HOBBYWING®

SEAKING

USER MANUAL

Brushless Electronic Speed Controller

SEAKING 300A HV V4
SEAKING 200A HV V4
SEAKING 160A V4

20250120

01 Disclaimer

Thank you for purchasing this HOBBYWING product! Please read this user manual carefully before use, once you use the product, it is understood that you have read and agreed with all the content. Brushless power systems can be very dangerous and any improper use may cause personal injury and damage to the product and related devices, so please strictly follow the instruction during installation and use.Because we have no control over the use, installation, or maintenance of this product, no liability may be assumed for any damages or losses resulting from the use of the product. We do not assume responsibility for any losses caused by unauthorized modifications to our product. We have the right to modify our product design, appearance, features and usage requirements without notification. We, HOBBYWING, are only responsible for our product cost and nothing else as result of using our product. Regarding the possible semantic different between two different versions of declaration, for users in mainland China, please take the Chinese version as standard; for users in other regions, please take the English version as standard.

The warranty period is 6 months.

HW-SMA706DUL01

02 Warnings

- Ensure all devices in the system are connected correctly to prevent any damage to the system.
- It is important to ensure that all wires&connectors soldered are properly secured. A good soldering station is recommended to do such a job to avoid short circuits,false soldering and overheating.
- Do not attempt to drive two brushless motors with a single ESC, as this may cause damage to the ESC.
- Please hold the boat in the air and ensure that the propeller do not touch human bodies or objects during setup, in order to avoid safety accidents.
- The battery must be disconnected after use. There is a small draw even when the system is off, and will eventually fully drain the battery. This may cause damage to the ESC, and will NOT BE COVERED UNDER WARRANTY.

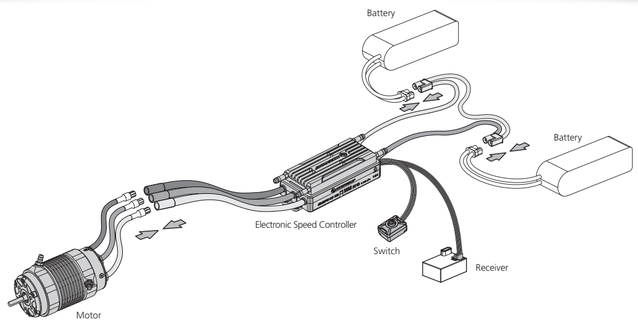
03 Features

- Excellent waterproof performance(IP67).Users can use it directly without any waterproof treatment(note:if water enters after use, please blow dry each plug to prevent rusting).
- Built-in ultra-powerful switch mode BEC and support for 6V/7.4V/8.4V switching, supporting high torque and high voltage servos.
- The built-in (integrated in the switch) Bluetooth function allows for setting and upgrading the esc by directly connecting to the mobile app, without any additional devices, making it simpler and more convenient.
- Data logging function to view various running data on the HW LINK app.
- Supports the firmware upgrade of the ESC, you can enjoy the latest functions.

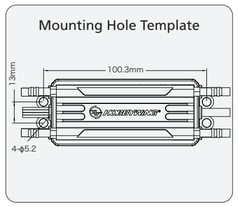
04 Specifications

MODEL	SEAKING 300A HV V4	SEAKING 200A HV V4	SEAKING 160A V4
Cont. / Peak Current	300A/1600A	200A/1000A	160A/800A
Lipo Cells	5-14S	5-14S	3-8S
BEC Output	6V/7.4V/8.4V，8A	6V/7.4V/8.4V，8A	6V/7.4V/8.4V，8A
Size（w/o water cooling pipe and mounting hole）	94x58.8x43mm	106x51x31mm	91x41x25.5mm
Weight	443g (w / input wires)	386g (w / wires & output connectors)	220g(w / wires & output connectors)
Inner / Outer diameter of water cooling pipe	3.5 / 6.0mm	3.0 / 5.5mm	3.0/5.5mm
Programming Method	HW LINK APP	HW LINK APP	HW LINK APP
Boat Applicable	Length＜ 180cm	Length＜ 140cm	Length＜ 120cm

