

HW efoil S1 Instruction



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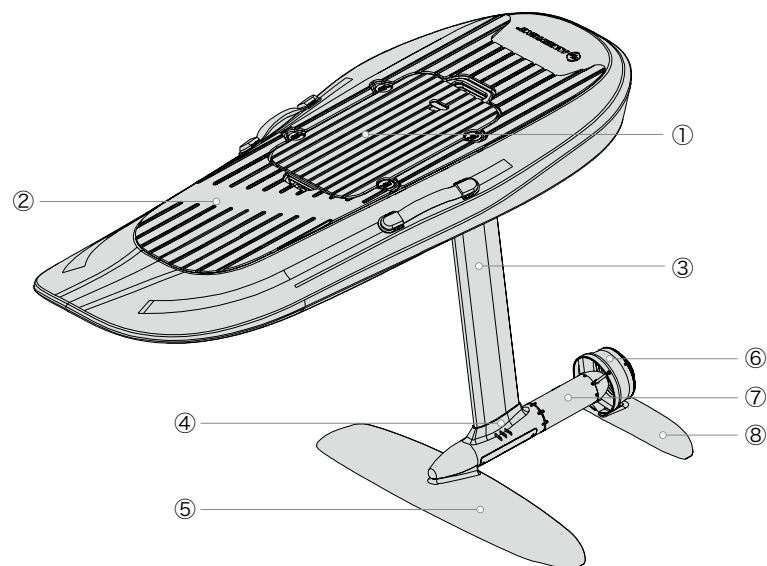
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01 overview



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|---------------|--------------|----------|--------------|
| ①: Battery | ②: board | ③: Mast | ④: ESC |
| ⑤: Front wing | ⑥: Propeller | ⑦: Motor | ⑧: Back wing |

1 Introduction

Thank you for purchasing this product! HW efoil S1 is the first-generation efoil produced by Shenzhen Hobbywing Technology Co., Ltd. (hereinafter referred to as Hobbywing Technology). The brushless power system is developed by Hobbywing Technology. It provides surging power for efoils. HW efoil S1 is refined aesthetically, agile control and excellent performance to meet the various needs of riders. HW efoil S1 is easy to take off, and has excellent speed, battery life expectancy and the lift performance is great. It is the perfect choice for riders who want to combine leisure, entertainment and pursuit of excitement. HW efoil S1 product includes board, battery, power system, hydrofoil and other sub-products. Choose according to your needs.

2 Disclaimer

Hobbywing Technology will only be responsible for the after-sales service of the product itself (repair or replacement will be provided after confirmation) for any problems that arise under the premise that the product sold is used in strict accordance with the user manual. Hobbywing Technology is not responsible for any liability or responsibility. Once you have started to use this product, you are deemed to have agreed and accepted all the terms and contents of this manual. The information in this user manual represents the latest product information available. Hobbywing Technology is committed to technological advancement and continuous product improvement. Hobbywing Technology reserves the right to make changes to products, components, user manual, or other aspects at any time without prior notice. For the latest information on HW efoil S1, please visit Hobbywing Technology's official website: sports.hobbywing.com.

3 Warning

The HW efoil S1 is a powerful piece of water sports equipment and there are certain risks inherent in using this product and participating in this sport. Failure to operate this product in a correct and safe way may result in product damage or property damage, and/or may result in injury or death to you or others. Therefore, please read this user manual carefully and completely, and fully understand the product functions, safety guide, operating guide, etc. before using this product. Please do not use this product before fully understanding the inherent risks and usage procedures of this product, and do not use components not provided or recommended by Hobbywing Technology. Please be sure to strictly abide by the safety guide, operating guide, in the user manual. In view of the possible safety risks associated with the use of this product, Hobbywing Technology strongly recommends that users should purchase appropriate accident insurance and third-party liability insurance for yourself and others.

02 Safety guide

This product requires some basic knowledge before use. Please be sure to read all the safety guides in this user manual carefully before assembling and using the efoil. If you have any questions or objections to the contents of this safety guide, please contact Hobbywing Technology technical support for consultation.

1 User guide

- There are certain inherent risks in using this product and participating in this sport. You should use it with caution based on your physical condition and athletic ability;
- You need to be over 16 years old (or according to local laws) to use this product. If you are under 16 years old, you need to use it under the guidance of a professional instructor
- Do not use this product if you are one of the following people:
 - 1) People suffering from heart disease, cardiovascular disease, skin disease, acute conjunctivitis, severe trachoma, otitis media, etc.;

- 2) Special groups of the elderly, weak, sick, disabled and pregnant;
- 3) People who are suffering from fever and influenza;
- 4) People who may undergo major surgery or plastic surgery within one year;
- 5) People with serious diseases;
- 6) In addition to the above, other people who are not suitable for this sport;

- Do not use this product while drinking alcohol, feeling dizzy or otherwise feeling unwell or in a poor mental state;
- This product can only be used by one person;
- The maximum rider load of this product is 100kg, please use it as required;
- It is recommended that you wait 60 minutes or more after a meal before using this product;
- You should understand and abide by local laws and regulations regarding the use of this product, abide by public order, ensure public safety, and be responsible for all your actions.

2 Usage safety guide

- This product is only allowed to be used on water. Necessary safety measures should be taken when using this product, and life jackets and safety helmets should be worn;
- When using this product, ensure that the water depth is at least 1.5 meters. When using, please be sure to pay attention to the underwater environment (such as rocks, plants, animals, etc.) and the water surface environment (such as the distance to the shore, boats, other water sports people, etc.);
- Do not use this product in waters with swimmers or divers. Do not use this product in waters with obstacles or many animals and plants;
- Do not use this product in bad weather conditions;
- Do not allow others to use this product without fully understanding the correct usage procedures and risks of this product;
- Please make sure that all components are not damaged before use. Do not use damaged or faulty products or components;
- Please ensure that no foreign matter (such as water, sand or other debris) penetrates into the product components before use;
- Please make sure to ride the efoil at a safe speed during use so that the efoil can stop in time to avoid any possible sudden dangers;
- Please make sure to keep a certain distance from the shore during use so that you can swim back if the efoil suddenly stops running;
- When you lose your balance and are about to fall into the water, use the last bit of balance on your body to fall as far away from the board as possible. Make sure you fall behind the board or sideways to avoid being hit by the board or hydrofoil;
- Be sure to use Hobbywing Technology original accessories. Using non-original accessories may cause product damage and personal danger;
- Please be sure to use this product within a safety range and do not perform dangerous operations, including but not limited to flying at high speeds, sharp turns, extreme actions, etc.;
- Please strictly abide by local laws and regulations. Use of this product in prohibited areas is strictly prohibited.

3 Power system safety guide

- Before use, please make sure that the hydrofoil, mast, propeller and other components are not damaged or otherwise abnormal. Please make sure that the propeller is not entangled with foreign objects, and that the connection port of the central control is free of sand, debris and other foreign objects;
- Always keep your body, fingers and toes away from the propeller when the system is powered on or used in water;
- Do not remove the propeller guard;
- When using in water, make sure your feet do not kick against sharp edges such as mast, hydrofoil, propeller, etc.;
- Be sure to clean or repair the propeller after removing the battery from the board.

4 Battery safety guide

- Do not disassemble or modify the battery for other purposes;
- Do not puncture, impact, shock, drop or deform the battery;
- Do not install or remove battery in water;
- Do not expose the battery to direct sunlight, fire, or high temperatures;
- Do not mix the battery with other different types of batteries;
- Do not use modified or damaged battery or charger;
- Do not leave the battery in the charger for more than 24 hours;
- Do not connect the battery to the wrong terminals in the charger or equipment;
- Do not leave the battery unattended while charging;
- Do not install the battery on the board for transportation;
- Do not place heavy objects on top of the battery or charger;
- Do not discard battery carelessly;
- Please make sure the battery is kept out of reach of children and pets;
- Please ensure the battery is placed in a cool, dry and well-ventilated area;
- For long-term storage, please ensure that the battery power is maintained at 40~60%;
- Please make sure to carefully check the battery condition before each use;
- Please ensure that there is no water, sand or other foreign matter in the interface between the battery and the mast;
- Please rinse the battery with clean fresh water after use;
- Be sure to use the original charger to charge the battery;
- Be sure to use, store, transport and dispose of batteries in strict compliance with local laws and regulations.

