# Kingkong-series ESC Manuals

# Brushless ESC Instructions

**Thanks for purchasing *Kingkong-series* brushless speed controller for R/C electric model airplane and helicopters manufactured by Chongqing HIFEI Technology Co., Ltd.**
**Please read the instruction carefully before flying.**

## Contents





Kingkong-series Brushless Speed Controller Manuals www.hifei.com

# Ⅰ Using Warnings

**• Strongly recommend to calibrate the throttle range of transmitter when you first use a new controller or when change a new/different transmitter or receiver.**

**• When connecting the ESC to battery pack, please ensure the polarity is correct.**
**Incorrect polarity will cause permanent damage to the ESC and such damage is not covered by manufacturer's WARRANTY.**

**• When use the ESC, turn on the transmitter BEFORE powering on the receiver.**
**• When finish the flying, power off the receiver BEFORE turning off the transmitter.**

**• It is very IMPORTANT to make sure the ESC is mounted in a good air flowing place for heat sinking.**

**• The limiting current is set to the 'standard mode' in factory. It is suitable for use in most configurations. Only experienced technicians can adjust this programming.**

**• In Governor Mode, the brake is always disabled and the soft cutoff is always active.**

**• Changing the PWM may cause the motor to heat ahead of time.**

**• Never disconnect the battery pack while the motor is running, as this could cause damage to the speed controller and/or motor.**

**• Connectors with low conductivity may cause erratic motor rotations or other unexpected movements.**

**• If you do not use the BEC function of the ESC and are using a separate receiver pack or UBEC to power receiver and servos instead, please disconnect the red wire from the ESC's receiver lead.**

**• The controller will automatically power off the motor if the battery voltage drops below the programmed cut-off voltage. Try using a smaller prop on the motor, or using batteries with a higher rating. It is especially important for the user of Li-poly cells.**

**• Allowing water, lubricants, moisture or other foreign objects inside the ESC will VOID the WARRANTY. Exposure to CA glue or its fumes can cause damage and malfunctions; this will also VOID the WARRANTY.**

**• When finish the using of Hifei software ' V4.xx', close the software first, then pull out the USB linker from your PC, or it may cause the crash of the computer.**

# Ⅱ ESC Specifications

## Ⅱ A: *Instruction*

**Hifei Kingkong-series controllers are outstanding and unique products in the R/C industry. They represent a great advance in electric flight by integrating a data logger with an electronic speed controller. There is no need for a separate logging device if you have a Hifei Kingkong controller! In addition, software updates for the controller can be downloaded from the Internet so your controller will never become obsolete. The Kingkong series give you all the data you need to be sure your aircraft is set up for its optimum performance.**

## Ⅱ B: *Features*

- **Microprocessor-controlled, extremely low resistance**
- **Smooth start, stable powerful performance and prompt response**
- **Innovate intelligent Governor Mode, especially appropriate for 3D helicopter.**
- **With built-in data logger, logging detail flight data, such as: Voltage, Current, Throttle ,Motor RPM and Temperature**
- **Support to be linked to PC by 'Hifei USB Linker'.**
- **Firmware of the ESC can be upgradeable via soft on PC when a new version is available.**
- **Fully program by devices of Hifei Program-card, soft on PC, Hifei Program-box and TX.**

## Ⅱ C: *ESC Models*

**Low Voltage ESC W/BEC**

| ESC | Voltage | Current/ Max | BEC | Size( mm) | Weight (incl. Wires) |
|---|---|---|---|---|---|
| 20A-K-3S | 2-3S Lipo | 20amp/30amp | 2A linear | 55×27×13 | 23g |
| 40A-K-3S | 2-3S Lipo | 40amp/50amp | 2A linear | 55×27×13 | 25g |
| 45A-K-6S | 2-6S Lipo | 45amp/65amp | max 4A switching | 58×26×17 | 40g |
| 60A-K-6S | 2-6S Lipo | 60amp/70amp | max 4A switching | 71×26.5×15 | 50g |
| 80A-K-6S | 2-6S Lipo | 80amp/90amp | max 4A switching | 71×26.5×15 | 52g |
| 100A-KII-6S | 2-6S Lipo | 100amp/110amp | 3.5A switching | 89x35x21 | 107g |
| 180A-KII-6S | 2-6S Lipo | 180amp/190amp | 3.5A switching | 100x43x23 | 153g |

**High Voltage ESC W/O BEC**

| ESC | Voltage | Current/Max | BEC | Size (mm) | Weight (incl. Wires) |
|---|---|---|---|---|---|
| 90A-KⅡ-8S | 4-8S Lipo | 90amp/110amp | OPTO | 89x35x21 | 107g |
| 150A-KⅡ-8S | 4-8S Lipo | 150amp/160amp | OPTO | 100x43x23 | 153g |
| 75A-KⅡ-12S | 4-12S Lipo | 75amp/90amp | OPTO | 89x35x21 | 107g |
| 120A-KⅡ-12S | 4-12S Lipo | 120amp/150amp | OPTO | 100x43x23 | 153g |
| 160A-KⅡ-12S | 4-12S Lipo | 160amp/190amp | OPTO | 92×54×26 | 257g |
| 220A-KⅡ-12S | 4-12S Lipo | 220amp/250amp | OPTO | 110x61x25 | 285g |
| 220A-KII-15S | 4-15S Lipo | 220amp/ 250amp | OPTO | 110x61x25 | 271g |





# Ⅱ D: *Programmable Parameters*

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LVC *(note 1)* | Auto | 5.0V * | 6.0V (2 Lipo) | 7.2V | 8.4V | 9.0V (3 Lipo) | 12.0V (4 Lipo) | | | | | | |
| LVC *(note 2)* | Auto | 6.0V (2s Lipo)* | 7.2V | 8.4V | 9.0V (3s Lipo) | 12.0V (4s Lipo) | 15.0V (5s Lipo) | 18.0V (6s Lipo) | | | | | |
| LVC *(note 3)* | Auto | 12.0V (4s Lipo)* | 15.0v (5s Lipo) | 18.0v (6s Lipo) | 21.0v (7s Lipo) | 24.0v (8s Lipo) | 27.0v (9s Lipo) | 30.0v (10s Lipo) | 33.0v (11s Lipo) | 36.0v (12s Lipo) | 39.0v (13s Lipo) | 42.0v (14s Lipo) | 45.0v (15s Lipo) |
| Current Limiting | Sensitivity | | Standard* | | Insensitivity | | Disabled | | | | | | |
| Brake Type | No brake* | | Soft brake | | Hard brake | | | | | | | | |
| Timing Advance | Auto* | | Low | | Middle | | High | | | | | | |
| Cutoff Type | Hard cutoff* | | Soft cutoff | | | | | | | | | | |
| Start Type | Soft start | | Standard* | | Fast start | | | | | | | | |
| Governor Mode | Auto* | | Governor Low | | Governor High | | | | | | | | |
| PWM Rate | 8KHz* | | 12KHz | | 16KHz | | | | | | | | |
| Throttle Range | 640 uS | | | | | | | | | | | | |

**LVC (note 1) is the settings for Kinkong 2s-3s ESC,**

**LVC (note 2) is the settings for Kingkong 2s-6s ESC.**

**LVC (note 3) is the settings for Kingkong 4s-15s ESC.**

***Note:***

*1) Parameters with asterisk behind are the factory default settings of Kingkong ESC.*

