chain re-tensioned by the dealer.

As shown in Figure 18, it should be possible to slightly move the chain up and down by approximately 1.5 cm at the centre of the two sprockets.



Torque specifications

Axle nuts of front wheel	20 Nm
Axle nuts of rear wheel	25 Nm
Foot pedal mounting	30 Nm
Brake pad mounting	5 Nm
Dynamo mounting	10 Nm
Other screws:	
M4	2,1 Nm
M5	4,2 Nm
M6	7,3 Nm
M8	17 Nm
M10	34 Nm

Operation of the Pedelec Drive

For operation of the bike's functions, please refer to Page 135 "General operation".

The LCD instrument display to control the electrical auxiliary actuator (Fig. 20) is located in the middle of the handlebars. The ED-3EX Pedelec can be switched on and off using this panel and the desired operation mode activated. The current status of the battery, i.e. the remaining capacity, can be seen in a five-stage LCD display on the right-hand side. The "consumption display" is found on the left-hand side. The number of bars indicates whether you are using the best consumption level. In addition, speed and a clock are also displayed together with basic bike computer displays.



Pedelec with Lithium-ion battery

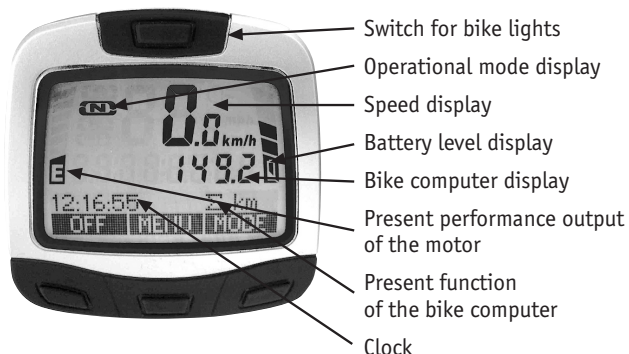


Figure 19 – LCD Instrument Display

Press and hold any of the four buttons on the display to switch on the system. A graphic similar to Fig 21 will appear. With the mode button on the right-hand side, you have the option of selecting the assistance level.

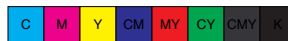
The auxiliary actuator is automatically activated upon a half-turn of the pedal. This means that the ED-3EX Pedelec exactly conforms to future European standards for this type of vehicle. The ED-3EX system has a “start assist” which is activated by a twist grip or pressing a “Boost” button.

Recommended Mode of Operation

After switching the system on, select the operating mode and set the ED-3EX Pedelec in motion by pedalling. On gentle slopes, it is helpful to push the Pedelec slightly forward using the feet so that the motor does not have to develop the propulsive power from nil. Otherwise, the Pedelec uses a high amount of power and cannot develop much drive at speeds between 0 – 3 km/h.

In the interests of operational distance, you should pedal as much as possible under all driving conditions since the operational distance lies well below the system’s capabilities when using mainly motor power.

The activated ECO mode limits the maximum operational power level and saves the capacity of the battery. You will only notice the reduced assistance when going uphill and during acceleration.



Display & Functions



Warning!

Do not allow yourself to be distracted! If possible, do not operate the Pedelec display whilst driving! Risk of falling!

Your ED-3EX Pedelec has been equipped with a new Multi-Info-Display to provide you with the utmost comfort, (Fig 21). It comprises the operating functions of the motor, a complete bike computer as well as the switch for the lighting supported by the cycling battery. This lighting conforms to StVZO (German Road Traffic Licensing Regulations) since your bicycle is fitted with a dynamo so that lighting is available without using battery power. Both power sources can be operated simultaneously; the more powerful source will be supported.



Warning! Your ED-3X has a battery-powered lighting supply. The dynamo is compulsory according to the StVZO regulations and may not be dismantled!

Pedelec Functions

Switch on the bicycle by using any one of the lower buttons. The display should now appear similar to Fig 21.



Figure 21

Each of the lower buttons is assigned to the functions with a black background in the display above it. By using the Mode button on the right-hand side, you can select the correct operating mode required.

E = Eco lowest assistance level to attain the highest possible operating distance

N = Normal normal “everyday level”, balanced assistance with moderate consumption

S = highest level with the highest consumption



Pedelec with Lithium-ion battery

Press down and hold the Mode button for longer to reach the OFF mode. This turns off the Pedelec system, the display and lighting remain switched on. By pressing the Mode button you will return to the ECO operating level and the bicycle will be assisted again.