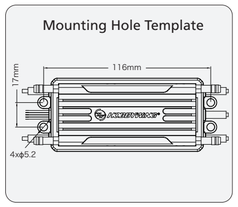
05 Connections



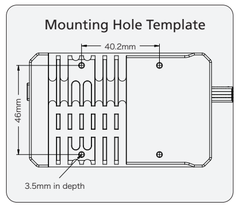
1. **Motor connection:**
   There are no wire sequencing requirements for the connection between the esc and the motor. If the motor rotates in the opposite direction,you can exchange two of the motor wires, or set the "Motor Rotation" parameter to change the motor direction.
2. **Connect the water-cooling pipe:**
   Connect the corresponding water-cooling pipes to the esc according to the wiring of the water-cooling pipe inside the boat. It is recommended to use clamps or ties to secure the water cooling tube to prevent loosening.
3. **Recevier connection：**
   Insert the throttle cable of the ESC into the throttle channel of receiver. The red wire of throttle cable provides the BEC voltage to receiver and steering servo, do not supply power to receiver, otherwise the ESC may be damaged. If need to supply power, unpin/disconnect the red wire with the throttle cable, insulate it and secure it away.
   Yellow signal cable
   This is an auxiliary(AUX) cable, it is used to connect to the idle/AUX channel on the receiver, and you can use the channel switch/knob specified by the transmitter to set the esc in real time, the default parameter item is " Max. Reverse Force", and other parameter items can also be specified through item 11 "AUX CH function".
4. **Battery connection:**
   Make sure that the (+) pole of the ESC is connected to the (+) pole of the battery and (-) to the (-), **the red wire is the positive pole, and the black wire is the negative pole. If the connection is reversed, the ESC will be damaged and will not be covered by the warranty.**



SEAKING 160A V4



SEAKING 200A HV V4



SEAKING 300A HV V4

06 ESC Setup

1 Set the Throttle Range - ESC Calibration Process

The calibration must be done on the first use of the ESC, or if a new radio or receiver is installed, otherwise the esc may not work correctly. We strongly recommend to open the fail safe function of the transmitter, set the no signal protection of throttle channel ("F/S") to close the output or set the protection value to the throttle neutral position. Thus the motor can stop running if the receiver cannot receive the signal of the transmitter. The calibration steps are below.

1. Turn on the transmitter, ensure all parameters (D/R, EPA, ATL)on the throttle channel are at default (100%). For transmitter without LCD, please turn the knob to the maximum, and the throttle "TRIM" to 0. (If the transmitter without LCD, turn the knob to the middle point). **This step can be skipped if the radio's settings are default!**

2. If you are using a pistol-type transmitter:
   The ESC is connected to the battery but it is turned off.Pull the throttle trigger to the full throttle position and hold it, then turn on the esc, 4 seconds later, the motor will emit two beeps, indicating that the maximum throttle position has been confirmed, and then release the trigger to the neutral position, the motor will emit a long beep, indicating that the calibration has been completed.
3. If you are using a board-type transmitter:
   The ESC is connected to the battery but it is turned off. Push the throttle stick to the full throttle position, then turn on the esc, 4 seconds later, the motor will emit two beeps, indicating that the maximum throttle position has been confirmed. If you want to set it to half throttle travel, place the throttle stick to the neutral position; If you want to set it to full throttle travel, place the throttle stick to the lowest position; the motor will emit a long beep, indicating that the calibration has been completed.

Note: When the motor emits "Beep" tone(s), the red LED in the ESC flashes at the same time.

2 Power on/off and beep instructions

1. Move the throttle trigger/stick to the neutral(zero throttle)position, then turn on the transmitter.
2. Connect the battery to the ESC and turn the switch on.
3. The motor emits several "Beeps"to report the cells number in your Lipo battery pack. Please make sure that the number is correct. A short "beep-"means the #1, and a long"beep—"means the #5. For example: "beep—, beep-beep-beep-"means 8 cells. "beep—, beep—"means 12 cells.
4. One second later, the motor emits a steady and long "beep—"to confirm the zero throttle position.
5. You can start the motor.