5 Charging safety guide

Please be sure to use the official charger provided by Hobbywing Technology for charging;

- Do not charge near fire sources, flammable and explosive materials, or in high-temperature environments;

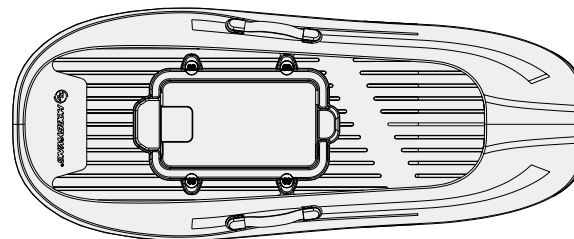
- Do not charge a damaged battery (including but not limited to the charger being dropped, sharply struck, or otherwise physically damaged);
- Do not charge and leave it unattended;
- Do not disconnect the DC charging cable while the charger is running, as this may cause arcing or explosion;
- Do not charge the battery for a long time. After charging, disconnect the AC power first and then disconnect the charger from the battery;
- Please ensure charging is done in a ventilated enclosed area;
- When charging, please place the charger and battery in a stable, dry place and out of the reach of children and pets;
- Please make sure the battery has cooled to room temperature after use before charging.

03 Packing list

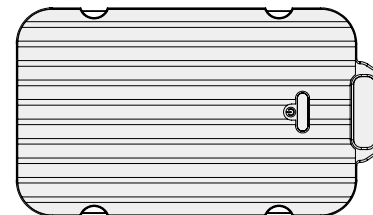
Your HW efoil S1 efoil will be shipped to you in a total of 4 boxes.

1 Box 1: Board

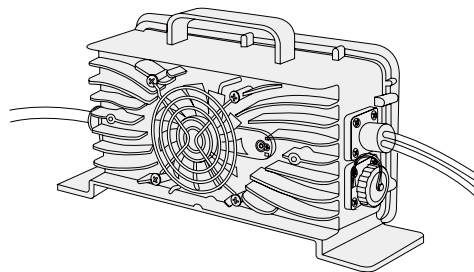
Inside the box is the board for HW efoil S1.



2 Box 2: Smart battery

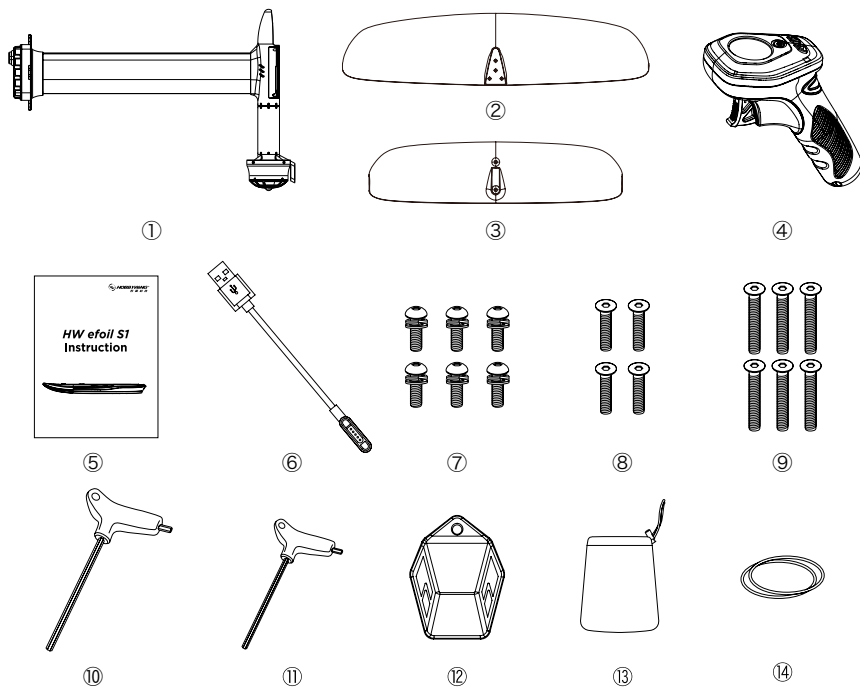


3 Box 3: Battery charger



4 Box 4: Convenience box

The box contains the mast (size depends on your choice), hydrofoils (including front and back wings), remote control and other components.



- ①: Power assembly (mast is 56cm or 76cm)
- ②: Front wing
- ③: Back wing
- ④: Remote control
- ⑤: Product introduction card
- ⑥: Remote control charging cable
- ⑦: Round head screw M6×18mm
- ⑧: Countersunk head screw M6×20mm
- ⑨: Countersunk head screw M6×30mm
- ⑩: 4mm Allen key
- ⑪: 2mm Allen key
- ⑫: Magnet
- ⑬: Accessory bag
- ⑭: O-ring

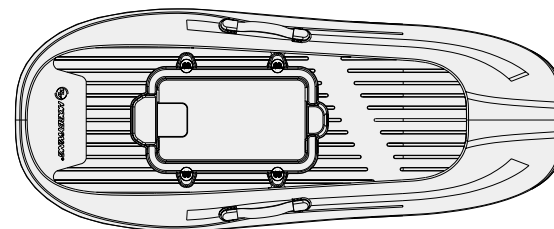
How to use the convenience box:

Take out the support rod from the convenience box and insert it into the channel outside the convenience box; then take out the two wheels and install them on both sides of the support rod; place the board on the side of the convenience box with the socket, and fasten the two sockets. This completes the convenient portability of the board.

04 Components description

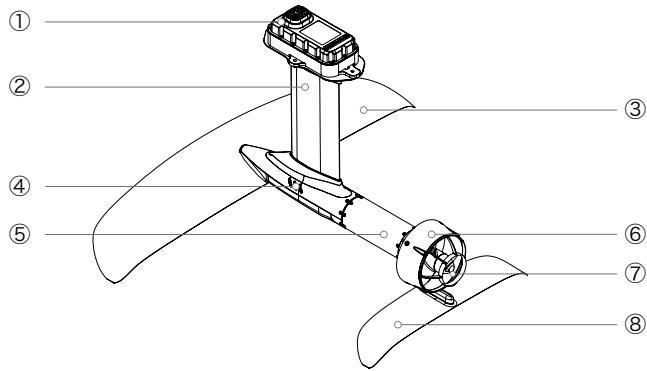
1 Board

The HW efoil S1 board adopts a hydrodynamic design. The material application of carbon fiber + glass fiber makes the HW efoil S1 board both lightweight and high-strength. There are two colors for the board, you can choose freely according to your own needs.





2 Power system

Independently developed by Hobbywing Technology, it is specially designed for efoil products and integrates brushless motor, ESC, propeller, main control board, mast, communication module, etc. The power system adopts FOC drive, which ensures smooth operation; the introduction of CAN communication brings excellent data communication experience; digital throttle support enables infinitely precise control; IP68 waterproof design.



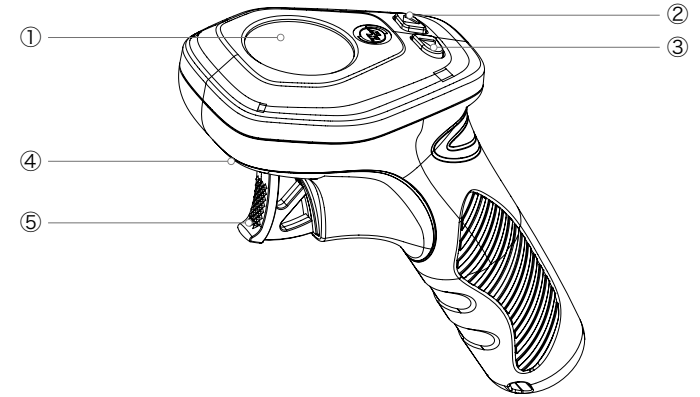
- ①: DC port ②: Mast (56cm&76cm) ③: Front wing ④: ESC
- ⑤: Motor ⑥: Propeller guard ⑦: Protective cover ⑧: Back wing

The specific parameters of the hydrofoil are as follows:

	Cruising front wing	Cruise back wing
		
Wing Area	1528cm ²	445cm ²
Span	85.8cm	44.8cm
Root Chord	20.1cm	10.5cm
Aspect Ratio	4.81	4.51
Material	Carbon fiber	Carbon fiber

3 Remote control

Combined with ergonomic design, it uses Bluetooth and 2.4G communication methods to achieve precise control; multiple modes are adjustable, suitable for everyone from beginners to professionals; LCD high-definition color screen display, IP68 waterproof.