Twist-Grip Throttle or “Boost” Button

with the twist-grip throttle or “Boost” button, where applicable, you have the option of using starting or pushing assistance. The bicycle accelerates to 6 km/h without pedalling. Furthermore, you can use a “Boost” function. If you operate the twist grip or the button, the assistance is switched into the highest level for a short time. You then have the full drive performance available should an unexpected situation occur. By releasing the twist grip or the button, the ED-3EX returns to the previous operating mode.

Bicycle Computer Functions

using the middle “Menu button” scrolls between the various computer settings. The present function set is displayed as a symbol. The following symbols correspond to:

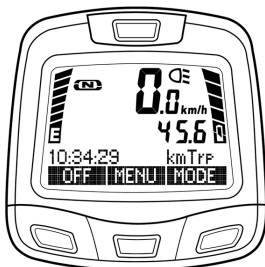
– Total kilometres (Σ km)



Adds the number of kilometres cycled. This display can be edited in the sub-menu, for example, you can add the number of kilometres cycled from a previous bicycle.



– Trip (km Trp)



Adds the number of kilometres per tour. By pressing the “CLEAR” button, you can delete the display or reset it to 0.

– Trip (▲ km/h Trp) Top speed km/h Trip



Shows the highest speed reached since last cleared.

– Trip (∅ km/h Trp) average km/h Trip

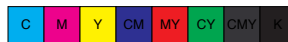


Details of the average speed during the tour. By pressing the “CLEAR” button, you can delete the display or set it back to 0.

– Trip travelling time (⌚ h:m:s Trp)

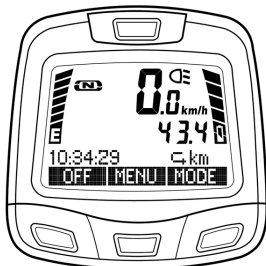


adds the travelling time taken since the bicycle has been in motion. Stopping at traffic lights, for example, is not calculated as travelling time.



Pedelec with Lithium-ion battery

– Operating distance



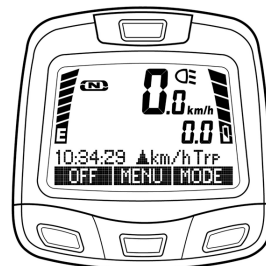
Details concerning operating distance are continuously calculated allowing for the operating level and the individual mode of operation. Jumps in the display are possible by changing the assistance level, changes in geography or also through changes in your mode of operation. As a general rule, the display adjusts itself to the bike's settings and your mode of operation. This calculation is performed for all modes of operation separately.

Immediately after scrolling to the Trip Display in the Main Menu Display, there is a two-second option of deleting the stored trip data using the "CLEAR" button.

Example: Resetting from the Trip Top Speed display: reset by pressing the "CLEAR" button



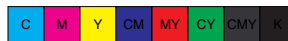
reset by pressing the "CLEAR" button



Second level

You can enter the second level by pressing and holding down the "MENU" button for longer. The following functions available here are:

- **Stopwatch (CHR)**
- **SETUP**
- **INFO**



You can navigate to the next function by pressing the “NEXT” button. Confirm the desired function using the “ENTER” button.



By pressing “STOP” the stopwatch is stopped; by re-pressing “START” the clock continues running.

Stopwatch

By using the “ENTER” button, operation of the stopwatch can be reached:



The stopwatch is started by pressing “START”.



By pressing down and holding the “START” button for longer, the stopwatch can be reset and the display reads 00:00:00 once more.

Leave the stopwatch menu by pressing “EXIT”. If the clock is running in the background, it is possible to return back to this again by pressing and holding down the “MENU” button for longer and then the “ENTER” button.




Pedelec with Lithium-ion battery

Setup Functions

- Total kilometres
- Time
- PIN
- Wheel (wheel circumference)
- LIGHT (brightness of background lighting)
- T-OUT (Menu Timeout)
- ASSIST (Assistant)





The SETUP menu is entered using the “ENTER” button. This can be seen by the  symbol.



Following confirmation using the “ENTER” button, the total number of kilometres can be edited or other functions called up by pressing the “NEXT” button.