3 Instruction for programmable items

The highlighted options are the default settings of the ESC.

No.	Item	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
1	Running Mode	Forward Only	*Forward and Reverse*							
2	Max.Reverse Force	*25%*	50%	75%	100%					
3	LiPo Cells	*Auto*	3S	4S	5S	6S	7S	8S		
			5S	6S	7S	8S	9S	10S	12S	14S
4	Cutoff Voltage	Disabled	2.6V/Cell	2.8V/Cell	3.0V/Cell	3.1V/Cell	3.2V/Cell	3.3V/Cell	*3.4V/Cell*	3.6V/Cell
5	BEC Voltage	*6.0V*	7.4V	8.4V						
6	Motor Rotation	*CCW*	CW							
7	Punch	Level 1	Level 2	Level 3	*Level 4*	Level 5	Level 6	Level 7		
8	Freewheeling	Disabled	*Enabled*							
9	Drag Brake Force	*Disabled*	10%	25%	50%	75%	100%			
10	Timing	10.0°	12.5°	*15.0°*	17.5°	20.0°	22.5°	25.0°	27.5°	30.0°
11	AUX CH Function	*2*	7	9						

Note: For SEAKING 300A HV V4 ESC, there is no "Disabled" option for the item 8 "Freewheeling".

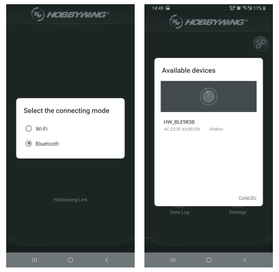
1. **Running Mode:**
   Option1: Forward Only
   In this mode, only single direction operation is provided without reverse.
   Option2: Forward and Reverse
   In this mode, the motor can run in both directions.
2. **Max. Reverse Force:**
   Refers to the reversing speed. Please make sure to confirm whether the transmission system of the boat supports when setting it. It is recommended to use a small reverse force generally.
3. **LiPo Cells:**
   Set the correct value according to the actual number of LiPo batteries used. The default is automatically calculated. If the same cells of LiPo batteries are usually used, it is recommended to set this parameter to avoid misjudging, for example, 8S Lipo without power may be incorrectly calculated as fully charged 7S Lipo.
4. **Low Voltage Cut-Off:**
   This function is mainly to prevent excessive discharge of lithium batteries causing damage. The ESC monitors the battery voltage at all times, and once the voltage falls below the set threshold, the power output will be cut off, and the throttle trigger needs to be returned to the neutral/zero position, then 50% of the output power can be restored, after running for 5 seconds, the power will be cut off again, such a cycle. If the battery voltage is below 3.0V/Cell, only 25% of the power can be restored. When the voltage protection is entered, the red LED flashes in the "☆, ☆, ☆".
   Note: If the discharge capacity of the battery can not meet the load of the boat, and the battery voltage is easily restored to above the set value after triggering the low voltage protection, the esc will allow the maximum 50% output power to continue running.
5. **BEC Voltage:**
   BEC voltage support 6V/7.4V/8.4V. Generally, 6.0V is suitable for standard servos, while 7.4V/8.4V is suitable for high-voltage servos. Please set according to the servo specifications.
   WARNING! Do not set the BEC voltage above the maximum operating voltage of the servo and receiver, as this may damage the servo/reveiver or even the ESC.
6. **Motor Rotation:**
   Used to set the rotation direction of the motor. Due to differences in motors and boat structure, it is possible for the boat to reverse when the throttle is applied to forward, in this case, you can solve it by adjusting this item.
7. **Punch:**
   This item is used to control the throttle response. The higher the punch,the more aggressive the throttle will be applied. If set too high, it may cause excessive start-up current and have adverse effects on the motor/ESC/battery.
8. **Freewheeling:**
   When this function is enabled, it will slow down faster when releasing the throttle, provide better throttle linearity and energy recovery, and less heat under the same conditions.
9. **Drag Brake Force:**
   Refers to the brake force generated by the motor when the throttle trigger returns to neutral position. Typically drag brake will be 0.
10. **Timing:**
    This feature has three functions:
    1) Compatible with different motors, some motors may work abnormally under the default value and need to be adjusted to the appropriate timing for normal operation;
    2) Adjusting the appropriate timing can improve the efficiency of the power system;
    3) The motor speed can be fine tuned, and the higher the timing, the higher the speed (and the higher the current); Whether there will be an increase in speed is related to factors such as the motor and load, and the specific effect depends on actual testing.
11. **AUX CH Function:**
    This parameter is used to set the real-time adjustment parameters for the idle channel of the transmitter. First,plug the yellow signal cable from the esc into a idle channel of thereceiver, and then set the parameter you want to adjust in real time for this idle channel. This way, you can use the button/knob on the transmitter corresponding to this idle channel to set this parameter in real time. For example, the default parameter is the item 2 "Max. Reverse Force", which means you can set the reverse force by the transmitter in real time. You can set other parameters(like item 7 or 9) that you want to adjust in real time using the transmitter through the mobile app.