- ①: Display ②: Control gear "→" key ③: Control gear "←" key
- ④: Magnetic charging ⑤: Trigger

4 Remote control display

The display content includes: local time, throttle value, speed value, power value, speed, remote control power, battery power, working mode, and speed gear.



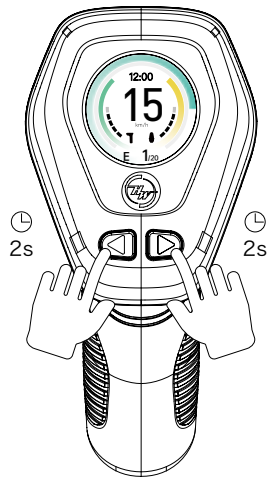
- ①: Local time (displays the current time and automatically synchronizes the time after connecting to the app)
- ②: Throttle value
- ③: Speed (the default speed unit is metric, the app can be set to imperial)
- ④: Speed value
- ⑤: Power value
- ⑥: Remote control power (five bars in total)
- ⑦: Battery power (five bars in total)
- ⑧: Current working mode
- ⑨: Speed gear

5 Remote control operation guide

1. Power on

After pressing the left and right buttons at the same time for 2 seconds, the remote control turns on.

The remote control has vibration feedback, displays the power-on animation, and enters the lock interface after power-on. When the remote control is turned on, the battery (after being connected to the power system) will also turn on automatically.



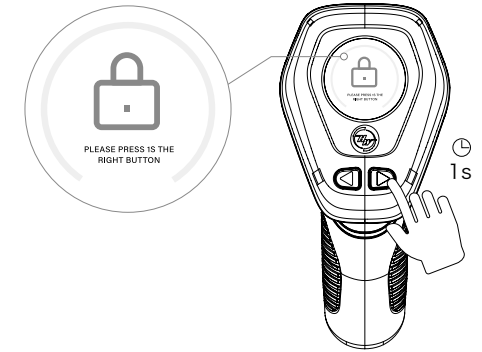
2. Bluetooth connection

After the controller is connected to the mobile phone via Bluetooth, a blue Bluetooth icon will be displayed on the LCD screen. When Bluetooth is not connected, the Bluetooth icon will not be displayed.



3. Unlock

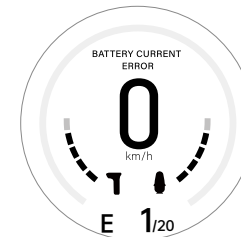
Press and hold the right button for 1s to unlock after the remote control enters the lock interface. After unlocking, enter the main interface. After turning on the remote control for the first time, the default is E mode, the default gear is 1, and the total gear is 20. If the throttle or buttons are not operated within 10 seconds, the remote control will automatically lock (without vibration).



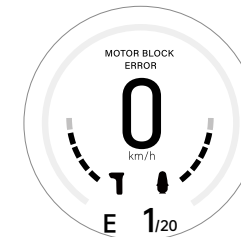
4. Shut down

After pressing the left and right buttons at the same time for 2 seconds, the remote control turns off, there is no vibration feedback, and there is no animation when turning off. When the remote control is turned off, the battery (after being connected to the power system) will also turn off automatically. If there is no operation for 5 minutes, the remote control will automatically shut down.

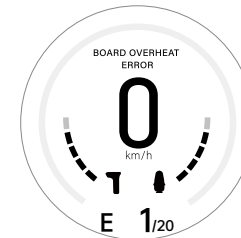
Fault reminder



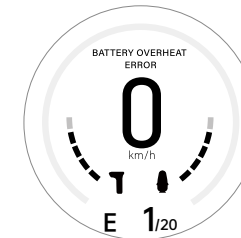
Battery overcurrent



Motor block



Power system overtemperature

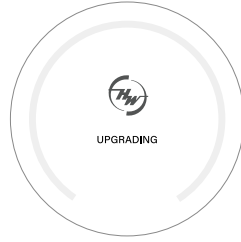


Battery overheated

When the battery, ESC, motor, or controller fails (including but not limited to battery over-temperature, battery overcurrent, power system overtemperature, motor block, etc.), the interface on the remote control will be prompted, vibrating at the same time. Vibrates 5 times as a reminder.

Remote control upgrade

Connect the remote control to the mobile phone APP, and enter the upgrade interface through the APP to upgrade. During the upgrade, the remote-control interface displays the upgrade status. After the upgrade is completed, the remote control will automatically lock the screen. Remote control, central control, controller, and batterie can all be upgraded via OTA.

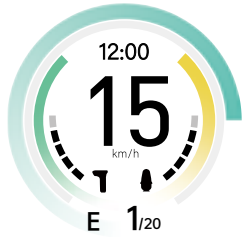


Working mode

The efoil has a total of three working modes, namely:

• E mode

There are 20 gears in total. The take-off gear is about gear 10, the take-off speed is about 15Km/h, the last gear is saved after each restart.



• D mode

There are 16 gears in total. The take-off gear is about gear 9, and the take-off speed is about 15Km/h. The last gear is saved after each restart.



• S mode

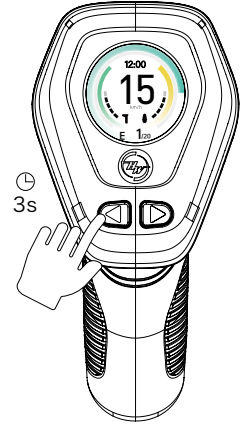
There are 12 gears in total. The take-off gear is about gear 7, and the take-off speed is about 15Km/h. The last gear is saved after each restart.



Note: All the above take-off gear data and the speed data reached in the maximum gear are configured with cruise hydrofoils, a new fully charged battery, a skilled operator weighing 75kg, in still water with no wind and waves, and an ambient temperature of 25°C. The data measured are for reference only.

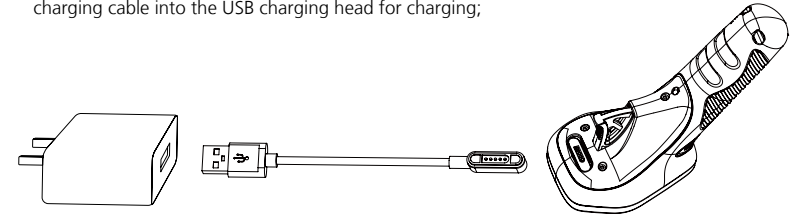
Mode switch

Press and hold the left button for 3 seconds in the unlocked state, and the mode character will flash. Release the left button, press the right button to switch between modes, and press the left button to confirm. Mode confirmation will also be performed after 6 seconds without any operation. The remote control will vibrate to remind you when the mode is confirmed.



Remote control charging

- Take out the remote control charging cable. Use a dry cloth clean the magnetic charging port of the remote control to ensure there is no water or debris left behind;
- Connect the magnetic charging head of the charging cable to the magnetic charging port of the remote control until the magnetic connector is automatically attached. Plug the other end of the charging cable into the USB charging head for charging;



- If charge when the remote control is turned off, the remote control will automatically turn on and enter the power-on interface upon charging. The battery page will display the charging status. It will maintain a full charging interface after it is fully charged. If charge when the remote control is turned on, the battery page will display the charging status. After it is fully charged, it will maintain a full charging interface. In both cases, after unplugging the charging cable, the screen will automatically lock after 5 seconds of no operation. Remote control battery charge time from 0 to 100% is 2h30mins.



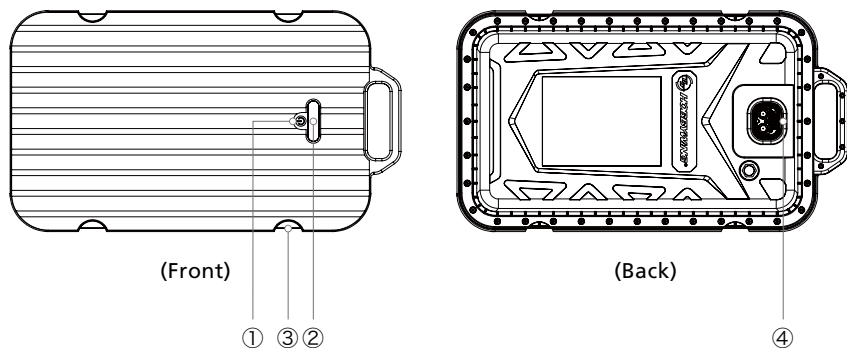
Remote control calibration

Please follow the steps below strictly to perform the remote control calibration process:

- Turn on the remote control, open the APP, complete the pairing and connection with the remote control, click on remote control calibration, adjust the remote control to the lock interface, and start the calibration process.
- Without pulling the throttle trigger, press the right button on the remote control. Once the remote control vibrates as feedback, it indicates that the initial zero-angle calibration is successful.
- Pull the throttle trigger to its maximum position and then press the right button on the remote control. After the remote control vibrates as feedback, it means that the maximum angle calibration is successful.
- Release the throttle trigger again and press the right button on the remote control. Once the remote control vibrates as feedback, it indicates that the calibration information has been saved.