The total number of kilometres can be altered by pressing the “ENTER” button. The last number by the km flashes – Alter using arrow button (up)  By pressing the arrow button (left)  you can navigate one step to the left (the number to be changed flashes) – the individual places can each be altered in this way. Once the desired number of kilometres has been entered, press the “EXIT” button. “SAVE” / “CANC” appears in the editing window.

GB



Operating instructions

CROSSWAVE ED-3 EX



Confirm changes by pressing the "SAVE" button or cancel them using the "CANCEL" button.

Once the correct time has been entered, press the EXIT button to reach the "SAVE / CANCEL Mode" (procedure as described under 8.2.3.2 Total Kilometres).

Time



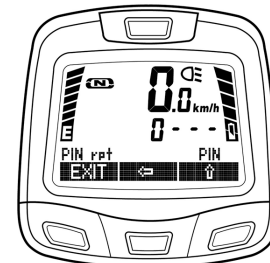
The editing mode of the clock can be entered from the SETUP->LK display, by pressing the "ENTER" button. Individual numbers of the time/date to be edited will flash respectively.

PIN

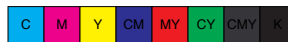
A PIN number can be entered in order to individually protect your bicycle. The Pedelec can only be used after the correct PIN number has been entered. Please make a note of your exact PIN number as activation of a forgotten PIN can only be carried out through the Service Centre.



The flashing numbers can be altered by pressing the arrow button "↑/d3". Navigate one step further by pressing the arrow button "→/d3", alterations start with the hours and progress to minutes, etc.



The editing mode of the PIN can be entered from the SETUP•IN display, by pressing the "ENTER" button. The individual numbers of the PIN to be edited will flash respectively. All other PIN figures are blocked out by a "-" display. The PIN's factory setting is "0000".

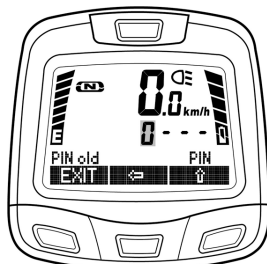


Pedelec with Lithium-ion battery

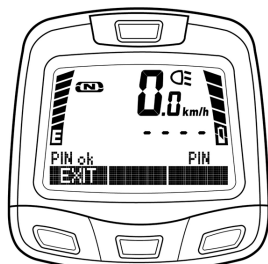
The first position flashes, starting with 0. Navigate one step further to the right by using the arrow buttons. After entering the currently activated PIN (old), a command is given to enter the new PIN (new). Before the new PIN can be finally adopted, it must be re-entered (rpt) for safety reasons.



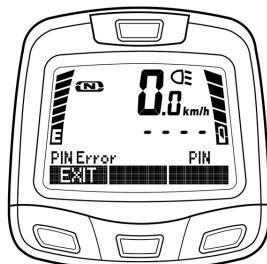
Entering the new PIN



Repeating the new PIN

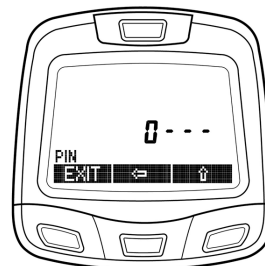


After correct repeat of the PIN



Wrong PIN: Cancel using EXIT, then re-enter

If the PIN has been altered and the display switched off, once it has been switched on again the new PIN will be requested:



Entering the PIN is similar to SETUP. The first position flashes, starting with 0. The flashing figure can be altered by pressing the arrow button "↑" (from 0 – 9). Navigate one step further to the right by using the arrow button "→". Once the PIN has been entered correctly the Main Menu appears in the display.

If a number has been incorrectly entered, the cursor returns to the first position again so that input of the PIN can be restarted. If you should have forgotten the number of a changed PIN, then please contact your dealer. By entering a "Super PIN" the bicycle can be reactivated. This "Super PIN" can only be created at the factory.

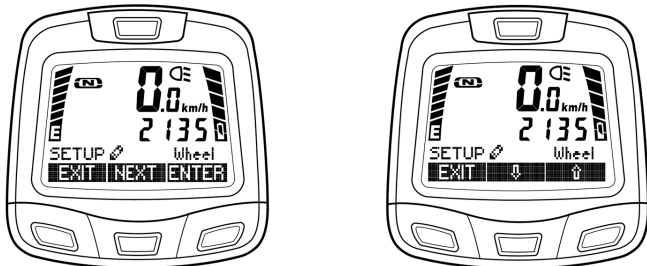
GB



Wheel Circumference (WHEEL)

By entering the wheel circumference, the exact speed and number of km travelled can be displayed. If, for example, you change the outer tyre of your bicycle, you should check the details and alter these if necessary.