4 Programming method

Program your ESC with a smart phone (installed with the HW LINK V2 app)

The esc already has a built-in Bluetooth module (integrated into the switch), which supports direct use of the mobile app for parameter setting,firmware updating and data reading without the need for additional devices. The specific methods are as follows:

- Download and install the Hobbywing's official app "HW LINK V2" on your smart phone. For smart phones with the iOS operating system, please search "Hobbywing" in the App Store; for smart phones with the Android operating system, search "Hobbywing" in the Google Play or download it from our website. (https://www.hobbywing.com)
- Connect a battery to the ESC and turn it on, then open the Hobbywing official app"HW LINK V2" on your smart phone. It will ask if you want to connect "Bluetooth" or "WiFi" the first time when you open the app; at this point, please select "Bluetooth". You need to change the connection to "Bluetooth" after using the "WiFi" connection, you can click "Settings" (on the home page) and then "Select the connecting mode" to change the connection.
- A list of Bluetooth devices will pop out when you click the ESC icon on the upper right corner, then select the ESC you want to program to establish the Bluetooth connection between the ESC and smart phone. (Note: the default name & password of the Bluetooth device are HW_BLE**** & 888888.)



ESC Setup: Click【Parameters】on the home page to adjust the ESC parameters, click the connection icon on the upper right corner to disconnect the Bluetooth connection between the ESC and smart phone after completing and saving the settings.

Firmware Updating: Click【Firmware Update】and then select the【Available Version】to select the firmware version you need, and then click "Update" to upgrade your ESC.

Data Logging: Click on the【Data Log】on the homepage of the APP, select【Peak Record】to view the extreme value data stored in the esc; Select【Data Record】to view the real-time running data; Click on the【Data Log】button in the upper right corner of the【Real-time Data】page to view the historical running data (curve chart).

Note: For SEAKING 300A HV V4 esc, there is a reserved independent programming interface (3pin interface marked with "- +a"), which can support the use of LED&LCD Pro/G2 Program Box and OTA Programmer.

5 Factory reset

Restore the default values (only the ESC parameters) with a smart phone (installed with the HW LINK app):
After entering the app and establishing the Bluetooth connection between the ESC and smart phone, click "Factory Reset" in "Parameters" to factory reset your ESC. After that, please re-calibrate the throttle range.