*2) Please program the parameters into most appropriate once according to the configuration.*

*3) "Throttle Range" is auto changed and saved when finish throttle calibration.*

***If the LVC of ESC is set in "Auto' , after the two power beeps the ESC will beep times to detect Lipo cells WHILE the red LED blink.***

# Ⅱ E: ***Parameters Features***

## Low voltage cut-off (LVC):

**Low voltage cut-off can protect the battery packs from being discharged too low and cause damaged to cells. It is very important to set the LVC settings before flying.**

## Current Limiting :

| | |
|---|---|
| Option 1: Very Sensitivity | Low over-current threshold, will rapidly shut-down |
| Option2: Stand (default) | Moderate over –current threshold, will shut down after a slight delay. Recommended for inrunner motors |
| Option3: Insensitivity | High over-current threshold, will shut down after slight delay. Recommended for outrunner motors. Only experienced modelers should use this programming features. |
| Option 4: Disabled | Current limiting detection disabled. Only experienced modelers should use this programming features. |

**Default setting is recommended.**

## Brake type:

| | |
|---|---|
| Option1: Brake disabled (default) | Brake disabled is mainly used for helicopters. |
| Option 2:Soft brake | Soft brake provides 50% of full braking power. General aircraft use, with fixed or folding prop |
| Option 3:Hard brake | Hard brake is 70% braking power. Direct drive applications where more braking power is required. Hard brake should only be used below 12V. |

## Timing advance:

| | |
|---|---|
| Option 1: Low advance timing 0°~15° | Recommended for more lower pole count motors. Gives more power and slightly less efficient. |
| Option 2: middle advance timing 5 °~ 20 ° | Recommended for most motors .Gives a good balance of power and efficiency. |
| Option 3: High advance timing 15° ~ 30 ° | Recommended for most of higher pole count motors |
| Option4:Auto(default) | Recommended for most of all brushless motors. |
| Option 5: 0°; Option 6: 2°; Option 7: 4°; Option 8: 6°; Option 9: 8°; Option 10: 10°; Option 11: 12°; Option 12: 14°; Option 13: 16°; Option 14: 18°; Option 15: 20°; Option 16: 22°; Option 17: 24°; Option 18: 26°; Option 19:28°; Option 20: 30° | |
| *Note: These options can be only set via software 'Hifei V4.03' or newer version, which was released after 4 Dec., 2012. If you want to upgrade your old version software to have these timing advance, please download the software from www.hifei.com.* | |
| *0º and 30º are special settings, can be only selected for some special motors with manufactures special requirements.* | |





## Cutoff type:

| | |
|---|---|
| Option 1 :Hard cutoff (default) | When battery voltage reaches cut-off voltage the motor will shutdown immediately. Motor can be restarted by closing the throttle to the lowest position and then move the throttle as normal |
| Option 2: Soft cutoff | When battery voltage reaches cut-off voltage, the ESC will slowly reduce motor power to zero, you will notice a decrease in power and it is time to land, the throttle maintains its full linear response. |

***Note:** Soft cutoff is always automatically active in Governor Mode.*

## Start type:

| | |
|---|---|
| Option 1: very soft start | Recommend for helicopters |
| Option 2: Soft start (default) | Recommend for most of the fixed or folding prop airplanes and some helicopters. |
| Option 3: fast start | Recommend for fastest startup. |

## Governor Mode:

| | |
|---|---|
| Option 1: Auto calibrating throttle (default) | Governor mode disabled. Recommended for general fixed-wing aircrafts |
| Option 2: Governor Low (for helicopter ) | Lower control gain |
| Option 3: Governor High (for helicopter ) | Higher control gain |

***Note:** 1. In helicopter application, setting in 'Governor Low' or 'Governor High' is required. And we recommend to set the start type in 'Soft start' to get much smooth start for your helicopters.*

*2. In 'Governor Mode', the start time is generally between 8~15 seconds, which is different depend on the load.*

*3. In Governor Mode, the brake is always disabled and soft cutoff is automatically active.*

*The detailed instruction of Hifei Governor mode, please check the separate file ' Governor Instruction V4.11'*

## PWM Switching Rate:

| For LV ESC | For HV ESC | |
|---|---|---|
| Option 1:8KHz(default) | Option 1: low (default) | Recommended for most brushless motors |
| Option 2: 12KHz | Option 2: middle | Recommended for low inductance motors |
| Option 3: 16KHz | Option 3: high | Recommended for very low inductance motors |

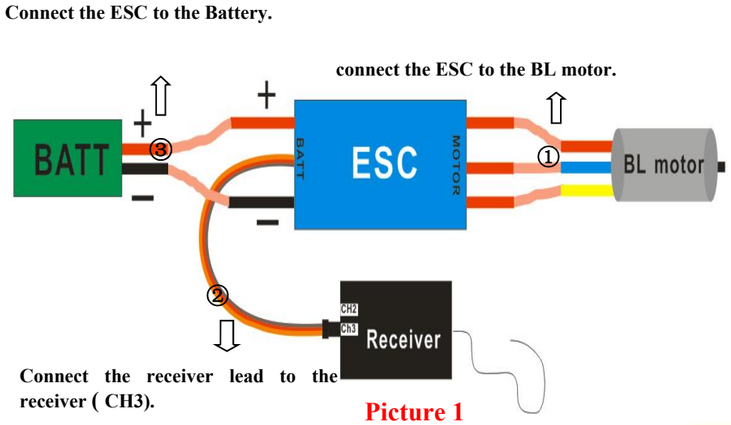
# III Using the ESC

## III A: *Connect ESC to BL Motor, Receiver, battery*

**-Please solder good-quality connectors to ESC's motor cables and power cables before connect ESC to motor and battery. And connect battery's negative to ESC's negative, and positive to positive.**
**-Swap any two motor wires' connecting can change the rotation direction.**
**-Plug the receiver lead of ESC into CH3 of receiver**
**-In order to prevent and reduce any signal disturbance generated by ESC hardware, please put the ESC far away from receiver.**

**For 2-3s and 2-6s Kingkong ESC which has built-in BEC , please refer to picture 1 for wiring.**

| ESC | Voltage | BEC |
|---|---|---|
| 20A-K-3S | 2-3S Lipo | 2A |
| 40A-K-3S | 2-3S Lipo | 2A |
| 45A-K-6S | 2-6S Lipo | 4A |
| 60A-K-6S | 2-6S Lipo | 4A |
| 80A-K-6S | 2-6S Lipo | 4A |
| 100A-KII-6S | 2-6S Lipo | 4A |
| 180A-KII-6S | 2-6S Lipo | 4A |

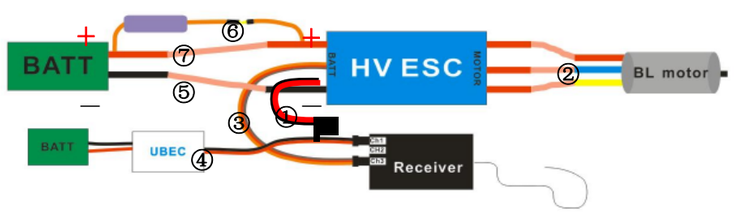



Picture 1

**For Kingkong HV ESC w/o BEC, it is need to use separate receiver battery or UBEC to supply power for receiver and servos. Please refer to Picture 2 for the wiring.**