The editing mode of the wheel circumference can be entered from the SETUP • WHEEL display, by pressing the "ENTER" button. The numbers flash and the wheel circumference can be altered using the "↑" and "↓" buttons.



The input process can be accelerated by holding down the arrow buttons (Repeat function). If an alteration has taken place, then SAVE / CANCEL appears in the display (procedure as described in the preceding examples).

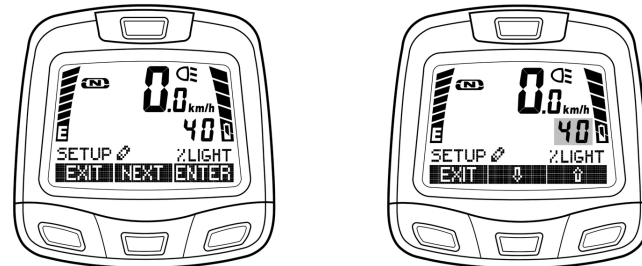
Warning: Only 26" and 28" wheel sizes can be altered in this framework.

LIGHT (brightness of the background lighting)

You can adjust the brightness of the background lighting to suit your personal preferences. Please follow the instructions for this. The editing mode for brightness of the background lighting can be entered from the SETUP • LIGHT display, by pressing the "ENTER" button.

The current level of display brightness flashes. The value can be altered to between 10 and 100 % using the arrow buttons. **Please note that 100 % appears rather dazzling at night.**

The editing mode is cancelled by pressing the "EXIT" button. If an alteration has taken place, then SAVE / CANCEL appears again (procedure as described in the preceding examples).



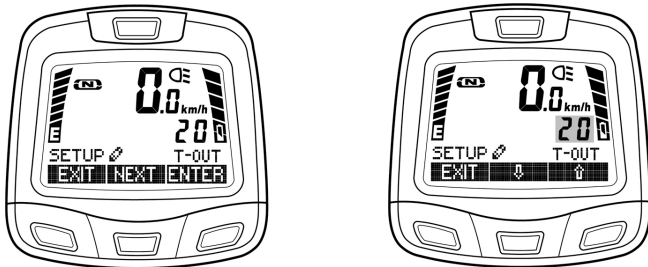


Pedelec with Lithium-ion battery

T-OUT (Timeout Menu)

The editing mode of the Timeout-Time Menu can be entered from the SETUP • -OUT display by pressing the “ENTER” button. The Timeout-Time can be altered using the arrow buttons from 10 to 99 seconds.

This setting gives the time available for editing in seconds (setting 10 to 99 seconds). If processing of a menu section is suspended, the display returns to the main menu according to this setting. For example, if the setting is “20”, it will automatically return to the main menu after 20 seconds.



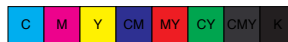
The input process can be accelerated by holding down the arrow buttons (Repeat function). If an alteration has taken place, then SAVE / CANC appears again (procedure as described in the preceding examples).

ASSIST (Geography Profile)

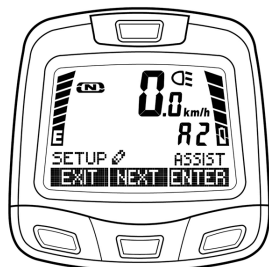
The assistance profiles are designed to adjust the assistance of the Pedelec as exactly as possible to the geographical conditions.

- P1 corresponds to cycling along flat territory
- P2 corresponds to a ride with a medium level of assistance, for example, low mountain ranges
- P3 is used when mainly a high level of assistance is required, for example, alpine uplands.

These settings should be performed, when necessary, by your specialised dealer.



The editing mode of the assistance level can be entered from the SETUP • SSIST display by pressing the “ENTER” button. The assistance profile that has been set flashes. The assistance profile P1 to P3 can be selected using the arrow buttons. The editing mode is exited by pressing the “EXIT” button. If an alteration has taken place, then SAVE / CANC appear again (procedure as described in the preceding examples).