6 Battery

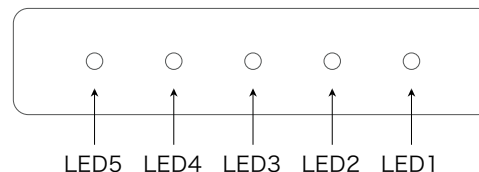
The HW efoil S1 smart battery is designed specifically for Hobbywing Technology efoil. The battery integrates high-precision voltage, current, and temperature acquisition, and adopts an independent power algorithm to judge and activate the balancing function according to the battery condition, in order for the battery to work and store in the best possible way and have a longer battery life expectancy; the plug-in-free design enables plug-and-play purpose of use; automotive grade lithium battery is stable and reliable; multiple alarm protection mechanisms ensure safe use of the battery; IP68 waterproof design ensures that the battery is protected from seawater erosion during use.



- ①: Power magnetic switch
③: Rotary lock fixed position

- ②: Battery status display
④: DC port

Battery light panel indicator light description



The number of lights is displayed according to the corresponding power level. The corresponding power level of one light is 20%. The discharge capacity display comparison table is as follows:

“●/●”: Light; “○”: No light; “⊙”: Flash light

LED5	LED1	LED2	LED3	LED4	Power
●	●	●	●	●	81%-100%
●	●	●	●	○	61%-80%
●	●	●	○	○	41% -60%
●	●	○	○	○	21% -40%
●	○	○	○	○	0% -20%

Power on way

• Magnetic startup:

After the battery is connected to the central control, touch the magnetic switch with a magnet (as shown in the battery diagram ①). The startup time is 2 seconds. The controller will beep. After startup, the five lights will light up one by one (from left to right). The current battery power status is displayed after 2 seconds.

• Remote start:

After the battery is connected to the central control, then connect the remote control. When the remote control is turned on, it will send a battery turn-on command to control the battery to turn on. After startup, the five lights will light up one by one (from left to right). The current battery power status is displayed after 2 seconds.

Power off way

• Magnetic shutdown:

After the battery is connected to the central control, touch the magnetic switch with a magnet (as shown in the battery diagram ①). The shutdown time is 2 seconds. At the same time, the controller emits a beep sound. After shutdown, all five lights will light up for 2 seconds first, and then all five lights will turn off one by one (from right to left).

• **Remote shutdown:**

After the battery is connected to the central control, use the remote control to shut down the battery. After shutdown, all five lights will light up for 2s first, and then the five lights will go out one by one (from right to left).

• **Disconnect and shutdown:**

If the battery Bluetooth disconnection timeout is over 2 hours and the battery CAN receives data timeout is over 2 hours, the battery will immediately shutdown. After shutdown, all five lights will be on for 2 seconds, and then the five lights will go out one by one (from right to left).

Fault description

Indicator status	Fault item
LED1 Flashes twice	Charging over temperature issue
LED5 Flashes twice	Overcurrent issue
LED5 Flashes 3 times	Other over temperature issue
LED5 Flashes 4 times	Bluetooth issue

Note: The battery's power will self-discharge over time during storage to extend battery life and improve durability.

7 APP

HW efoil APP will provide you with a more comprehensive riding experience. You can use the APP to realize real-time data monitoring of your efoil remote control and battery, multiple parameter settings, and device firmware upgrades. In addition, after each riding, you can use the APP to save and record your movement trajectory, battery life, speed and other data during the entire riding process. Using the HW efoil APP will ensure your efoil and remote control always have the latest software information to give you the best performance. The HW efoil APP can be downloaded from the Apple APP Store and Android App Store. The QR code is as shown on the right.



8 Pairing of efoil

HW efoil S1 can be paired with the efoil, remote control and battery through the APP. For specific pairing operation instructions, please download the APP and view it in the APP.

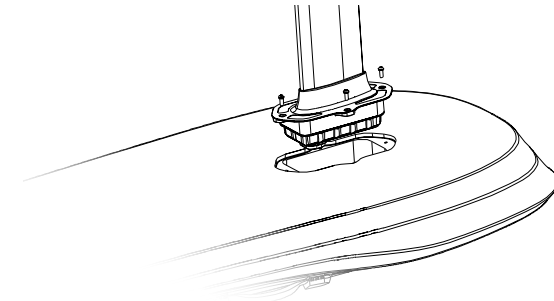
05 Assembly steps

The HW efoil S1 efoil adopts a modular design, and you only need to assemble the components when using it. During the assembly process, please ensure that the components used are all officially designated by Hobbywing Technology. Please be sure to follow the assembly steps in this user manual to install the efoil. You can also go to the official website to watch the installation instruction video to learn. For details, please click: sports.hobbywing.com.

1 Install mast

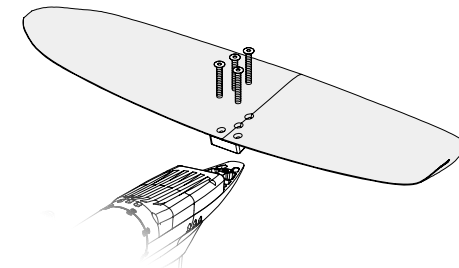
- Turn the board over to the back and insert the mast vertically into the mast mounting seat (the propeller faces the tail of the board);
- Make sure the mast is installed tightly and tighten the four M6×18mm round head screws clockwise with an Allen wrench.

Note: Before installation, please make sure there is no water, sand or other debris in the mast DC port.

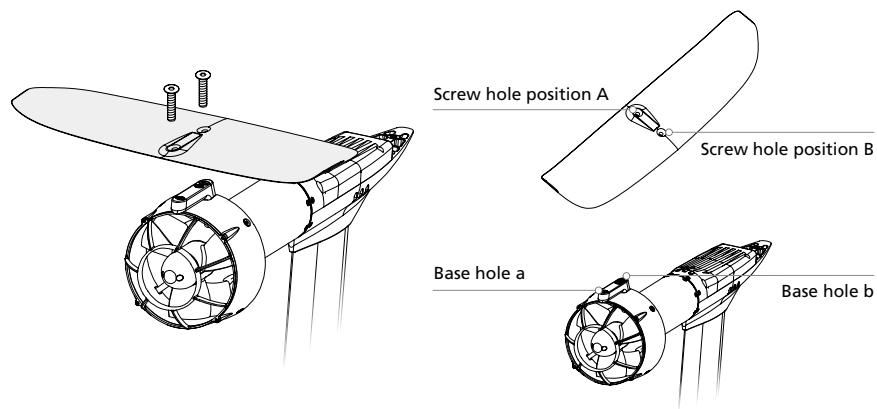


2 Install hydrofoils

- Place the front wing on the mounting position and tighten the four M6×30mm countersunk head screws clockwise with an Allen wrench;



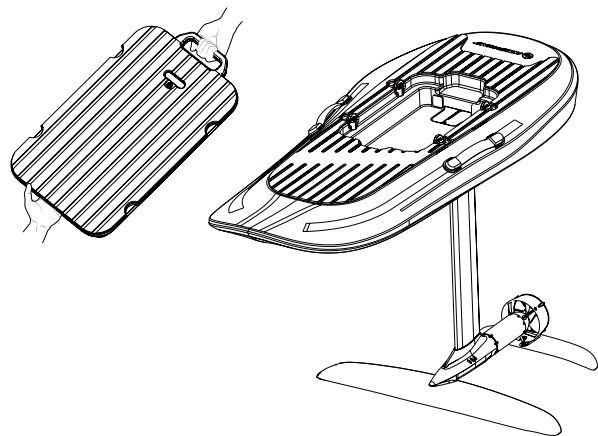
- Place the tail wing on the installation position. When placing it, please make sure that the screw hole A is aligned with the base hole a, and the screw hole B is aligned with the base hole b. After placing it correctly, use an Allen wrench to tighten the two M6x20mm clockwise Countersunk head screws.