***Note:** when run the ESC with 8s and more Lipo cells, we recommend to solder anti-spark wire as the picture show below. DO NOT unplug the red cable from HV ESC's receiver lead, otherwise it would stop work.*

| ESC | Voltage | BEC |
|---|---|---|
| 90A-KⅡ-8S | 4-8S Lipo | OPTO |
| 150A-KⅡ-8S | 4-8S Lipo | OPTO |
| 75A-KⅡ-12S | 4-12S Lipo | OPTO |
| 120A-KⅡ-12S | 4-12S Lipo | OPTO |
| 160A-KⅡ-12S | 4-12S Lipo | OPTO |
| 220A-KⅡ-12S | 4-12S Lipo | OPTO |
| 220A-KII-15S | 4-15S Lipo | OPTO |




Picture 2

**Step①:Switch off the ESC; ⇨ Step②:Connect the ESC to the BL motor; ⇨ Step ③:Connect the receiver lead to the receiver (CH3); ⇨ Step ④:Connect UBEC or receiver battery to power receiver; ⇨ Step ⑤:Connect negative(-) cable of ESC to the negative (-) of battery; ⇨ Step ⑥:Connect the anti-spark leads together; ⇨ Step⑦:After 3 seconds, connect positive (+) cable of ESC to the positive (+) of battery; Step⑧: ⇨ switch on the ESC, after two beeps♪♪ ,it is ready to run.**





## III B: *Calibrate the Throttle Range of Transmitter*

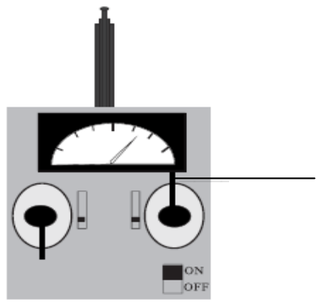
***Note:** in the following 3 situations, it is required to calibrate the throttle range of transmitter.*

- *When it is the first time to use a new speed controller.*
- *When change a new TX or RX, or a set of new radio system.*
- *When upgrade the ESC into a new version of firmware.*

*When running at the calibrated max throttle, the RED LED on the ESC will be blinking on to indicate the ESC is giving the max throttle.*

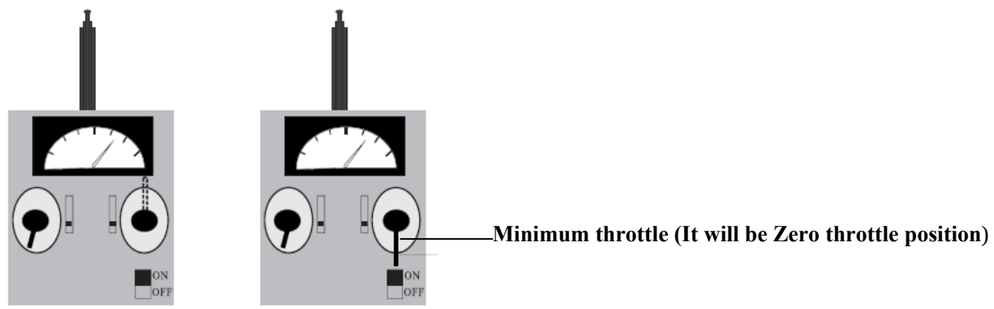
**1st: Correctly connect ESC to brushless motor, plug the receiver lead of ESC into the throttle channel of the receiver (usually CH3);**

**2nd: Push the joystick of transmitter to the max throttle position, power on the transmitter.**




**3rd: Connect the ESC to battery, there are 3 beeps ♪♪♪ emitted from the motor.**

**4th: After the following 2 beeps ♪♪, immediately pull joystick to the minimum throttle.**




**5th: ♪♪ 2 beeps emitting, the calibrating finished.**

***Note: Motor is needed to install for acoustic guide. Meanwhile, please keep the propeller away from the human beings or any objects.***

# Ⅳ Program the ESCs by Soft on PC

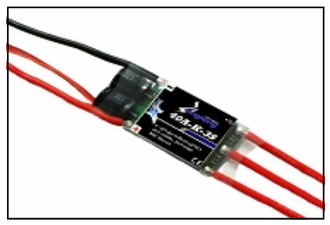
## ⅣA: *Install 'Kingkong Program' Software to PC*

### A-a: Computer Operation System Requirements

A. Personal computer with Windows 2000/ XP/ Vista/7 operation system.
B. CD-ROM drive (or access to Internet)
C. Available USB port
D. 8 Megabytes hard disk space
E. Computer screen resolution with 800X600, 1024X768*(recommended)* , 1280X1024

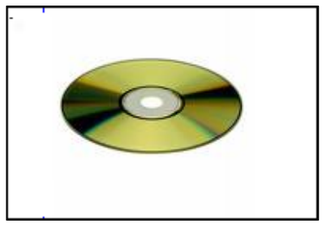
### A-b: Hardware

**The hardware include Kingkong ESC, USB Linker *(sold separately), a set-up CD (free to supply).***



**Kingkong ESC**

**USB Linker**



**Set-up soft**



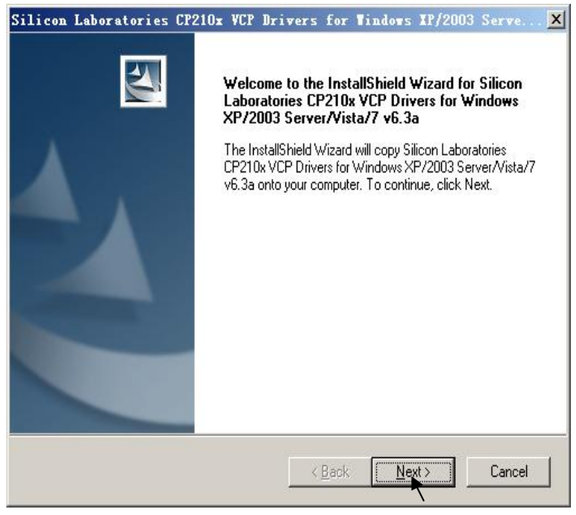


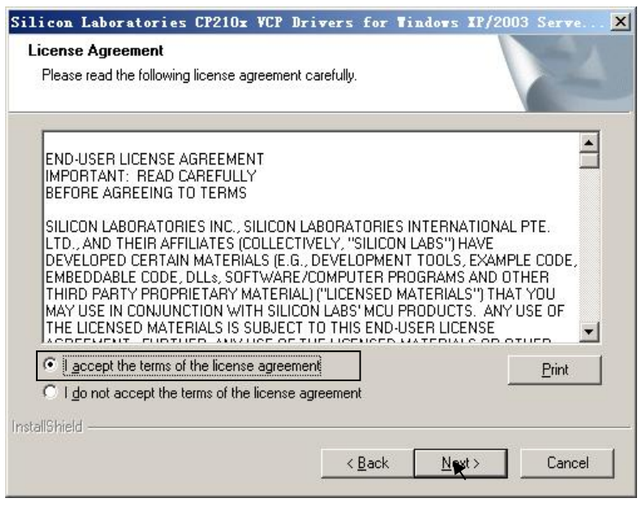
### A-c: STEPS to install the soft

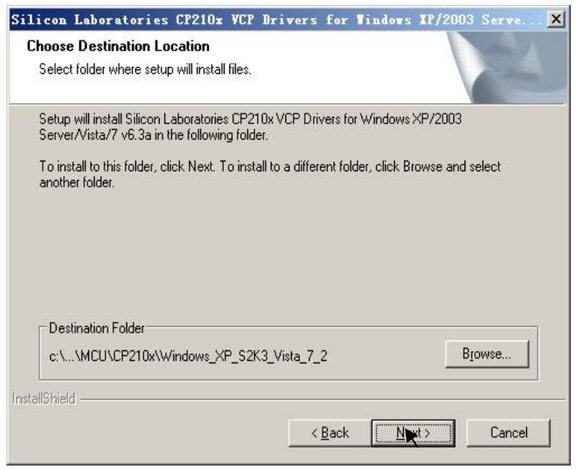
**- Insert the CD in the CD driver of the computer.**