INFO Menu

The INFO menu can be entered from the Menu Level 1->INFO by pressing the “ENTER” button.



Additional information such as the firmware version or serial number is displayed in this menu. Navigate one step further by using the arrow button. The INFO menu can be cancelled by pressing the “EXIT” button.



This information is purely of interest to your dealer and our service centre if possible repairs are necessary.



Pedelec with Lithium-ion battery

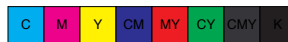
Error Messages in the Display



Error states are automatically recognised by the system and indicated in the display. The following messages indicate the problems described below:

Should a “Notice” signal be given in the display, please follow the instructions in the display or the instructions given under its meaning. Should the display indicate an ERROR signal then you must immediately contact your local dealer for further inspection.

Display	Type	Meaning
BATTERY EMPTY!	Notice	The battery is empty and must be recharged
BITTE ANHALTEN!	Notice	Please stop for recalibration of the operating mode P1-P3.
AKKU ERR.01	Error	The SMBus-connection on the battery is faulty
GESCHWSSENS ERR.01	Error	The external speed sensor is faulty
MOTORSTROM ERR.01	Error	Excess current has been detected
HALLSENS ERR.01	Error	Check motor.



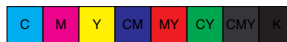
Operational range and its factors

The range that can be attained with a fully charged battery is dependent upon additional factors such as incline, headwind, condition of road surface, tyre pressure, use of gears as well as the pedal assistance and the weight of the driver.

Typical distance with an average use of pedal assistance and a fully charged battery ranges between 40 and 80 km according to the mode selected.

It is practically impossible to provide absolute data regarding the range as various factors influence the assistance performance. To begin with, the battery must be optimally charged. This can be ensured by using the original charger, through sufficient charging time, the age of the battery as well as its continuous maintenance. If all these factors are favourable, i.e. the operating temperature is also between 5 and 35 °C and a full charge has taken place, then $37V \times 8.8Ah = 325 Wh$ of stored energy should be available to begin driving.

With the battery's increasing age, the maximum amount of stored energy can sink by a third and in so doing the running distance too. On the whole, lithium-ion batteries can experience up to 500 full charge cycles, but through aging the capacity will sink in due course down to 85 - 65 %. Providing good maintenance is taken, then a life expectancy of approximately 3 - 5 years is possible. The capacity will decrease slowly but steadily.



Pedelec with Lithium-ion battery

General operation

Gear changing

If you are not yet familiar with a gear change, practice handling your new Pedelec, braking and negotiating curves but do it away from public roads.

Derailleur

First switch the chain to the centre pinion at the rear. Switch between the front chain rings. Then try the same in the reverse direction. This way you will learn the functioning of the gear. Do not ever change gear when the cycle is stationary or during reverse pedalling. Select your gear transmission ratio in front according to the terrain and exercise additional control with the rear sprocket.

The chain should not run crosswise, i.e., with very steep inclination, because otherwise chain and gear wheel will wear out fast. Use the derailleur as illustrated in Figure 20.

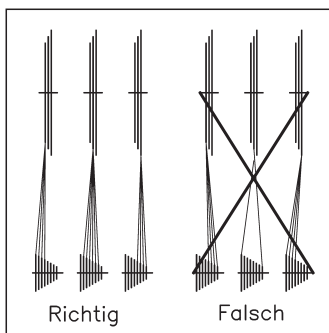


Figure 20

Gear adjustment:

The gear must be adjusted regularly, depending on the type of gear usage. Let your dealer do all the gear settings.

Auxiliary gear with coaster brake hub

While using a gear hub, stop pedalling for a moment so that the gear can switch. Due to the gear cable expansion, the gear hub requires regular readjustment by the dealer.

Gear hubs with 3-, 4-, 5-, 7-, 8- and 9 gears offered by different manufacturers are available at present.

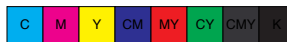
Please contact your dealer to adjust your individual gear model or follow the corresponding operating instructions of the gear manufacturer.

Brakes

Your Pedelec is equipped with two independent brakes. The right brake lever works on the front wheel brake, and the left one on the rear wheel brake.

You can change this order by changing the brake wires on the brake lever. Get this done by your dealer.