3 Install the battery

- Turn over the board until the battery compartment is facing up, and reset the four rotating lock positions;
- Insert the battery vertically into the battery compartment, making sure that the DC port of the mast and the battery port are in place. When the battery is inserted into the battery compartment, press it firmly, and finally rotate the four rotating locks 180 degrees to secure the battery firmly.

Note: Before installation, please make sure there is no water, sand or other debris in the battery port.



06 Operation guide

Please read these operating instructions and pay particular attention to the important operating precautions contained within when using HW efoil for the first time. During the learning process, using it safely and correctly according to the operating instructions can reduce most of risks. You can watch the video on how to learn to operate HW efoil on the official website. For details, please click: sports.hobbywing.com.

1 Pre-Use guide

- It is easier and safer to study in water with no wind or rapid currents than in rough water. Choose a suitable location and weather conditions for a simple learning experience.
- Riding time and mileage depend on: rider weight, average speed, hydrofoil selection, water conditions, wind conditions and other conditions.
- Please confirm that all components of the product are not damaged and in good condition before use, including:
 - 1) Waterproof parts (e.g. connectors, batteries, mast heads) are not damaged;
 - 2) The connection of the power system is firm, and the screws at all connections are tightened;
 - 3) The battery is installed firmly and the battery power is sufficient;
 - 4) The propeller and protective cover are not damaged or cracked. If there are foreign objects in the propeller, please carefully remove sand and other foreign objects.

2 Usage environment guide

- Do not use this product in harsh environments, including but not limited to strong winds, heavy fog, large waves, thunderstorms, night and other environments that affect the user's vision;
- Ensure that the use of efoil in the water area complies with local laws and regulations;
- Ensure that the water area is deep enough and the water depth in the use area is at least 1.5 meters;
- Ensure that there are no obstacles on the water surface or below the water surface, including but not limited to reefs, aquatic plants, dams, buoys, fishing nets and other obstacles;
- Keep the area clear of swimmers and divers;
- Ensure that there is no water sports equipment or water sports taking place in the water area, including but not limited to motorboats, boats, etc.;
- Make sure not to use it too far from the coast to ensure you can swim back to shore.



When using, please make sure to stay away from swimmers, divers, boats, rocks, animals and plants and other obstacles.



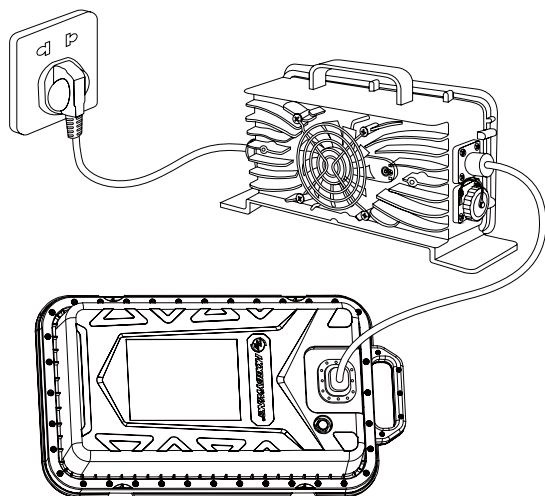
Do not use this product in environments with strong winds, heavy fog, heavy waves, thunderstorms, or at night.

3 After use guide

- After use, press and hold the left and right buttons of the remote control simultaneously for 2 seconds to turn off the remote control. The battery indicator light performs the shutdown operation and the controller beeps to confirm that the efoil is powered off.
- Take the efoil out of the water. Unscrew the four rotating locks and take out the battery.
- Use a wrench to unscrew the front and back wings and take out the hydrofoils.
- Use a wrench to unscrew the screws holding the mast and take out the mast.
- Rinse sand and dust from the board and other components with clean fresh water.

4 Charging guide

- Take out the battery charger;
- Place the battery on a hard, flat surface, connect the charger's DC cable to the battery's DC port, and press firmly to install it in place;
- Plug the charger's AC power cord into an outlet;



- When the charger indicator light flashes green, it means the battery is charging;
- When the charger light changes from flashing green to always on green, the battery is fully charged. When the charger indicator light flashes red, it means the battery is malfunctioning, please stop charging immediately. It usually takes 2 hours to fully charge the battery.

Charger indicator light	Charging status
◉ Flashing	In the process of charging
● Always on	Full charge

Battery LED light description ("● / ●": always on; "○": off; "◉ / ◉": flashing)

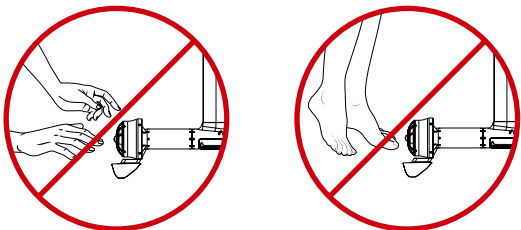
LED5	LED1	LED2	LED3	LED4	Power
●	●	●	●	●	95% -100%
●	●	●	●	◉	81% -94%
●	●	●	◉	○	61% -80%
●	●	◉	○	○	41% -60%
●	◉	○	○	○	21% -40%
◉	○	○	○	○	0%-20%

Charge Failure Description:

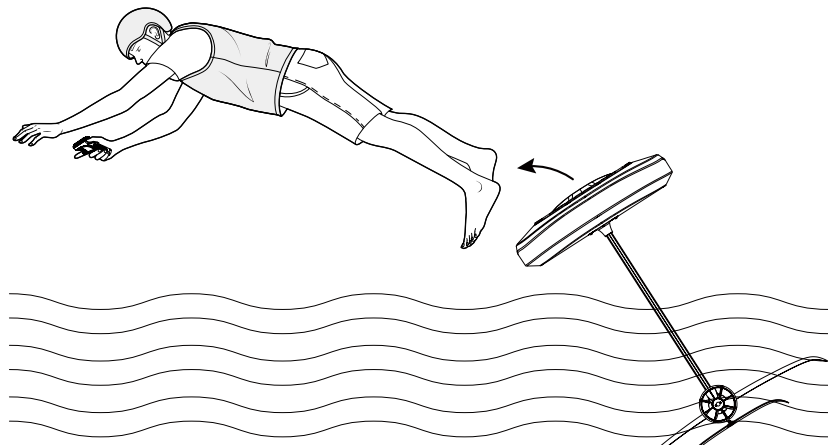
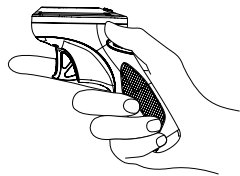
Charger indicator light status (◉ / ◉: flashing)	cause of issue
◉ Yellow light flashes	Communication timeout
◉ (Red light flashes 1 time, 2S interval, then flashes 1 time)	Input power failure
◉ (The red light flashes 2 times, with an interval of 2S, and then flashes 2 times again)	Reverse battery connection/output short circuit
◉ (The red light flashes 3 times, with an interval of 2S, and then flashes 3 times)	Charger temperature alarm
◉ (The red light flashes 4 times, with an interval of 2S, and then flashes 4 times)	Output overcurrent alarm
◉ (The red light flashes 5 times, with an interval of 2S, and then flashes 5 times)	Output overvoltage alarm

5 Important operating precautions

- Please wear a certified helmet and life jacket (or PFD) at all times.
- Avoid contact with hydrofoil, mast and propeller, which have sharp edge. Be careful not to kick the back wing when climbing on the board.



- Keep away from other users at all times. Always be aware of swimmers, divers, other boats or obstacles while riding (flying).
- Please release the throttle trigger immediately when you lose your balance and are about to fall into the water. This will stop the motor from continuing to run to prevent the board from continuing to run. Failure to do so may result in more extreme collisions. You need to practice this skill more during the learning process.
- Practicing correct falling technique can go a long way in reducing the risk of injury. Once you start to lose your balance and are about to fall into the water, use the last bit of balance in your body to fall as far away from the board as possible. You can usually choose to fall behind or to the side of the board to avoid being hit by the board.



07 Getting started

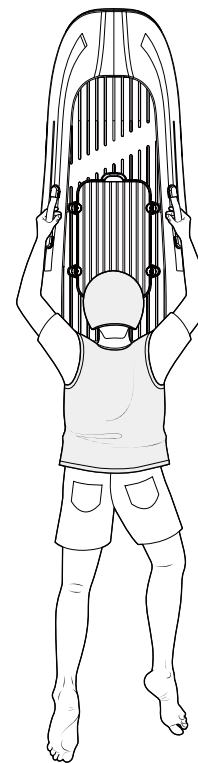
After the efoil is assembled, please follow the steps below to use the HW efoil S1.