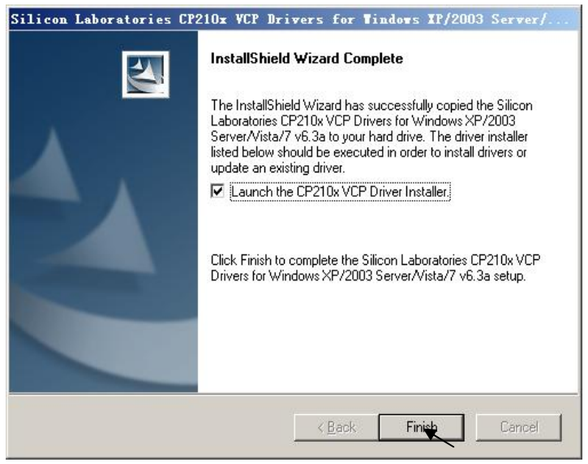
**-Double click the icon 'HiFei V4. 0Setup' .**

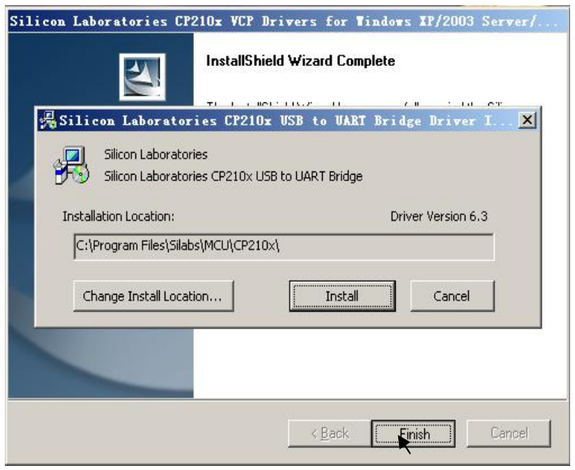








—After click ‘Finish’ button, the software shortcutting icon 

“HiFei V4.0” appears on computer desktop.

- Installation completed

*Note: if the software ‘Hifei Vx.xx’ can not run after installation, please check whether PC operation system is x64 or not. If it is x64 operation system , please back to the installation directory of software ‘Hifei Vx.xx’, and install the driver of x64 manually.*



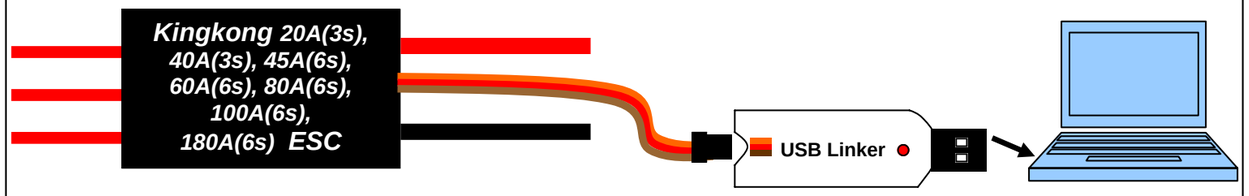


# ⅣB: *Connect ‘Kingkong ESC’ to PC*

**When connect Kingkong ESC to PC, a Hifei USB Linker is necessary.**
**When connect Kingkong ESC to PC, please DO NOT connect ESC to motor.**

## B-a: Connect Kingkong Low Voltage ESC to PC

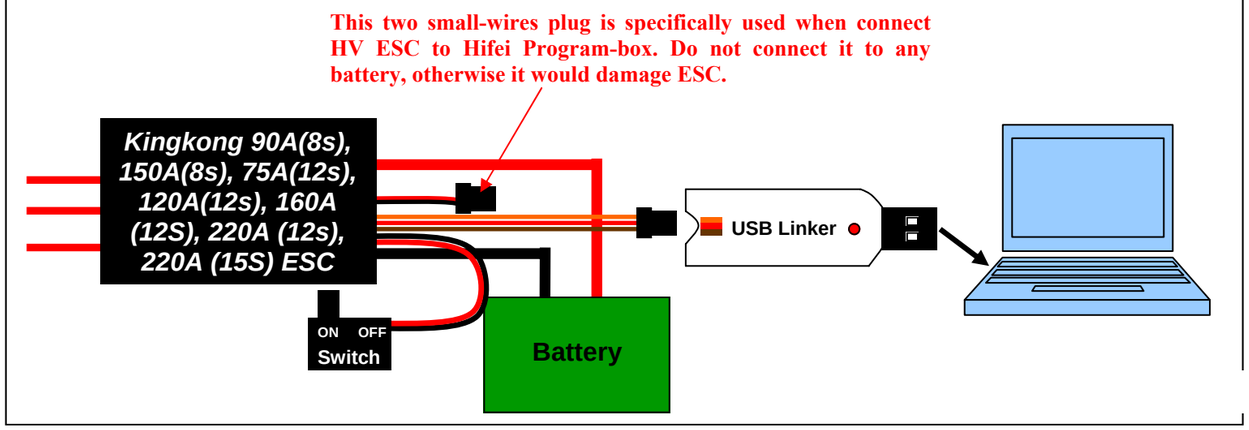
**Correctly connect the ESC’s receiver lead to USB Linker, and plug the USB Linker to one of computer’s USB ports. (DO NOT connect ESC to battery )**




## B-b: Connect Kingkong High Voltage ESC to PC

**-Check and keep the switch of ESC in ‘OFF’ position**
**-After connecting the receiver lead of ESC to the USB linker, and USB to PC, then connect the ESC to the battery, then switch on the ESC.**

***Note:Kingkong HV ESC has no built-in BEC, it need to connect ESC to battery pack when connect ESC to PC . Please refer to following wiring diagram and correctly connect the ESC to PC.***




***Note:** When the ESC is successfully connected to computer, the red LED on USB Linker will light, and the green LED on ESC will light on.*

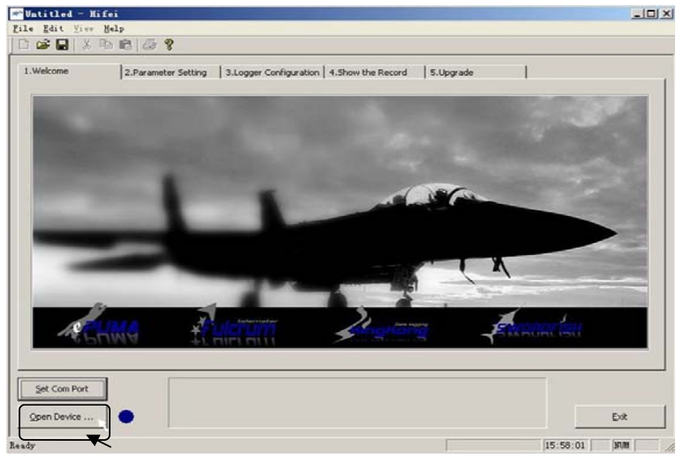
*If the green LED on ESC does not light, please check the connecting polarity between ESC’s receiver lead and USB Linker; and ensure connecting is tight.*