GB



Coaster brake hub

The coaster brake hub is a rear wheel brake that is activated when you pedal backwards. You must practice a little to get the hang of when the brake is triggered.

Use the second brake, i.e., the front wheel brake alternately during long and steep rides, so that the rear wheel brake can cool down! Very intense heating of the back pedal hub leads to loss of lubricant! Re-lubrication is necessary! The brake body of a back pedal brake is also subject to wear and tear depending on the usage and must be replaced accordingly. Let the dealer execute such jobs.

Hand brakes

Check the smooth functioning of the brakes before each trip. Contact the dealer if you detect slackening of the braking effect!

The brake shoe or shoes are labelled. Always use spare parts of the same label.

V-brake

This brake is activated by pulling the brake lever at the handle bar of your cycle. Two brake shoes act on the rim edges.

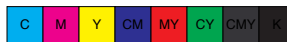
Due to its improved design, the V-brake achieves excellent braking values under dry and wet conditions, but holds certain risks, especially for inexperienced cycle riders. You can lose control over your cycle if you apply the brake in the wrong way. Practice applying this brake, particularly if you are a beginner. Ride slowly at first and use the brake lever carefully to familiarize yourself with the response of the brakes.



Caution!

Risk of fall and injury when applying the brake suddenly in emergency situations!

Please contact your dealer to learn how to adjust the braking power and study the relevant instruction leaflet of the manufacturer.



Pedelec with Lithium-ion battery

Hydraulic brake

This brake is also activated by pulling the brake lever at the handle bar of your cycle. Two brake rubbers act on the rim edges.

Instead of Bowden control cables, this brake has brake tubes that are filled with hydraulic oil. Consult your dealer and read the detailed technical instructions of the manufacturer. The hydraulic brake is very sensitive and can be exactly calibrated. You can test the brake response through a trial run.



Caution!

Risk of fall and injury when applying the brake suddenly in emergency situations!

Roller brake

This brake too is activated with the help of the brake lever on the handle bar. The braking mechanism acts on the wheel hub and is well protected from bad weather.

Please note that a large frictional heat is generated, resulting in heat accumulation, if you apply the brake for a long time (going downhill).



Caution! Do not touch the heated hub body. Cooling-off time after prolonged braking when going downhill is approximately 30 minutes.

Disk brake

This brake too is activated with the help of the brake lever on the handle bar. The principle is similar to that of the rim brake, the only difference being that this brake sits on the hub. The brake pads act on a brake disk.

Load transportation

- When transporting loads, ensure they are fastened well. Always observe the permissible carrying capacity of the luggage carrier!
- Do not carry any bags or other objects on your handle bar! This affects the driving safety. Aluminium handle bars are not designed to support loads!

Trailer

- Observe the maximum permissible speed of 25 km/h if you use a trailer.
- Max. permissible trailer load is 40 kg



Caution!

The driving and braking behaviour of the cycle changes. Risk of fall and injury!

GB



- Use only tested trailer couplings and fix them at the prescribed positions.
- Use only trailers that correspond to the latest safety technology.
- First try out the trailer without load.
- Follow the StVZO (Road Traffic Licensing Regulations) requirements for the lighting equipment of the trailer.
- No liability for damages on account of trailer usage!

Front wheel luggage carrier, basket

- Follow the manufacturer specifications on the components for loading.
- Avoid overloading!
- Do not transport any living animals!

Rear wheel luggage carrier

- Observe the manufacturer specifications on the components for loading.
- Use the standard transportation bags, baskets and clamping devices.
- Do not transport any persons or living animals.

Maintenance instructions

To enjoy the comfort of the numerous functions for a long time to come, the CROSSWAVE Pedelec should be maintained just like a normal cycle. Besides, to guarantee riding safety, regular checks must be performed on the brake, the tyre pressure, the different screw joints, especially handle bar, seat and axle nuts without fail.

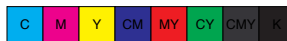
Maintenance of the Pedelec drive:

When maintaining the auxiliary electrical drive system, ensure through appropriate handling the maximum capacity of the drive battery and protection of the other electrical components against prolonged wet conditions.

As far as possible, the Lithium-ion battery should be recharged only after complete discharge. Please try to avoid immediate re-charging of a nearly full battery after a short ride.