1 Launch the efoil

Take the efoil to an area with suitable water depth. During the transport process, please ensure that the remote control is turned off or locked.

2 Climb onto the board

Grasp the handles on both sides of the board with both hands, jump up from the tail of the board and lie on the board so that your hands can touch the front of the board at this point, adjust your body posture to maintain balance. When climbing on the board, be careful not to kick your legs on the hydrofoil, mast and propeller.



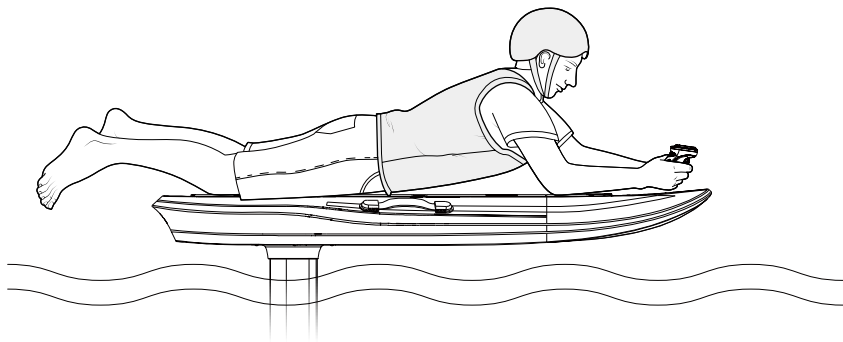
3 Startup

Press and hold the right button for 1s to unlock after the remote control enters the lock interface. After unlocking, enter the main interface. After turning on the remote control for the first time, the default is E mode, the default gear is 1. Slowly pull the trigger of the remote control and the efoil starts to move.



4 Low speed practice

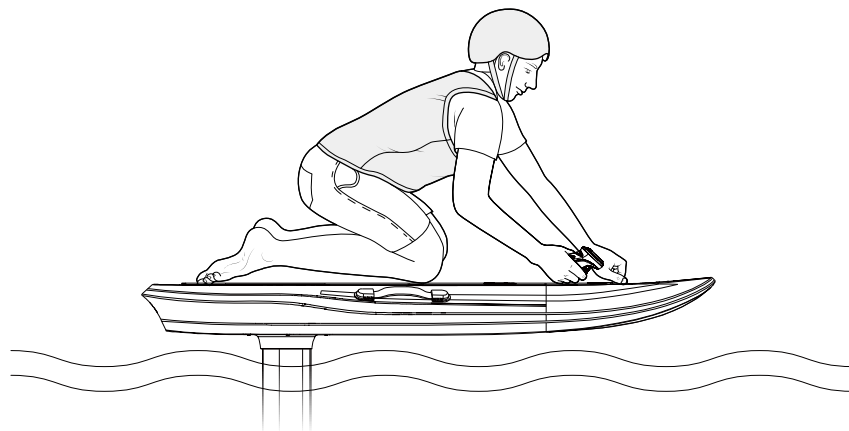
Lie on the board and perform low-speed exercises, keeping the gear in the low-speed range (1-5 gears). Be sure to keep enough weight in front of the board. When the front of the board is tilted up, you can lean forward with your body's center of gravity or slowly move a little toward the front of the board until the board is parallel to the water surface. Turning is achieved by controlling the center of gravity of the body. If the center of gravity is to the left, the board will turn left; if the center of gravity is to the right, the board will turn right. Only when you are proficient enough can you proceed to the next step.



5 Kneeling and riding

Once you have mastered riding in the prone position, you can next try riding in the kneeling position. Place your hands on the board and push your body upward smoothly, bringing your knees forward on the board. Your knees should be approximately halfway forward of the battery (the exact position will

vary depending on your weight). Depending on your weight, wind and waves and other conditions, the gear range for you when riding in a kneeling position is gear 3-6 (E mode). The corresponding GPS speed display range of the remote control is 5 ~10km/h. Turning is achieved by controlling the center of gravity of the body. If the center of gravity is to the left, the board will turn left; if the center of gravity is to the right, the board will turn right.



Kneeling position suggestion

- When riding in a kneeling position, make sure you are not going so fast that you might lose your weight on the board and tip over. Maintain a suitable speed for riding. Keep your body's center of gravity forward during riding and keep the head of the board downward to prevent the board from riding too high.
- Be careful not to let off the accelerator as you move your knee position. You need to practice maintaining a constant speed while changing body positions on the board.
- When you feel you have a good grasp on riding, you can start kneeling at a certain speed by carefully moving your head and leaning your upper body back. When you notice the sound of the board changing and the board is lifting away from the water, move your weight forward again to keep the board parallel to the water or bring the board back into contact with the water.

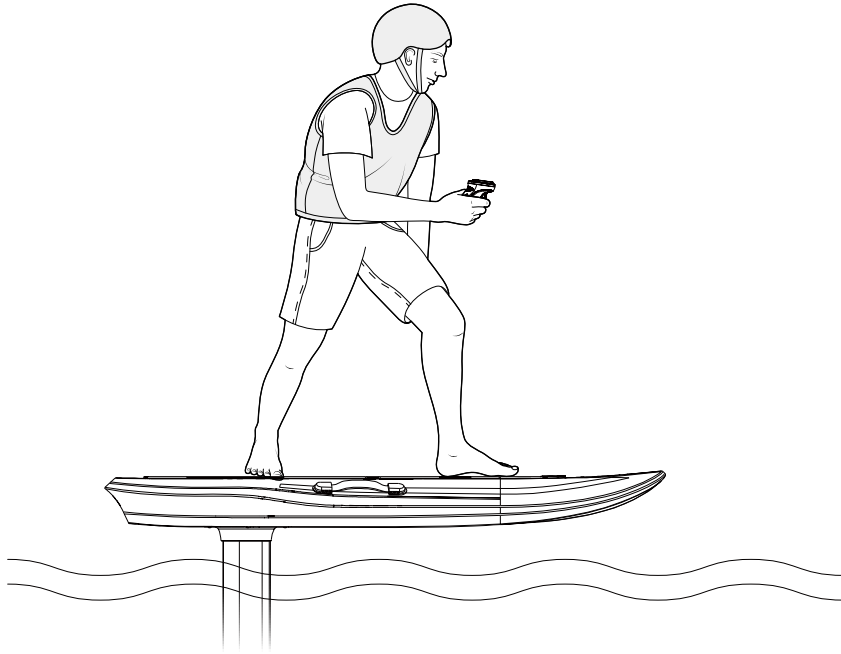
6 Standing and riding

Once you've mastered riding while kneeling, you can next try standing up. Choose a suitable speed. The ideal speed depends on your weight and actual working conditions. Gear 6 to 8 is suitable for standing riding, and the speed is about 8 to 12 km/h.

- Select one of the gear 6-8 to remain unchanged, and be careful not to release the accelerator to maintain a constant speed. Place your front foot in the area between your knees in a kneeling position, your toes should be close to the front of the pad and slightly to the side. Take a moment to balance

yourself, then stand up in something like a lunge, pushing off your front foot with as much weight as possible.

- Standing with weight on the back foot may cause the board to tilt forward, resulting in an unexpected collision. The ideal stance is that your body is bent forward, your front foot is in front of the non-slip pad of the board, and your back foot is in the middle of the battery compartment. This stance allows you to keep your center of gravity forward, allowing you to control the board well. Pitching forward, backward, left and right.
- After you stand stable, you can slowly increase the speed, keeping your body's center of gravity on your front foot while increasing the speed. Turn left and right by tilting your body's center of gravity appropriately. If your center of gravity is to the left, the board will turn left; if your center of gravity is to the right, the board will turn right. After the turn, the body returns to its neutral state.