# IV C: *Program the ESC*

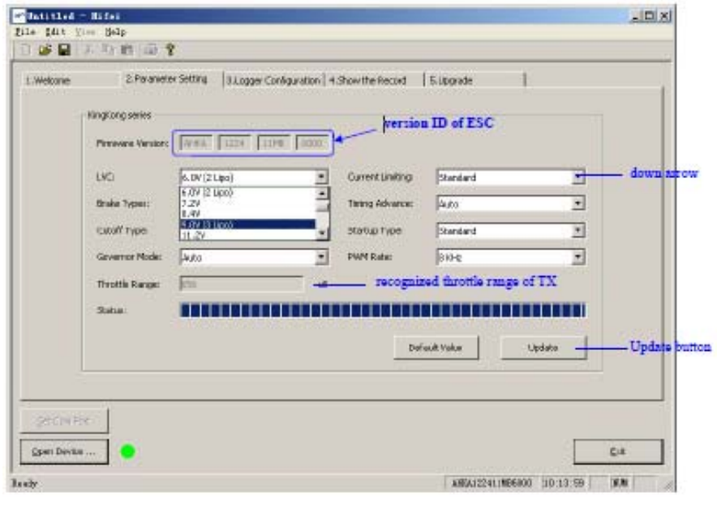
**— Double left click mouse the icon 'Hifei V4.01' on desktop.**

**— Click "open device" to enter into operations.**

***Note:** Software V4.01 or newer version is improved to be able to automatically recognize right 'Com Port', so there is no need to set 'Com Port' by hand, but click 'open device' to get into programming interface.*




**— If connection succeed, it will jump into the following interface to program ESC settings. See the following picture.**




**-Click down arrow to select the parameters you want to set.**
**-Click 'update' to save the modifications.**
**-Click 'Exit' to finish programming and ready to fly now.**

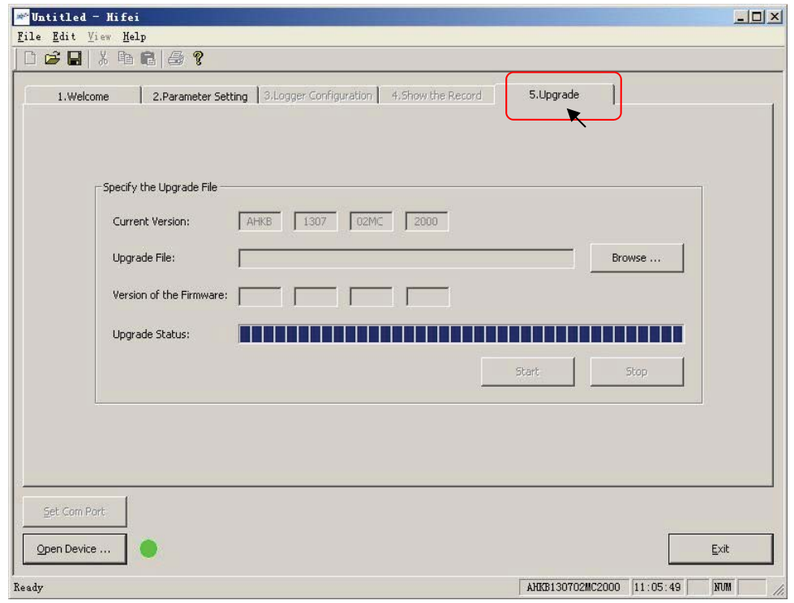
***Note:** When finish the using of Hifei software ' V4.xx', close the software first, then pull out the USB linker from your PC, or it may cause the crash of the computer.*





