# Solar Electric Bike User's Manual

## Model SB180


www.ecosolarbike.com

## CONGRATULATIONS ON YOUR PURCHASE OF THE ECOAPP SB180 SOLAR ELECTRIC BIKE.

ECOApp Solar Electric Bikes have been created as a healthy, fun alternative to automobiles and other air polluting methods of transportation.

Designed to be portable, collapsible, easy to use, with a clean, trendy design, the SB180 has the basic structure of a common bicycle and can be ridden as such when the power is off. With the power on, the 3-speed Pedal Assist System can be engaged just by pedaling or the bike can run independent of pedaling using the the motor and throttle.

Please be sure to check your local regulations regarding riding motorized bicycles and note that persons under the age of 16 generally are not allowed to operate them.

We hope that you enjoy your ECOApp SB180 Solar Electric Bike for many years and applaud your comittment to helping keep our planet healthy.

Please let us know what you think of the ECOApp Solar Electric Bike: info@ecoappsolar.com

Your bike purchase should include:

- Solar Electric Bike
- User's Manual with Warranty Card
- Lithium Battery
- AC Charger and Connector Cable
- Solar Panel System (solar panel unit and cable)

# Contents

# FEATURES

The ECOApp SB180 Solar Electric Bike features include:

- Small, lightweight and collapsible for portability and easy storage
- 3-speed Pedal Assist System (PAS) for easier riding
- Fully motorized, no pedaling needed on throttle equipped models
- Adjustable seat and handle bars
- Quieter than other electric bikes, low profile
- Lithium-Ion battery technology with large capacity battery with a low self-discharge rate
- Waterproof battery compartment
- Intelligent charging technology and Over Current Protection to prevent overloads to battery
- USB connection on battery to charge mobile devices/iPods
- Small, durable, low-noise motor makes the ride more enjoyable
- Reflectors on fenders, pedals and LED on front

# SPECIFICATIONS

**Model**: SB180

**Net Weight**: 39.6 lbs (18Kg)

**Folded Size**: 32.5 in. x 15 in. x 26 in. (825mm x 380mm x 660mm)

**Standard Load**: ≤ 165 lbs. (75Kg)

**Wheel Size**: 18″

**Max Speed**: ≤ 20 mph (25Km/h)

**Running Distance**: ≥ 25 miles (40Km)

**Battery Life**: >800 charge cycles

**Battery Type**: Lithium-Ion

**Motor Type**: Brushless high speed

**Motor Power**: 180W

**Rated Voltage**: 36V

**Low Voltage Protection Controller**: 30 ± 2V

**Over Current Protection Controller**: ≤ 20A

**Charger**: Special Lithium Charger

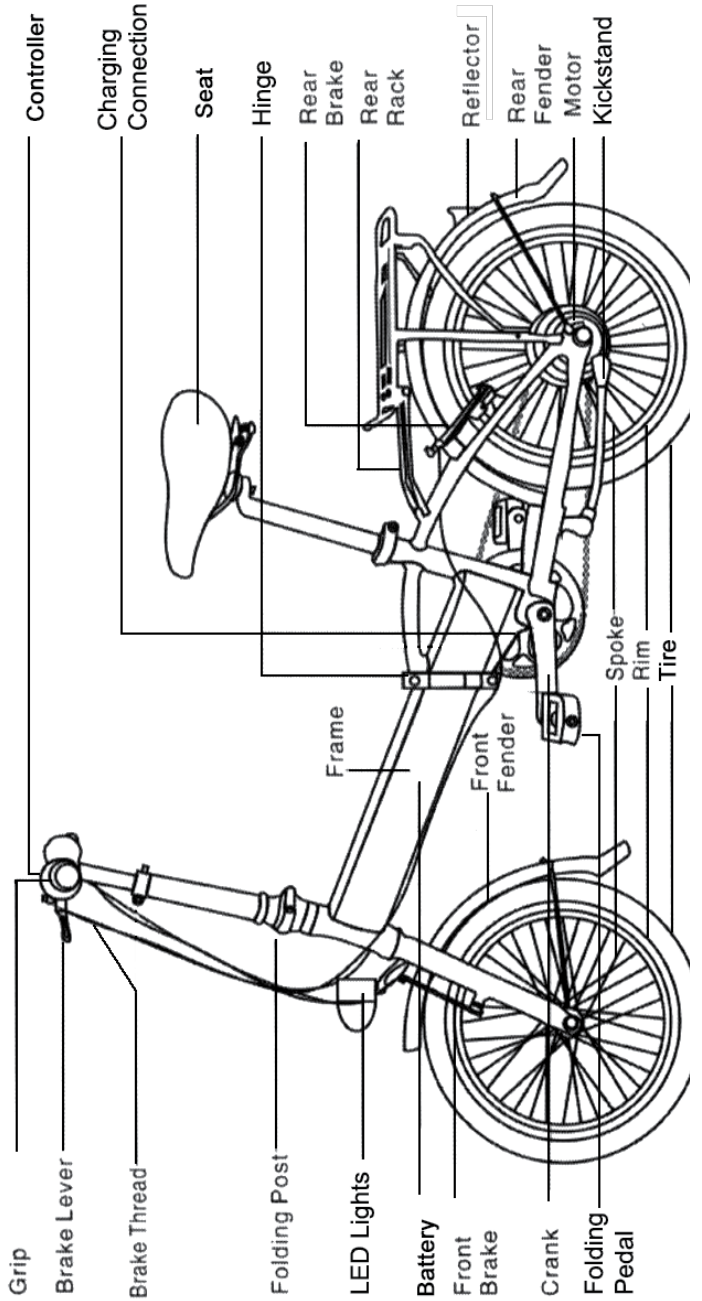
**Charger Input**: 120V/60 rh; 220V (50Hz) ±10