Use the switch button to restore the factory Bluetooth name and password:
Connect the esc to the battery and the esc is in the off state. Press and hold the switch button for about 8 seconds. The RED LED in the switch will flash first, and then the GREEN LED will flash, at this time, you can release the switch button and wait for a few seconds until the RED LED turns on continuously, indicating that the factory Bluetooth name and password have been successfully restored. The ESC will automatically restart. The default factory name for Bluetooth is: HW_ BLE * * * * and the default password is 888888

07 Explanation for LED status

1. **The run status indication:**
   1) The throttle trigger is in the neutral point and the LED lights are off.
   2) When advancing, the red light is constantly on, and when the throttle is at full throttle, the blue light is on.
   3) When reversing, the red light is constantly on; If the reversing force is set to 100%, the blue light is also lit when the throttle is at the maximum of the reverse.
2. **What the LED means when the relevant protection function is triggered:**
   1) The red light flashes (single flash, "☆, ☆, ☆"): enters the low voltage protection state. The phenomenon after triggering low voltage protection is detailed in the explanation of parameter item 4 (Low Voltage Cut-Off).
   2) The blue light flashes (single flash, "☆, ☆, ☆"): enters the esc overheat protection state. The output power will be reduced to 50% after triggering the overheat protection, and the full power output can be automatically restored after the temperature drops to a certain value.
   3) The blue light flashes (three flashes, "☆☆☆, ☆☆☆, ☆☆☆"): enters the current protection state. The esc will cut off the output after triggering the over-current protection, and the output can be automatically restored when the throttle trigger back to the neutral/zero throttle position.
   4) The blue light flashes (five flashes, "☆☆☆☆☆, ☆☆☆☆☆, ☆☆☆☆☆"): enters the capacitor overheat protection state. The output power will be reduced to 50% after triggering the capacitor overheat protection, and the full power output can be automatically restored after the temperature drops to a certain value.

08 Trouble Shooting

Troubles	Possible Causes	Solution
The light does not turn on after power-up, the motor does not start.	1. The battery voltage is not output to the ESC; 2. The switch is damaged.	1. Check the battery,and whether the connection between battery and esc is good and whether the plug is soldered well; 2. Replace the switch.
The motor does not start after power-up, with a "beep-beep-, beep-beep-" warning tone accompanied by a flashing red light (approximately 0.5 seconds for each set of two-tone intervals) .	The battery pack voltage is not within the range of support.	Check the battery voltage or change the battery for testing.
After power on, the red light flashes quickly.	1. The throttle signal is not detected by the ESC; 2. The neutral point of the ESC is not calibrated correctly.	1. Check if the throttle wire is plugged into the correct channel. Check if your transmitter is turned on. Check if the receiver ok. 2. Recalibrate the throttle travel.
The car is going in the reversed direction when the forward throttle is applied.	The transmission on the vehicle is different	Set the parameter item "Motor Rotation" to the opposite direction.
The motor suddenly stopped or significantly reduced the output in running.	1. Possible interference; 2. The ESC enters into low-voltage protection state; 3. The ESC enters into overheat protection state.	1. Check the cause of the interference in the receiver and check the battery level of the transmitter; 2. Replace the battery if red light keeps flashing; 3. The blue light continues to flash for temperature protection, please continue to use after the ESC or motor temperature is reduced (it is recommended to reduce the load on the vehicle).
The motor stuttered and unable to start.	1. The motor is connected incorrectly; 2. ESC fault (partial power MOSFET burned out).	1. Check the plugs and the solder points and whether the sequence of A, B and C wires is correct.; 2. Contact the dealer to handle the repair.
Going forward normally, but not reverse.	1. The parameter item "Running Mode" is set incorrectly; 2. The throttle range is incorrect; 3. The ESC is damaged.	1. Set the "Running Mode" to "Forward and Reverse"; 2. Reset the throttle range(ESC Calibration); 3. Contact the distributor to handle the repair.
The throttle travel setting could not be completed.	The ESC did not receive the correct throttle signal.	1. Check whether the throttle cable is correctly connected to the receiver. 2. If the servo works normally,you can connect the throttle cable of esc to the steering channel to have a test, or change the transmitter/receiver system for test directly.

09 FCC Information

This equipment complies with FCC radiation exposure limits get forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the equipment & your body.

FCC Warning
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.
(2) this device must accept any interference received, including interference that may cause undesired operation.
CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.