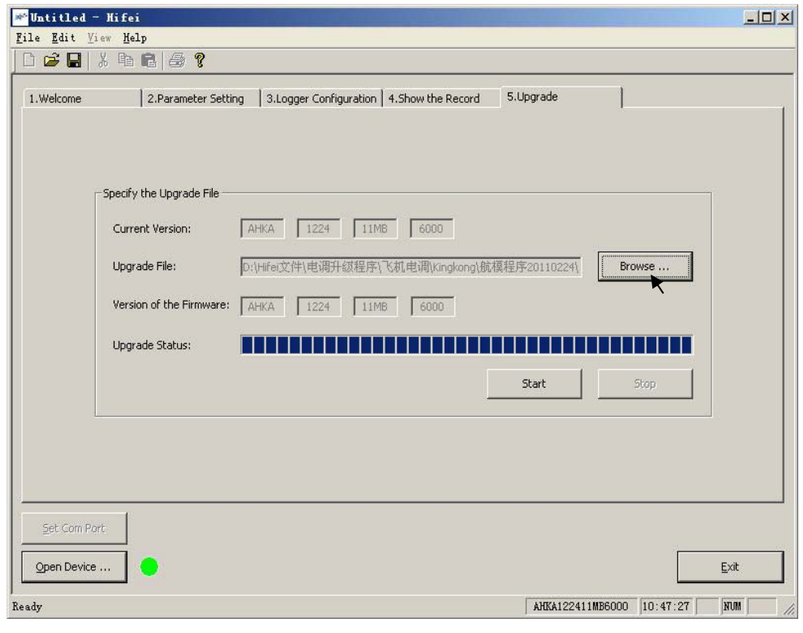
# ⅣD: *Upgrade ESC's firmware*

**-Click tab "upgrade' as the picture shows below.**

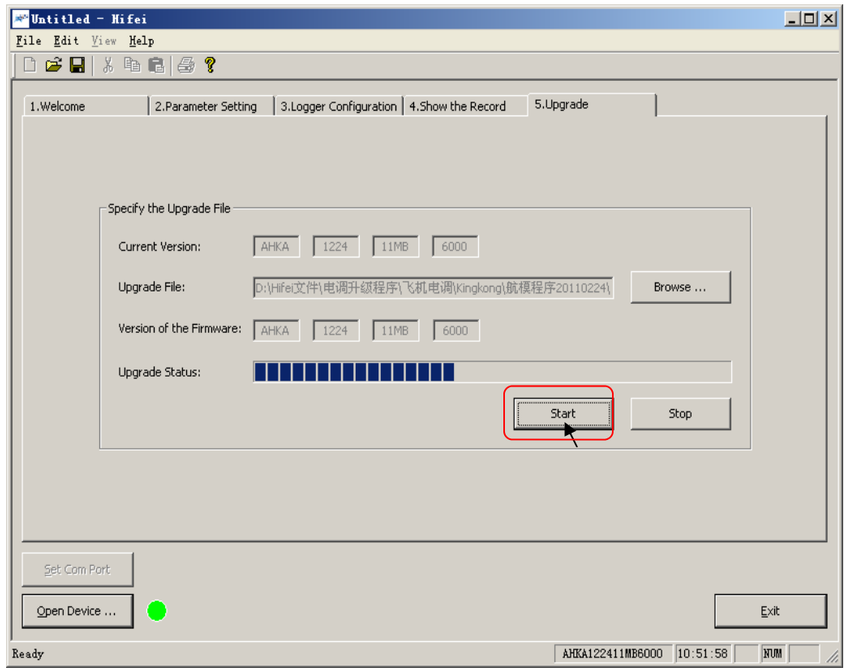



**-Click 'browse' to select the new fireware which the ESC will be upgraded into.**

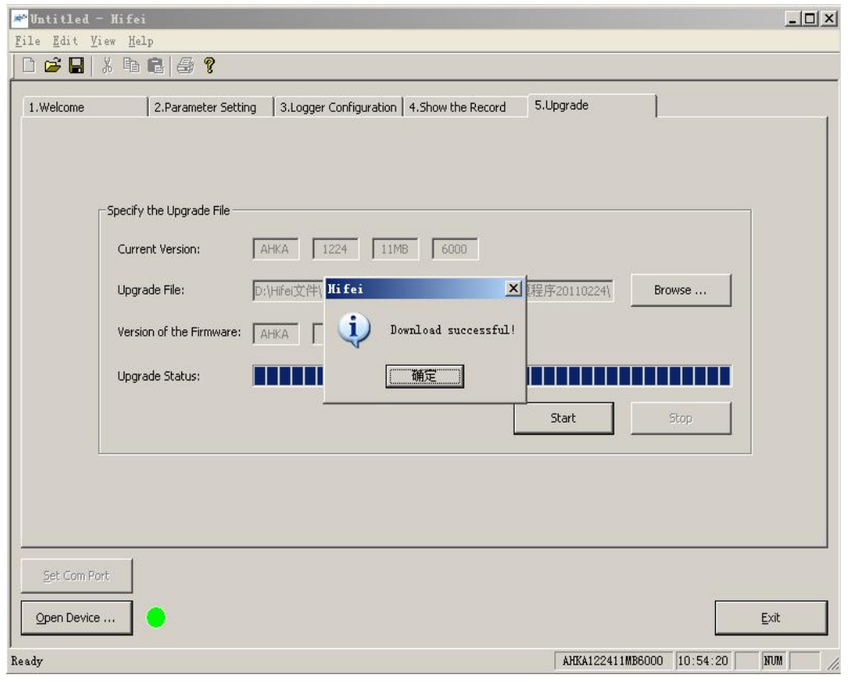
**For example, if you made a mistake to upgrade a Kingkong 40A-K into a firmware for the Kingkong 80A-K , your ESC could not work normally, or even the ESC will be damaged. Which is not covered by warranty.**



**-Click 'Start' to get into the upgrading process, it will be finished within 20 seconds.**




**-See ' Download successfully', Upgrading is finished.**



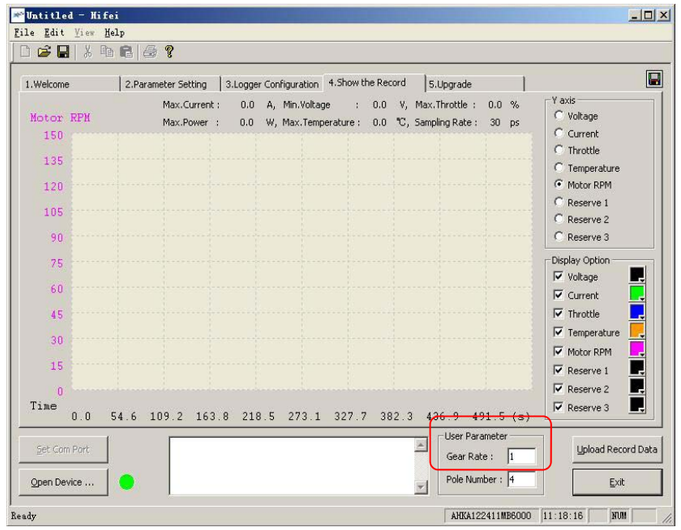




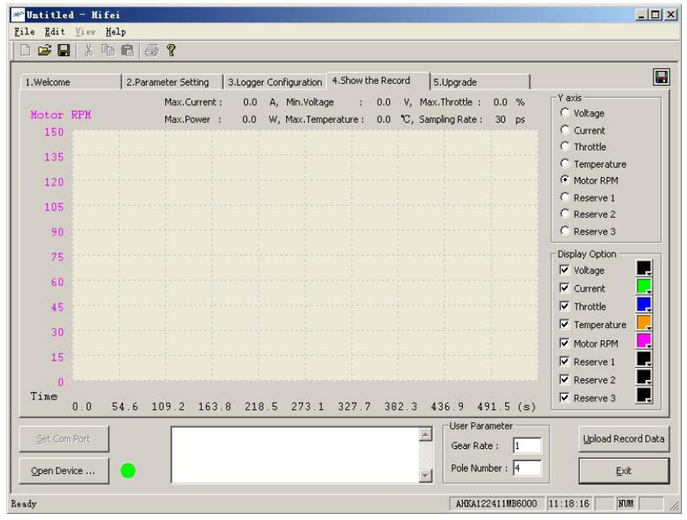

# IV E: *Read Flight Data*

**— Click tab 'Show the Record'**

**Input real and correct 'Gear Rate' and 'Pole Number' at the bottom of the soft interface.**
**'Gear Rate' is a decimal number, which is the rate of gear box used on airplanes.**
**If not use gear box, please keep it as default '1'**
**'Pole Number' hear indicates magnetic poles of brushless motor, which is always a double number of 2.**