**Charger Output**: 42 ± 0.2V

**Charge Time**: 4 hrs AC / 7 hrs Solar

**Bike Chain Tension**: Not more than ½″ movement at loosest point

# COMPONENTS


Controller
Charging Connection
Seat
Hinge
Rear Brake
Rear Rack
Reflector
Rear Fender
Motor
Kickstand
Spoke
Rim
Tire
Frame
Front Fender
Grip
Brake Lever
Brake Thread
Folding Post
LED Lights
Battery
Front Brake
Crank
Folding Pedal

# HOW IT WORKS

The SB180 ECOApp Solar Electric Bike has two models:

– Fully motorized with throttle control

– Motorized with Pedal Assist System PAS only.

The lithium battery, which powers the bike can be charged with the solar panels or with the AC adapter in any regular electrical outlet.

## USING THE PAS CONTROLS

The control for the PAS is on the handlebar of the bike. Make sure the cables are in good working order and the battery is fully charged and locked into the battery compartment before turning the power on.

1. Turn on the power by depressing the power button. (See figure 1).
2. Select the starting speed (Low, Medium or High). *It is recommended that you start with Low until you are comfortable with how the PAS works.*
3. Stand with one foot on each side of the bike, firmly holding the grips on the handlebars to keep the bike straight, raise the stand.
4. Push forward, sit and start pedalling.
5. The PAS will engage automatically after a couple of pedal strokes or when you reach 2 mph. You will feel the forward momentum and hear the motor.
6. Continue to pedal occassionally to keep the PAS engaged.

## USING THE THROTTLE FOR FULLY MOTORIZED RIDING

The throttle for engaging the electric motor is on the right handlebar.

1. Turn on the power by depressing the power button. (See figure 1).
2. Stand with one foot on each side of the bike, firmly holding the grips on the handlebars to keep the bike straight, raise the stand.
3. Holding the grips firmly with both hands, push forward, sit and start pedalling.
4. As it reaches the speed of about 5 km/h, rotate the throttle towards you to engage the motor. (See Figure 2).
5. Holding the throttle at a steady rate for 10 sec will lock the throttle to that speed.
6. To slow down either rotate the throttle back or engage the brakes.


*Figure 1. Power on, battery level indicator and PAS speed controller*

*Figure 2. Slowly rotate the throttle towards you to engage the motor, rotate throttle away from you or engage brake to reduce speed.*

# THE BATTERY

Always use the charger that is provided with the bike to ensure that voltages match and your battery is not damaged. The battery level can be found on the controller on the handlebar. (see figure 1, previous page). The battery should be fully charged with the AC charger before the first use.

## SOLAR CHARGING

Connect the cable from the solar panels to the connection port on the lithium battery on the center frame of the bike. Place open solar panels directly in the sun.

It is not advised and the warranty will not cover damages to the solar panel or wiring if your battery is charged using the solar panel while riding the bike. Keep all wiring secured when the bike is in motion. Be sure the solar panel is securely attached to the bike.

## ELECTRIC CHARGING

1. Connect the charger to the bike battery first, and then plug the charger into the outlet. The controller will indicate when the charge is complete.
2. Disconnect the power from the outlet first, then the battery.

The solar panel unit has a pocket for easy storage of the AC adapter.

## REMOVING AND REPLACING THE BATTERY

To remove the battery, flip up the handle and slide it out. To replace the battery, slide it into the chamber until it "clicks" in.