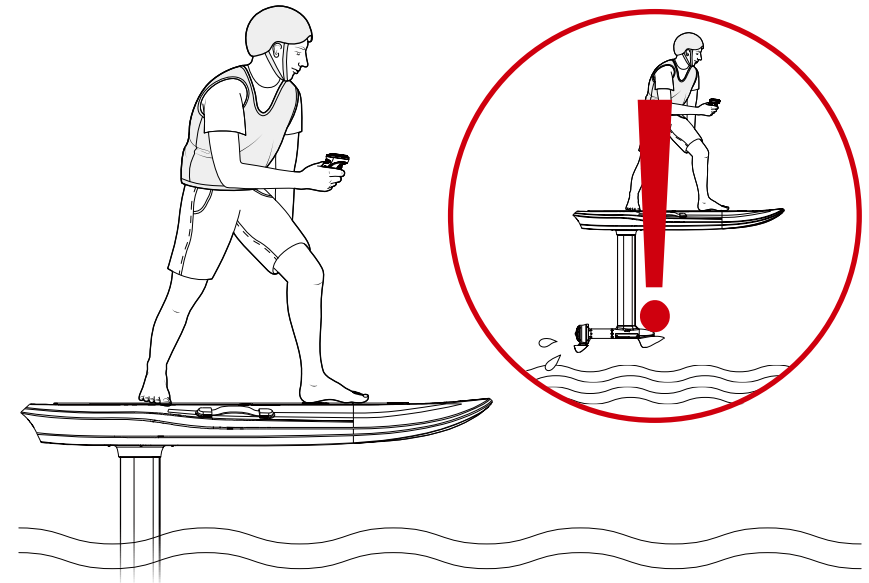
7 Foiling

After you have adapted to standing riding at a medium speed, you can then try riding at a faster speed or try foiling.

- Maintain a stable standing posture and gradually increase the gear. When sufficient speed is reached (about 17km/h), the lift of the hydrofoil will lift the board out of the water. Control your body to

slowly transfer the weight backward. You will feel the pressure on the front foot is slightly less and the pressure on the back foot is slightly greater. At this time, the front of the board will tilt up a few degrees. After tilting, take the center of gravity of the body return to the front foot to keep the board parallel to the water. Be careful when doing this sequence to keep your body on the midline of the board and allow your core to engage. When you feel the sound of your board change and the board lifts out of the water, you achieve foiling.

- At this point, lean forward again and let the board touch the water. This is to perform some short-term foiling movements first to ensure that you are familiar with the balance control during foiling. What you need to practice is foiling about 5 meters at a time and then touch the water again. After a period of practice, you can perform longer foiling movements.
- During the foiling process, try to focus on the front foot, keep the body slightly leaning forward, and control the foiling height of the board by pressing down from the front knee. When the foiling height rises to the point where the hydrofoil and propeller are above the water surface, the board will be very unstable and easily fall into the water, posing a great risk of injury. Therefore, by keeping your body center of gravity on the front foot and always paying attention to not foiling too high, you will ensure the stability of the board on the water surface.
- During the foiling process, you can also achieve left and right turns by properly leaning your body center of gravity. When the center of gravity is on the left, the board turns left; when it is on the right, it turns right. After turning, your body should return to its neutral state.



8 Riding advice

- During riding, keep the front of the board out of the water as much as possible to maintain a good wireless signal connection.
- Turning is more demanding on balance. It is recommended that you start practicing with large turns. In the early step, you need to slow down slowly before turning. After passing the turn, return the speed to the original value. After you are familiar with large turns, you can then perform some smaller turns. When turning sharply, you need to put more force on your back leg to maintain height. When turning, you need to always pay attention to the surrounding water conditions.
- Keep your body weight forward while riding, making sure your feet are placed in the correct area and your body weight remains on the centerline of the board.
- Do not let the speed change too quickly when riding, as this may make it more difficult to maintain balance. A constant speed is more conducive to smooth foiling.
- Do not release the throttle trigger too quickly, as this may cause the front of the board to drop suddenly, which may cause the board to hit the water and fall into the water.
- Sufficient speed is required during foiling. If the speed is too slow, the hydrofoil will be unstable due to stress, resulting in falling into the water.
- Do not hold the throttle trigger with your fingers while swimming back to the board after falling into the water.
- Foiling is a difficult action. If this is your first time contacting efoil, it is recommended that you practice all movements such as kneeling and standing before trying this action until you are familiar with riding.
- If you are heavier or a professional rider, you can choose a higher gear for riding or flying.
- If there is any problem with the efoil during use, please stop operation immediately, lie on the board and paddle with both hands back to the shore for inspection. Only after the problem is solved can you use it in the water again. If there is a problem that cannot be solved, please contact Hobbywing Technology for after-sales consultation in time.

08 Maintenance and storage

Please be sure to carefully read the maintenance and storage of this product when using HW efoil for the first time. Please maintain your HW efoil according to the maintenance instructions in this user manual to maintain its safety, reliability and operating performance. If you have any questions, please contact Hobbywing Technology after-sales service.

1 After use maintenance

Make sure that after each use, or after the remote control and battery are turned off, the battery has been pulled out from the battery compartment before performing maintenance work. At the same time, check all components of your HW efoil, including the board, foil, mast, battery and the remote control whether are damaged or have water ingress. Please refer to the following for specific cleaning and maintenance operations:

- Clean the power system, flush the mast body, mast upper seat, mast DC port, propeller and protective cover with clean fresh water to ensure that no seawater, sand, debris or other debris remains.
- Clean the board, rinse the board, battery compartment, rotating lock seat and other locations with clean fresh water to ensure that no sea water, sand, debris or other debris remains. Then let it sit in a dry environment to dry naturally or use a clean, dry absorbent cloth to remove the remaining moisture.
- To clean the battery, rinse the outside of the battery with clean fresh water, clean the battery DC port with a cotton swab dipped in a small amount of alcohol, and then wipe the battery with a clean, dry absorbent cloth, or leave it to dry naturally in a dry environment to remove the remaining moisture.
- Clean the remote control, rinse the remote control cover, handle, magnetic charging port, and trigger with clean fresh water. If the trigger jams when pulling the trigger, please check whether there are gravels in the trigger. If there are any, remove them and rinse them again with fresh water. Then let it sit in a dry environment to dry naturally or use a clean, dry absorbent cloth to remove the remaining moisture.
- Make sure all connections are clean and free of corrosion and damage during every maintenance.
- After cleaning, wait for all components to dry before placing them back into the packaging box.

2 Regular maintenance

In order to extend the service life of your HW efoil, it is recommended that you perform the following maintenance on your HW efoil regularly:

- Before charging the remote control, please use a dry cloth to clean the magnetic charging port of the remote control to ensure that there is no water, foreign matter, etc. in the port before charging.
- Regularly use clean fresh water to rinse the power system, battery connections, battery rotation locks of the board, and all screws, and then use a clean, dry absorbent cloth to remove the remaining moisture to ensure that there is no white scaling and metal corrosion green spots.
- Regularly check that all connections are clean and free of corrosion and damage.
- Regularly check the status of all waterproof components, including but not limited to remote control, battery, mast head, etc. Regularly check the status of the O-ring at the battery interface position. If there is any damage, replace the O-ring immediately.
- Regularly check all components for damage and board for cracks. If there is any abnormality such as damage, please contact Hobbywing Technology for after-sales consultation.

3 Storage

Please read the entire storage instructions completely before storing your HW efoil.

- Make sure that all components such as the board, power system, and battery are rinsed with fresh water and fully dried before storage.
- Please be careful not to scratch the board and hydrofoil when placing it.
- Please store your HW efoil battery in a temperature range of -20~45°C for up to 1 month. If you need to store it for a longer period exceeding 6 months, it should be placed in a temperature range of -10~25°C.
- Place your HW efoil in the carton and store in a cool, dry environment.
- You can apply cleaner to the joints to reduce the risk of corrosion.

- Do not leave HW efoil tied to a dock or near a boat for an extended period of time.
- Make sure the area where this product is stored is out of direct sunlight, as ultraviolet rays and high temperatures can cause permanent damage to the product.

09 Troubleshooting

When the following problems occur with your efoil, please strictly follow the instructions below. Failure to operate in accordance with the contents of this manual may result in further damage to the equipment or even personal injury. If your problem still cannot be solved or the problem you encounter is not listed below, please contact Hobbywing Technology to apply for after-sales technical support services.

Issue	Troubleshooting guide
The remote control keeps vibrating	Check the remote control display: If there is a low battery warning, please ride to the shore immediately; if there is a fault display, please release the remote control trigger immediately to stop the board in time, lie on the board and row back to the shore with both hands to check the condition of the board.
Board suddenly stops moving	Immediately release the trigger of the remote control and turn off the remote control, then lie on the board and paddle back to the shore with both hands. Check the pairing and binding of the remote control. If it is a pairing and binding problem, please check the pairing and binding instructions; check the battery and check whether the battery installation position is loose. If so, tighten the mounting screws and rotation lock. If there is no looseness, take out the battery and check whether the metal connections are corroded by seawater. If so, rinse the plug with fresh water, use rust remover to remove rust from the metal connections, and then wipe it dry. Finally, clean and dry the plug.
Battery issue	LED1 Flashes twice Charging over temperature issue; LED5 Flashes twice Overcurrent issue; LED5 Flashes 3 times Other over temperature issue; LED5 Flashes 4 times Bluetooth issue; If the temperature is too high, please stop using it and wait for the battery to cool before continuing to use it.