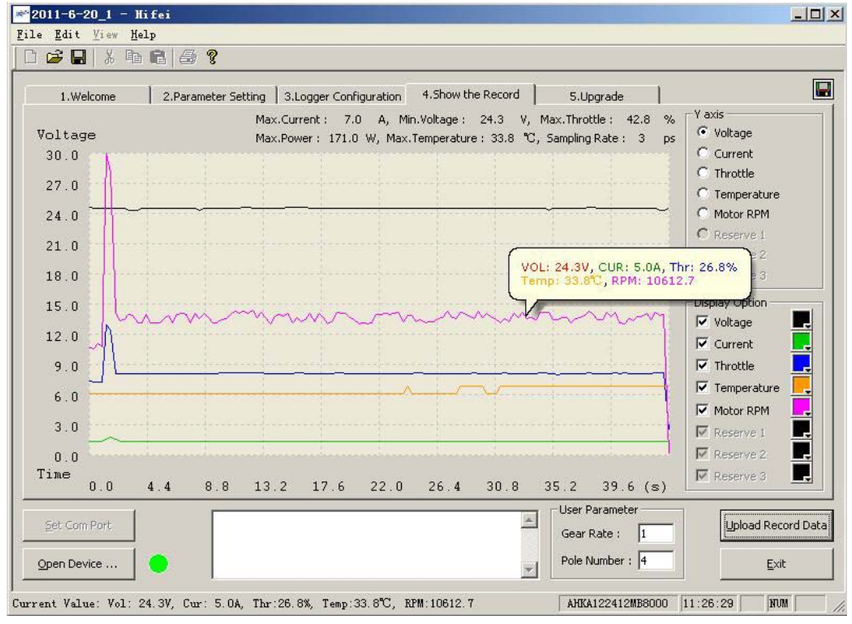



**—Click 'Upload Record Data' at the right bottom**

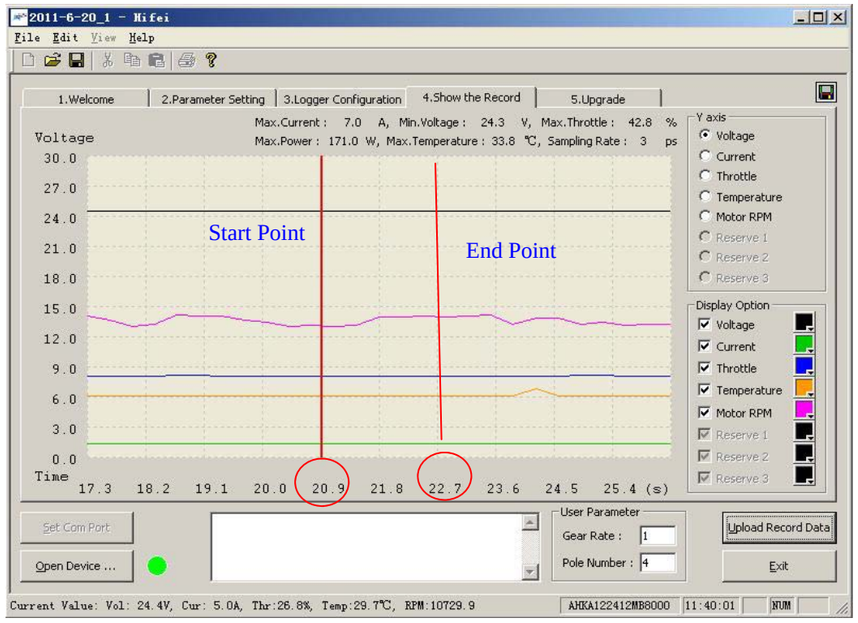



***Note:*** ***a: The firmware always displays the latest flight data.***
***b: Wherever the mouse drags to any point, a group of flight data (current, voltage, throttle, motor RPM and temperature) appears on the point.***
***c: There is ±2% physical deviation about data of RMP .***
***And ±5% deviation about data of max current.***
***And ±5% Celsius deviation about data of temperature.***

**-Logged flight data is showed as curves.**



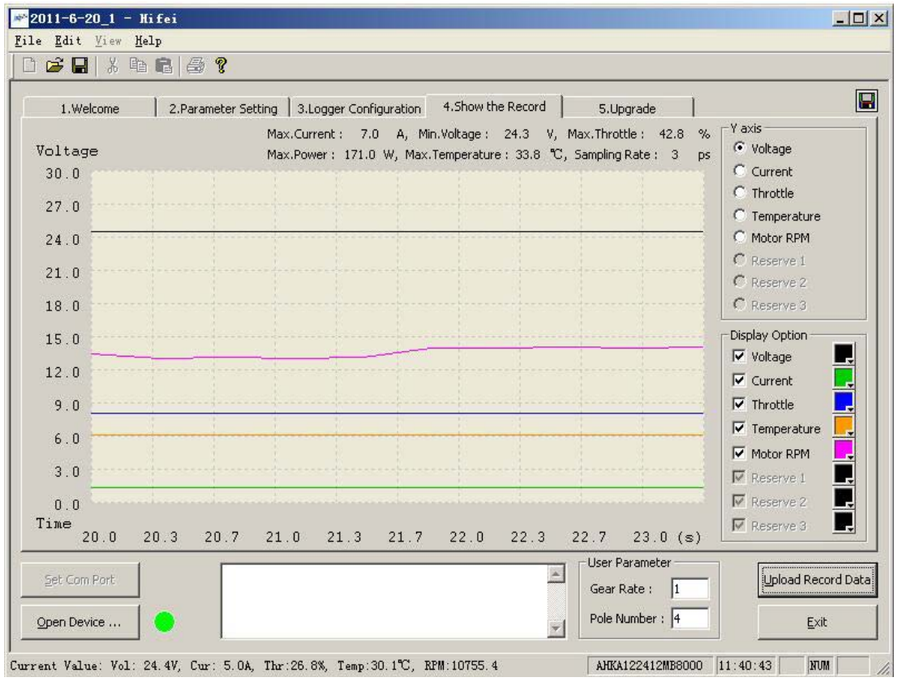

**- In the data showing interface, a range of curves can be amplified to be more clearly for analysis in this way: left click mouse on the start point and left click mouse again on the end point of chosen area, such as the below picture (the range shown in translucent is the chosen area):**








**-Much clearer curves of the chosen area is displayed as following:**




**- Right click mouse again to display the original curves.**

**- You can change the subject on 'Y' axis by selecting the option at the 'Y axis' menu.**
**And change the color of curves by selecting the option at the 'Display Option' menu.**

## Save Flight Data

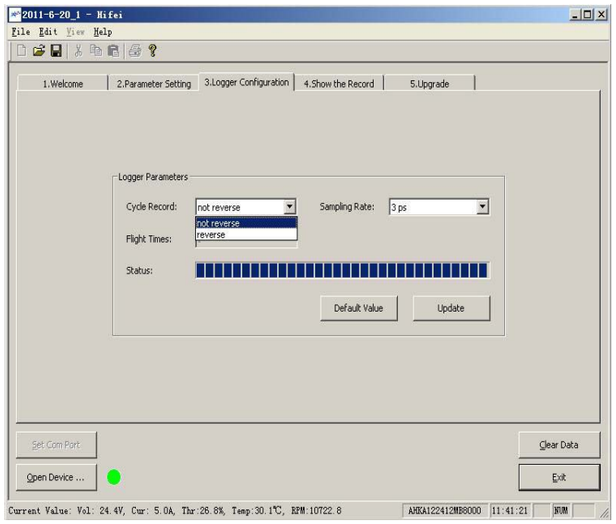
**- Click menu '*File*' and choose '*Save*' or '*Save as…*', or '*Save as JPG*', '*Save as CSV*'.**
**By 'Save' or 'Save as…', the data will be saved as *dat format, which needs to be imported into 'HiFei V4.01' soft to show the data.**

**By 'HiFei V4.01', data file can be saved as formats JPG and CSV.**
**'Save as JPG' file can be open directly as a picture.**
**'Save as CSV' file can be open directly by Windows Office Excel.**

# IV F: *Change Logger Configuration*

**Logger configuration is to set 'Record type', and 'Sampling rate', which is important to utilize the logger's memory space to record the flight data.**

**— Click tab 'Logger Configuration', click down arrow to set 'Record type', and 'Sampling Rate'. The default 'Record type' is 'not reverse', and default sampling rate is 3ps (means 3 times per second)**




***'Not reverse'*** **indicates the data logger cannot record any more when its memory space is filled up;**

***'reverse'*** **indicates the data logger can record indefinitely by overlapping the former data and do a cycle.**

***'Sampling rate'*** **means how many times the logger samples per second.**
**Higher sampling rate will reduce the logging time when in 'not reverse' record type.**

**Please refer to the following form about effective logging lasting time for each sampling rate option when in 'not reverse' record type.**

| | Sampling Rate | Logging Lasting Time | Minimum Flying Time |
|---|---|---|---|
| Record Type 'Not reverse' | Once/ Second | Approx. 68.1 minutes | > 60 seconds |
| | Twice/second | Approx. 34.05 minutes | > 30 se |
| | 3 times/second | Approx. 22.7 minutes | > 20 seconds |
| | 4 times/second | Approx. 13.62 minutes | > 10 seconds |
| | 10 times/second | Approx. 6.81 minutes | > 5 seconds |
| | 15 times/second | Approx. 3.405 minutes | > 3 seconds |
| | 30 times/second | Approx. 2.27 minutes | > 2 seconds |