### DISPOSING OF THE BATTERY

Please make sure to properly dispose of the lithium battery.

# MAINTENANCE & ADJUSTMENTS

**Brakes, Tires, Chain**

The rubber brake pad should be parallel to the tire rim with a gap ≤ 3mm. It should never touch the rim while not being engaged.

Replace the pads when they are worn.

Do not add any lubricant to the brake pads or tire rims.

Keeping the tires at their proper pressure will help prevent damage to the tires and/or the rims as well as provide less resistance when riding. The contact surface should be roughly a 20 mm width.

The bike chain should be be maintained and not be to tight or too loose. Adjustments can be made by adjusting the rear wheel.

**Cleaning The Bike**

Because this bike contains a battery, do not immerse or spray with water. Wipe it off with a damp cloth and soap and water.

**Cleaning The Solar Panels**

The solar panel is weather resistant. Surfaces of the panel and the case can be cleaned with a mild detergent and water. Do not submerge the solar panel or the voltage regulating unit directly in water or any liquid.

# SAFETY INSTRUCTIONS

- Read this entire User's Manual before operating your ECOApp Solar Bike.
- Do not use batteries or chargers from other bikes. This battery was designed to match the charger and controller for this bike.
- Make sure to power off your bike when standing or not in use.
- Remove the batttery when storing the bike.
- Do not modify the bike as this may make it unsafe and void the warranty.
- Do not oil the brakes or wheels.
- Check your bike before riding to ensure the pedals, brakes and tires are all in good working condition.
- Keep the bike chain at proper tension.
- Make sure that you do not adjust the seat or the handlebars height beyond the safely line. (See illustration A)
- Keep the tire presssure as the stated pressure on the tire for the best performance. The contact surface is optimal at 20 mm.
- Clean the bike with a cloth only, do not spray with water.
- Do not overload the bike.
- Keep the bike away from high moisture, high temperatures, and other materials that could cause rust or corrosion.
- Do not ride through water that covers the motor and battery compartment.
- Handle the solor panels and charger with care to prevent damage.
- Make sure you are obeying all traffic rules and helmet regulations as you would on any other bicycle.
- Do not carry any passengers on your bike, this bike is built for only one person.
- Make sure others know how to operate this bike before letting them ride.

**Illustration A**

The seat post and handlebars have a safety line to indicate the maximum distance to which they can be extended safely.

# TROUBLESHOOTING

1. **Battery does not charge or fully charge.**
   - Battery needs to be replaced
   - The battery fuse has failed and needs to be replaced, or needs to be reconnected
   - No output voltage on the charger or the outpur voltage is too low – replace or repair the charger.
   - The AC input plug of the charger is not making a good connection with the the power source – check connection
2. **Controller does not seem to be working**
   - Check all the connections to controller before turning on
   - May need to be repaired or replaced
3. **Power is on, but the motor does not seem to be working**
   - Throttle may be broken – replace or repair
   - Main wires may not be functioning – replace or repair
   - Brake switch may be broken – replace or repair
   - Controller may be broken – replace or repair
   - Motor is broken – replace or repair
4. **Power shuts off intermittently**
   - Poor battery contact: adjust or replace loose fuse
   - Loose soldering in fuse or on circuit board – needs to be replaced
   - Broken power switch – needs to be replaced
   - Controller broken – replace it
   - Main wires may have faulty connection
   - Brake switch or main power plug has come loose – adjust or replace
5. **PAS does not seem to be working**
   - PAS sensor is broken – replace it
6. **Brake switch has been engaged but power is still on**
   - Brake switch is broken – replace it
   - Main wires are broken – replace them
   - Controller is broken - repair or replace
7. **Motor seems to run slow or have noise**
   - Motor is broken or missing a phase – check for loose phase or replace
   - Controller is broken – replair or replace
8. **The bike seems to have a short battery range**
   - Brake threading is too tight causing drag on tires
   - Battery may need to be replaced – test and replace if necessary
   - Motor is failing or the magnets on the wheels are demagnetizing - replace motor and/or magnets

# FOLDING THE BIKE

Below are directions for folding your ECOApp Solar Electric Bike.


*Standing beside the bike, loosen the seat post and lower the seat turning in to a reverse position facing backwards. Retighten the post clamp.*


*Loosen the center handlebar clamp and rotate so that the brake handle is facing the ground. Re-tighten clamp.*


*Next, loosen the folding post clamp located just above the front light on the front bike stem.*


*Lower the handlebars and adjust so that the brake grip and handle align to the center of the wheel hub, retighten the folding post clamp.*


*Collapse the pedals by pushing in and turning them. Turn the pedal so that the pedal on the left side (chain side) of the bike is vertical to the ground.*


*Raise the kickstand and fold the the bike from the center hinge until collapsed tight.*


*Unclip the the the folding hinge, and leave open.*


*Use velcro strap to secure bike together.*

# WARRANTY INFORMATION

Warranty only valid on original, as manufactured bike and parts. This warranty is expressly limited to the repair or replacement of a defective item and is the sole remedy of the warranty. This warranty extends from the date of purchase.