Issue	Troubleshooting guide
Charging issue	Check the charger's indicator light status: 1. Yellow light flashes (communication timeout); 2. The red light flashes once quickly (input power failure); 3. The red light flashes 2 times quickly (battery reverse connection/output short circuit); 4. The red light flashes 3 times quickly (charger temperature alarm); 5. The red light flashes 4 times quickly (output overcurrent alarm); 6. The red light flashes 5 times quickly (output overvoltage alarm).
Abnormal noise from motor	Immediately release the trigger of the remote control and turn off the remote control, then lie on the board and paddle back to the shore with both hands. Make sure the battery is disconnected, take out the battery, and check if there are any foreign objects in the propeller. If there is foreign matter, remove the propeller protective cover, clean the protective cover and propeller separately after removing the foreign matter.
Board shaking	Immediately release the trigger of the remote control and turn off the remote control, then lie on the board and paddle back to the shore with both hands. Check whether the battery, mast, and hydrofoil mounting positions are loose. If loose, tighten the screws promptly
Remote control displays NA	The remote control is not connected to the battery. Please open the APP to check the connection status between the battery and the remote control. If the remote control and the battery are unbound, please redo the binding and pairing process. For details, please refer to "How to Pair" in the user guideline.

10 Specifications of each component

1 Board

Size	1605*650*142mm
Material	Carbon fiber + Glass fiber

Weight	8kg
Volume	89L
Max rider weight	100kg

2 Power system

Mast length	56cm/76cm
Mast material	Aluminium alloy
Motor type	Brushless Motor
Drive mode	FOC
Maximum pulling force	42kg
Maximum output power	5.5kw
KV	118
Waterproof level	IP68
Communication method	CAN
Protection type	Over-temperature protection, over-current protection, over-voltage protection, throttle loss protection, motor block protection

3 Battery

Type	Lithium-ion
Weight	14kg
Capacity	40Ah
Rated voltage	50.4v
Max Charge Voltage	58.8v
Maximum current	120A
Charging time	120mins
Rated Cycles \geq 60% Capacity	300
Waterproof level	IP68
Working temperature	0~45°C
Charging ambient temperature	0~45°C
Protection type	Overcurrent protection, overtemperature protection, short circuit protection, overcharge and discharge protection

4 Remote control

Screen	LCD high brightness color screen
Waterproof level	IP68
Communication method	Bluetooth +2.4G
Working time	10h
Charging time	2h

5 Charger

Weight	2.5kg (Excluding wire harness)
Maximum output voltage	58.8v±0.3v
Output current	20A±5%
Maximum output power	1300W
Input voltage	90-260Vac

11 After-sales service policy

1 Service strategy

This after-sales service policy only applies to HW efoil purchased from Hobbywing Technology's official website or authorized or dealers. In this after-sales service policy, the purchaser or user of HW efoil surfboards is referred to as "you". By using a HW efoil, you agree to this after-sales service policy. Hobbywing authorized or dealers have no right to modify this after-sales service policy.

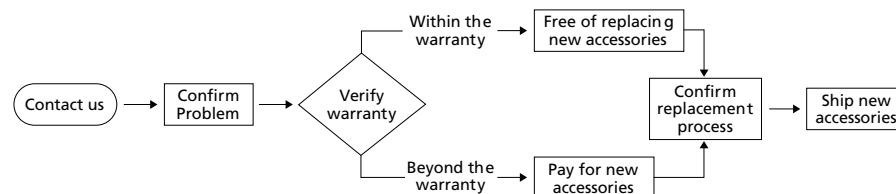
2 After-sales service timetable

Component	USA	Europe	Macau	Others
Board	1 year	1 year	1 year	1 year
Power system	1 year	2 year	1 year	1 year
Hydrofoil	1 year	1 year	1 year	1 year
Battery	1 year or less than 300 battery cycles	2 year or less than 300 battery cycles	1 year or less than 300 battery cycles	1 year or less than 300 battery cycles

Component	USA	Europe	Macau	Others
Remote control	1 year	2 year	1 year	1 year
Charger	1 year	2 year	1 year	1 year

Remark: For products that have expired and have been paid for after-sales service, you can enjoy the extended warranty service for 60 days after the after-sales service (calculated from the date of receipt of replacement parts).

3 After-sales service process



The above is the after-sales service process chart, and the details are as follows:

- If you find that the product is not being used normally and it is confirmed that the product is damaged after careful inspection, please contact Hobbywing Technology's after-sales service staff directly by email;
- Hobbywing Technology's after-sales technical support staff will first try to diagnose and solve your problem through fault videos, emails, etc.;
- If your problem still cannot be solved and the after-sales technician confirms that the component is damaged, you need to fill out the "Hobbywing Technology Product Repair Form" and then send the faulty product barcode, purchase invoice, fault video, and an email to the after-sales service personnel;
- After receiving the email, Hobbywing Technology after-sales service personnel will evaluate whether it is within the warranty scope. Components damaged by non-human factors during the warranty period can be replaced free of charge; components that are damaged outside the warranty period or due to improper use during the warranty period will need to be replaced for a fee. The after-sales service staff will contact you by email or other means and inform you of the cost and cost of replacement parts. Logistics costs will be replaced after you agree to the replacement quotation;
- After confirming the replacement for repair, the after-sales service staff will contact you and confirm the contact information (recipient, contact number, address, etc.). After confirming receipt of your repair fee, the parts can be arranged to be mailed.

5 Not covered by warranty

Your HW efoil is not under warranty if any of the following conditions apply:

- Any damage caused by repairing or disassembling the product without authorization from Hobbywing Technology, such as modifying circuits, components, battery packs, etc.;
- Including but not limited to product damage caused by collision, physical impact or fire caused by non-manufacturing factors such as user abuse and misuse;
- Any damage to the product and its components caused by failure to install, use, store, maintain, and service in accordance with official instructions or instructions for use;
- Damage caused by the use of unauthorized or uncertified third-party components, parts, materials, etc., such as the use of unmatched chargers, unmatched hydrofoils, etc.
- Failure or damage caused by forced use of this product beyond normal usage conditions, such as continued use after overloading, aging or damaged components, use in severe weather such as strong winds, heavy rains, etc. are not recommended in the instruction manual. area for use, etc.;
- Damage caused by use when the battery is exhausted or has quality issues;
- The warranty code serial number of the product or part is missing, damaged, or dirty so that it cannot be identified;
- Natural wear and tear or appearance damage that does not affect the function of the product after use is not covered by the warranty, such as wear of the board shell, hydrofoils, etc.;
- The product or part is out of warranty;
- Damage caused by transportation, loading and unloading during the exchange and repair process;
- Product damage caused by force majeure factors such as earthquake, lightning, fire, flood, etc.

6 After-sales service statement

When providing after-sales warranty services, this disclaimer applies to all users of HW efoil purchased from the Hobbywing Technology official website or authorized and dealers. By using HW efoil you agree to this statement. The after-sales service policy will differ depending on your product, parts, or country/region of purchase. When the after-sales service policy is inconsistent with the restrictions of the country or region of purchase, such restrictions can be followed after approval by Hobbywing Technology. You will be responsible for losses caused by providing an incorrect or invalid shipping address or refusing to sign for delivery. Hobbywing Technology is not responsible for the disclosure or loss of any data and private items (including personal or proprietary information, customized decorations and accessories, etc.) contained in the product when receiving after-sales service. Hobbywing Technology reserves the right to update this after-sales service policy at any time. For the latest policy, please check the official website of Hobbywing Technology.

7 Freight introduction

- Hobbywing Technology will be responsible for any damage caused by non-human factors during the warranty period.

- You are responsible for any liability caused by improper use outside the warranty period or during the warranty period.

Compliance Information:

FCC Statement Information:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 0cm between the radiator and your body.



SHENZHEN HOBBYWING TECHNOLOGY Co., LTD.



101-402 Building 4, Yasen Chuangxin Hi-tech Industrial Park, 8 Chengxin Road,
Baolong Industrial Town, Longgang District, Shenzhen, China.



Tel: +86 755 89507122 Fax: +86 755 89507112



www.hobbywing.com