In winter or during longer periods of non-use, the battery should be recharged at the latest after six months. Only this way you can ensure a long product life. If you do not use the battery over longer periods, take the battery out of the Pedelec and pull out the fuse so that no standby current in the electronic circuit is unnecessary consumed.

After a ride in rain or if a lot of mud gets deposited on the housing components, the dirt must be wiped away as thoroughly as possible with a wet sponge. Let the CROSSWAVE Pedelec dry afterwards.



Pedelec with Lithium-ion battery

Never use a pressurized water jet or a steam-cleaning device. The system is protected against water sprays and is therefore rainproof, however, the electrical socket-plug connections are not fully sealed. Thorough wetting of the cable harness can lead to short-circuits that can instantly destroy the digital control of the system.

Hence, avoid transporting the Pedelec on the luggage rack of your car with the battery inserted when it is raining. The strong slip stream forces water all across the frame and into the battery housing.

If such transportation is required, do not forget to take the battery out of the CROSSWAVE Pedelec and upon arrival, dry the wet bicycle sufficiently before re-inserting the battery.

General maintenance instructions:

- Before using the Pedelec, it is recommended that you protect the chrome parts and the frame with any commercial cycle care product.
- Clean the cycle regularly from dust and dirt with a sponge or soft cloth. Use a normal cycle cleaning product and a protective agent .
- Never use high-pressure cleaners to clean hubs and pedal bearing. This will damage the components.
- Ensure that the tyres and brake rubber do not come in contact with oil.

Maintenance in winter:

The Pedelec should be carefully preserved in case of long-term storage in the winter months. Ensure that the Pedelec is parked in a room with constant temperature. Large temperature fluctuations as well as humidity have a negative effect on all Chromium and light metal components. To store it away for winter, check the Pedelec on the whole for damages to avoid any workshop repairs in spring. Unburden the tyres by hanging up the Pedelec.

If you do not intend using the Pedelec for longer periods, pull out the fuse of the battery and store it in a cool and dry room.

The recommended storage temperature for the battery is 15°C.

Pay attention to all the other assembly, servicing and maintenance instructions mentioned in this manual as well as to the instructions of the gear manufacturer.

GB



Removal of the Front Wheel

If tyre damage occurs and it is necessary to remove the front wheel then follow the instructions given below:

Removal

Remove the battery from the Pedelec Cut both of the cable straps which secure the motor socket to the fork.



Figure 23

Simply pull the socket apart to open.

Now loosen both axle nuts.

The front wheel can now be removed just like a regular bicycle and tyre, inner tyre or spoke damage repaired.

Assembly

Replace the front wheel and position the torque support discs onto the hub axle within the fork.

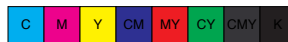


Figure 24



Figure 25

Replace the axle nuts. Align the front wheel and tighten the axle nuts firmly.



Pedelec with Lithium-ion battery

Connect the plug. To facilitate alignment arrows are located on both plug parts which must be facing one another when assembling.

Secure the plugs with the cable ties to the fork again. The battery should only now be replaced in the ED-3EX in order to avoid damage to the electronic system.

Returning the Battery/Recycling

Please do not put the battery pack into the household waste.


Containers for collecting batteries can be found wherever batteries are sold or at local collection points. This ensures batteries are disposed of correctly. You can also return the battery to your specialist dealer.

In order to send battery packs, please consult your dealer as lithium-ion batteries may not be sent by parcel carriage without being labelled. Please also note the instructions on the bottom of the battery:

Lithium-Ion Battery 10ICMR18/65-4
37V 8.8Ah (325Wh)

Benutzungshinweise:
 Verwenden Sie diese Batterie nur für das original PanTerra Fahrzeug mit dem es geliefert wurde. Berühren Sie niemals die Kontakte am unteren Ende mit metallischen Gegenständen, da es zu Kurzschluss führt. Verwenden Sie ausschließlich das mitgelieferte Ladegerät oder original PanTerra Ersatzteil. Ladespannung max. 42V - Ladestrom max. 3A. Nicht unter 0°C aufladen. Vermeiden Sie Tiefentladung der Batterie. Bei normalem Laden und starkem Entladen kann sich die Batterie auf bis zu 60°C erhitzen. Setzen Sie die Batterie niemals starkem Regen, Strahlwasser-Reinigung oder anderen extrem massen Bedingungen aus. Bei Feuer nur Trockenlöschmittel einsetzen.
 Batterie darf nur vom Hersteller geöffnet werden, sonst erhöht jegliche Mängelhaftung.
 Lithium-Ionen Batterien sind Wertstoff.
 Werfen Sie die Batterie niemals in den Hausmüll sondern bringen Sie sie zu öffentliche Sammelstellen