This warranty is void in its entirety by any modification of the frame, fork, or components.

## ELECTRONIC PARTS

**Two Year Warranty**

- Motor: covers cracking, peeling of magnetic steel, short circuit in coil that is not caused by human factors or external events.
- Battery: cover replacement, if the charged capacity falls below 80%.

**One Year Warranty**

- Controller and Indicator: covers malfunctions such as short circuits due to quality in manufacturing defects. Does no cover wires and plugs missing or cracking that is due to external events.
- Battery Charger: One year warranty on the charger.

**Six Month Warranty**

- PAS Sensor. Free part replacement for malfunction.
- Throttle, Brake Switch, Brake Threads and Controller Wires: Free part replacement for malfunction.

## COMPONENTS

**One Year Warranty**

- Frame, Handle Bar, Front Fork: For any crack or deform that is caused by human factors or external events

**Six Month Warranty**

- Middle axle, hub, free wheel, plating
- Left and Right Grip (No. 1 on Page 5)

**Three Month Warranty**

- Rear rack , stand, crank, chains, brakes, paddles, seat post, rims – 3 months warranty for plate falling, deforming, sealing off and crack.

**Two Week Warranty**

- Tire: Replacement for crack or leak.

## WARRANTY DOES NOT COVER:

Wearing parts such as plastic parts, fuse, bulb, shock boots, brake rubbers, brake thread, spoke, paddles and saddle.

## WARRANTY VOID:

If bike has been altered, customized, or non-original parts added.

If damage or failure is due to, but no limited to:

- normal wear and tear
- improper follow-up maintenance
- installation of parts or accessories not originally intended for or compatible with the bicycle as sold
- damage or failure due to accident, misuse, abuse, or neglect.

## ADDITIONAL INFORMATION

Proof of purchase is required. The subject item must be registered with ECOApp, either through on-line registration or by the receipt of a warranty registration card, before a warranty claim may be processed. This warranty gives the consumer specific legal rights, and those rights may vary from place to place. This warranty does not affect the statutory rights of the consumer.

**LIMITED LIABILITY** Unless otherwise provided, the sole remedy under the above warranty or any implied warranty, is limited to the replacement of defective components and parts with those of equal or greater value at the sole discretion of ECOApp. THE CUSTOMER WILL BE RESPONSIBLE FOR LABOR COSTS ASSOCIATED WITH WARRANTY REPLACEMENTS. IN NO EVENT SHALL ECOApp BE RESPONSIBLE FOR DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, WITHOUT LIMITATION, DAMAGES FOR PERSONAL INJURY, PROPERTY DAMAGE, OR ECONOMIC LOSSES, WHETHER BASED ON CONTRACT, WARRANTY, NEGLIGENCE, PRODUCT LIABILITY, OR ANY OTHER THEORY. Some states do not allow the exclusion or limitation of damages, so the above limitation or exclusion may not apply.

EXCLUSIONS THE ABOVE WARRANTY, OR ANY IMPLIED WARRANTY, DOES NOT COVER NORMAL WEAR AND TEAR. ALL WARRANTIES ARE VOID IF THE ELECTRIC BIKE IS USED FOR OTHER THAN NORMAL ACTIVITIES, INCLUDING, BUT NOT LIMITED TO, FAILING TO FOLLOW THE OWNER'S MANUAL OR USING THE ELECTRIC VEHICLE FOR COMMERCIAL ACTIVITIES OR IN COMPETITIVE EVENTS, AND TRAINING FOR SUCH ACTIVITIES OR EVENTS. ECOApp MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THAT OF THE EXPRESS WARRANTIES STATED ABOVE.

## WARRANTY CARD

Please fill out this card and mail to:
ECOApp Solar
20660 Steven Creek Blvd, #381
Cupertino, CA 95014

But providing this information will help us more quickly service your bike under warranty if necessary.

If you do not return this card, please keep your receipt as proof of purchase date.

Name _____

Address: _____

City, State, Zip: _____

Email: _____

Date of Purchase _____

Location of Purchase: _____

Serial No. _____
(can be found on the bottom of the headset at the front of the bike)

You can also email this information to us at info@ecoappsolar