***'Minimum Flying Time':*** **with the set sampling rate, the minimum flying time must be longer than guiding reference time, otherwise the software can not read out and display the data on the PC windows because of too short data.**





# V: Trouble Shooting

| Trouble | Possible reason | Shoot methods |
|---|---|---|
| When connect ESC to battery, there is no two power beeps emitted from brushless motor. | 1. The battery voltage exceeds the range of ESC's working voltage. May it is too low or too high.<br>2. Motor is damaged, or the ESC is not well connected with motor. | 1. Check battery's voltage and change suitable battery pack.<br>2.Check the connectors, ensure ESC is tightly connected with motor. Check motor whether it is good. |
| Motor shut down suddenly even at full throttle or when not decrease the throttle. | 1. Battery voltage discharge and drop down to the set low cut-off voltage, the ESC cut-off output to motor to protect the battery.<br>2. Temperature protection | 1. Please stop the running and change a new battery pack.<br>2. Stop running for a while until the ESC's temperature decrease and recover to be normal. |
| When connect ESC to PC according to the instructions, it still cannot connect the ESC to PC succefull for programming. | 1. There is loose between USB Linker to 'USB port' of PC.<br>2. The com port is not correct.<br>3. ESC's receiver lead to USB Linker is wrongly connected. | 1.Plug out the USB Linker from the PC, and re-plug it in.<br>2. Check the correct com port.<br>3.Check the connecting polarity between ESC to USB Linker. |

# VI: Warranty Clause

**Thanks for purchasing Hifei Brushless Electronic Speed Controller (ESC). Here we guarantee all Hifei ESC is made by strict workmanship standards and rigorously tested before leaving the factory. But as ESCs are usually working under atrocious environment and other possible damage during transportation, we commit under-warranty service and disclaimer in accordance with the following clauses. We reserve the rights to change clauses without notification in advance.**

**Hifei Brushless ESCs are used for radio controlled electric model airplanes, boat s and cars. Which are not toys, and must be used with much care. It is required to read the ESC user-manuals and warnings before using. This warranty does not cover abuse, neglect, or damage due to incorrect wiring, over voltage, or overloading.**

**Please read the warranty clause carefully. When request warranty, it is required to fill out the ' Warranty Form' and send one copy of the form and a copy of purchase receipt with the ESC together back to factory. Please note we do not accept request for refunding.**

## VI A: *Under Warranty Conditions*

**All Hifei ESCs are warranted for one year since the date of purchase from Hifei authorized dealers which comply with the following under-warranty clauses.**

### 1) Replacement

**In the following conditions, you can request a new replacement within 15 days since the purchase date. (Purchase receipt or invoice must be provided)**

**The requested ESC must keep in new condition.**
**a) New ESC you got has defect on components or workmanship;**
**b) New ESC you got works abnormally in first testing.**
***Note: any change to a new ESC ( such as cutting short cables, unpack ESC, etc) will be disclaimed.***

### 2) Repair

**In the following situations, we commit free repairing to requested ESC.**
**Purchase receipt and warranty form are required to ship back together with the ESC.**

**a) the date exceeds 15 days , the defective ESC will be repaired and shipped back.**
**b) the ESC can not work or be damaged in testing, which is caused by the quality defects of ESC within the valid warranty date.**

***Note: You bear the shipping cost for returning, and we pay the cost for shipping the repaired ESC back to you.***
***We promise to repair the returned ESC and ship it within 5 working days since we received it.***





## VI B: *Disclaimer Conditions*

**In any of the following conditions, we disclaim the warranty**
**a) The purchase date over 1 year.**
**b) A valid purchase certificate and/or warranty form in not provided.**
**c) ESC was damaged due to not following the manuals or any misuse, such as overload using ESC, ESC's on-board overloading, affected by the humidity, incorrectly soldered connectors, incorrect polarity the controller, misuse on other application, disconnect ESC from battery while motor is rotating, etc.**
**d) The ESC is changed, disassembled and repaired by yourself or any other third party without authorization from Hifei in advance.**
**e) The ESC is severely damaged and be irretrievable.**

## VI C: *Charged repairing service*

**We also provide charge-repairing service to Hifei ESC which is disclaimed warranty. According to the damage degree of the ESC, we will notify you the repairing fee and get your agreement before repair it.**

***Note: you pay all the shipping cost.***

**When request warranty service, please firstly contact the shop where you purchase the ESC, or send e-mail to techservice.hifei@gmail.com to describe the ESC problem, you will receive an authorized RMA number from Hifei. Please write the RMP number on ' Warranty Form'.**

**RAM No.: _____**

# Warranty Form

**Please fill out this Service-Request form and ship one copy with the ESC which you will ship back for service. We will keep you informed about the inspection result as soon as possible after carefully checking, so please ensure your email address correct. We sincerely appreciate for your support.**
**Those with asterisk * behind are required.**

**ESC Model: *_____** **Purchase Date:*_____**

**Contact Person: *_____** **E-mail: *_____**

## Ⅰ Using info:*

| | | |
|---|---|---|
| **Model airplane info** | **Name_____**<br>**Manufacturer_____** | **Length:_____**<br>**Wingspan:_____** |
| **Battery*** | **Lithium-Polymer (Lipo)**<br>**Cell Count_____; Voltage_____;**<br>**C Rating_____; Mah Rating_____;** | **NiCad or NiMH**<br>**Cell Count_____; Voltage_____;**<br>**Mah Rating_____;** |
| **Motor*** | **Manufacturer_____;**<br>**Motor Size or Model _____;** | **KV_____**<br>**No. of poles_____** |
| **Propeller*** | **Prop manufacturer：_____**<br>**Prop size_____ (inch) / _____ (mm)** | |
| **ESC Parameters*** | **LVC:_____;** **Current limiting:_____;**<br>**Brake type: _____;** **Timing advance_____;**<br>**Cut off type:_____;** **Start up type:_____**<br>**PWM:_____** | |
| **Radio** | **Manufacturer_____;** **TX model _____;**<br>**RX _____;** **Servo count _____;** | |





## Ⅱ Detail Description of Problems Symptoms *

**When the ESC be problemed: (date)/ (month) / (year)**
**Detail symptom description:**

**Ⅲ Please notify us of your shipping address, phone call and e-mail, so we will ship the ESC after it is repaired back to you. We will keep all your info confidential.**

| | | | |
|---|---|---|---|
| **Your name** | | | **Telephone** |
| **Shipping address** | **Street** | | |
| | **City** | **Country** | **Postal code** |
| **E-mail** | | | |

**Ⅳ Please ship the ESC to our factory address:**

| | | | |
|---|---|---|---|
| **Company: Chongqing HIFEI Technology Ltd.** | | | |
| **Address** | **Street: 2nd Floor, K Building, 52 Keyuan 4th street, Gaoxin District,** | | |
| | **City: Chongqing** | **Country:P.R. China** | **Postal code: 400041** |
| **Contact person** | **Michelle Lee** | **Telephone: +86 23 68621580** | |
| **E-mail** | **techservice.hifei@gmail.com** | | |

**Ⅴ Please ship one copy of purchase receipt with the ESC*.**