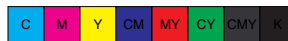
Operating instructions:
 Use this battery only for the original PanTerra vehicle it comes with. Do not at any time penetrate the contact area at the bottom. This could cause an electrical shortcut.
 Use only the original charger delivered with vehicle or an original PanTerra spare part. Charge voltage max 42V - charge current max 3A. Do not charge below 0°C. Never let deep discharge occur to battery. Normal charge and strong discharge may heat the battery up to 60°C. Avoid battery being exposed to heavy rain, power washing, hosing and other extreme wet conditions.
 In case of fire use only solid extinguishing agent.
 Only producer may open battery else warranty becomes void.
 Lithium-Ion batteries are renewable resource!
 Do not dispose with regular waste! Public collecting points will recycle your worn out battery.



Pantherwerke AG - D-32584 Löhne - www.panther.eu
 GB/2010 - Assembled in Europe

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⁵ Lithium-ion batteries are classed as dangerous goods due to the element lithium which is very reactive. During development, required crash safety tests are performed in order to ensure that no uncontrolled process caused by a destructive external event can occur. It is further required that correct labelling in shipment is used in order for the fire brigade, for example, to immediately know which particular fire extinguishing technology must be used in the event of a vehicle accident. Furthermore, it is also ensured through technologies in cell structure and in the protection circuit that no electrical overload occurs even during normal operation.



ED-3EX Pedelec Technical Data

Drive System	Pedelec/EPAC ⁶ (Electrical Power Assist Cycle) cycle auxiliary actuator with 250W motor, up to 25 km/h, activated through pedal sensor.
Motor	BLDC gear motor BLDC stands for Brushless-DC, i.e., a brushless, electronically commutated 3-phase direct current motor with a maximum continuous rated power of 250W.
Controller	BLDC motor controller with digital programme control in accordance with the European standard. Three different driving modes: ECO, NORMAL & SPORT. In addition, three geographic profiles P1-P3. The auxiliary actuator is automatically activated when the pedals are used, providing assistance up to 25 km/h. The auxiliary actuator is automatically cut off when the brakes are applied.
Battery	37V 8.8A h (320 Wh) lithium ion battery made in Europe with 5 LED capacity display, weight 2.4 kg, up to 500 charge cycles or 3 – 4 years life expectancy by optimum usage.
Charging Unit	CC-CV charging unit with 2A charging current full charge of the 9Ah battery lasts approximately 8.8 h.
Operating Distance	Highly dependent on the selected operating mode, personal mode of operation and other factors. See Page 134 “ Operating range and its Factors ”

⁶ EPAC = Pedelec

Malfunctions/Causes/Repair

<p>1. Controller</p> <p>1.1 The display does not light up after being switched on.</p> <p>Cause: Battery incorrectly positioned Battery defect Cable/contact error Electronics defect</p> <p>Repair: >insert the battery again >contact dealer >contact dealer >contact dealer</p>
<p>1.2 The display unit switches off during the ride.</p> <p>Cause: Battery empty Electronics defect Plug connection has loosened</p> <p>Repair: >completely recharge battery again >contact dealer >contact dealer</p>
<p>2. Battery</p> <p>2.1 No LED lights up after battery status display has been pressed.</p> <p>Cause: Battery empty Cells in battery pack defective</p> <p>Repair: >completely recharge battery again >contact dealer</p>
<p>2.2 The operating distance of the battery has been drastically reduced.</p> <p>Cause: The battery is exhausted (aged) The charger is defective Charging plug/charging cable damaged</p> <p>Repair: >exchange battery >contact dealer >contact dealer</p>
<p>3. Motor</p> <p>3.1 No performance from the motor but the controller and the battery still function.</p> <p>Cause: The motor cable under the cover is disconnected other cable/contact error Pedal sensor defective Electronic defective</p> <p>Repair: >control plug >contact dealer >contact dealer >contact dealer</p>
<p>4. Charging unit</p> <p>See Page 17 Charging and Care of the Battery.</p>

