



Thank you for purchasing ZTW Skyhawk Brushless Electronic Speed Controller (ESC). We strongly recommend reading this manual carefully before using this product for the sake of safety. ZTW 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. Besides, we have the right to modify our product design, appearance, features and usage requirements without notification.

- Always place safety as priority when you use the product.
- An electric motor that is connection with battery pack and ESC may start unexpectedly and cause serious danger. Always treat a powered system with respect.
- Always remove the propeller or disengage the pinion gear before the battery connected if you need to working on a plane or helicopter at short range.
- Please observe all local laws regarding the flying of remote control aircraft.
 - Never fly over or near crowds.

1. Adopting high performance 32 bit microprocessor with a running frequency of 170MHz, supported much stronger computing ability and faster running speed.
2. Adopting new generation craft on the MOSFET, low heat generation, large instantly withstand current, and high reliability.
3. Self-check function: after the ESC powered on, it will automatically check if have the power short circuit, motor lose phase, throttle is not at zero position problem, and voltage range.
4. The special ESC case design and the unique fan guard structure greatly enhance the ESC heat dissipation performance.
5. There are two flight modes: fixed-wing mode and helicopter mode.
6. Equipped with the helicopter speed-control function, the speed sensitivity is adjustable and easy to operate.
7. Equipped with the time selection function for stall landing, it can be manually adjustable within the time set to avoid a crash due to handling errors.
8. The ESC has a separate programming interface to connect with LCD programming card or Bluetooth module for programming.
9. Supporting data returning function: current, voltage, temperature, RPM, throttle and ESC status code.
10. Bluetooth module supported, change the parameter settings, software upgrading, data recording and the operation can be completed via the mobile phone (Apple and Android) APP.
11. Multiple protections: abnormal power-on voltage protection, start up protection, temperature protection, throttle signal loss protection, over load protection, low voltage protection, over current protection

Type	PN# Model	Cont. Current Burst Current	Input Voltage	Weight (g)	BEC Output	Size (mm)	Programming Way
Skyhawk 35A SBEC	4035211	35A/55A	3-6S Lipo	43	6.0,7.4,8.4V adjustable /8A	48*25*16	LCD Program Card G2/ Android&IOS APP
Skyhawk 65A SBEC	4065211	65A /80A	3-6S Lipo	63	6V,7.4V,8.4V adjustable /10A	60*36*19	LCD Program Card G2/ Android&IOS APP
Skyhawk 85A SBEC	4085211	85A/130A	3-6S Lipo	109	6V7.4V,8.4V adjustable /10A	71*36*22	LCD Program Card G2/ Android&IOS APP
Skyhawk 125A SBEC	4125211	125A / 140A	3-8S Lipo	177	6V,7.4V,8.4V adjustable /10A	92*43*24	LCD Program Card G2/ Android&IOS APP
Skyhawk 155A SBEC	4155211	155A / 170A	3-8S Lipo	177	6V,7.4V,8.4V adjustable /10A	92*43*24	LCD Program Card G2/ Android&IOS APP
Skyhawk 130A HV SBEC	4130311	130A / 150A	6-14S Lipo	204	6V,7.4V,8.4V adjustable /10A	96*51*24	LCD Program Card G2/ Android&IOS APP
Skyhawk 160A HV SBEC	4160311	160A / 180A	6-14S Lipo	214	6V,7.4V,8.4V adjustable /10A	96*51*24	LCD Program Card G2/ Android&IOS APP
Skyhawk 300A HV SBEC	4300311	300A / 320A	6-14S Lipo	319	6-12V adjustable /10A	95*57*38	LCD Program Card G2/ Android&IOS APP

- 1 Throttle signal wire (Black,Red,White): Plug into the receiver throttle channel, the white wire is transmitter the throttle signal, the red wire and black wire is the BEC voltage output wire and ground wire.
- 2 BEC output wire(Black,Red): Plug into the receiver battery dedicated channel or any available channel.
- 3 RPM signal wire (Yellow): Plug into the speed input channel.

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graph TD
    A[Turn on your transmitter and when fully initiated, move the throttle stick to the highest position (ensure throttle trim is neutral first).] --> B[Connect your flight battery to the ESC and wait for about 2 seconds.]
    B --> C[The motor will make two short beeps, lower the throttle stick to the lowest position as soon as you hear these two beeps.]
    C --> D[Motor will now beep a number of times (one beep for every cell in your flight battery) followed by a longer "Beep---Beep".]
    D --> E[This indicates that the throttle for your ESC is now calibrated and ready to use.]
  
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graph LR
    A[Turn on the transmitter,  
move the throttle stick to  
the bottom position.] --> B[Connect the battery pack to the  
ESC and wait for about 2 seconds.]
    B --> C[The motor will beep several sounds,  
sounds time presents the amount  
of battery cells.]
    C --> D[When the motor emits "Beep---Beep",  
means self-test is finished, the ESC  
is ready to work.]
  
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The ESC real time data like current,voltage,ESC temperature, throttle, and ESC status code can be checked by LCD program card or Mobile phone APP.

1. Connect the ESC to LCD program card and battery correctly base on above wire connection diagram.
(the LCD program card connecting wire:Red wire corresponds to the "+" and Black wire correspond to the "-" position, pay attention to the "+" "-" lettering on the LCD and ESC)
2. After connected well, LCD program card turns on and will go to the real time data interface first.
(Real time data includes: voltage/current/throttle/RPM/temperature and so on)
3. Then press "**ITEM**" or "**OK**" button, it goes to the parameters setting interface.
(In parameters setting interface, press "**ITEM**" to change the programmable items, press "**▽**" or "**△**" button to choose the item parameters, and press "**OK**" to save settings.)
4. After set the new ESC parameters, need to re-power the ESC again, then the new set parameters will take effect.

1. Connect the ESC to the Bluetooth module and battery correctly base on above wire connection diagram.
(Blue tooth module Red wire corresponds to "+" and Black wire corresponds to "-", pay attention to the "+" and "-" lettering on the ESC)
2. Download and install ZTW APP well, open APP and connect it with Bluetooth, then you can start to set the ESC parameters and check the real time data by APP
3. After set the new ESC parameters, need to re-power the ESC, then the new set parameters will take effect.

1 Brake Type	*Normal , Reverse
2 Brake Force	*0% 0-100%
3 Timing	*15 0-30°
4 Motor Rotation	*CW , CCW
5 SR Function	ON, *OFF
6 Battery Cells	*Auto / 3S, 4S, 6S / 3S, 4S, 6S, 8S / 6S, 8S, 10S, 12S, 14S
7 Low Voltage Cutoff Threshold	OFF, 2.5V, *3.0V , 3.2V, 3.4V, 3.6V, 3.8V
8 Low Voltage Cutoff Type	*Reduce Power , Cutoff Power
9 BEC	6.0V , 7.4V, 8.4V
10 Acceleration	1, *2 , 3, 4
11 Start-up Power	Low, *Middle , High
12 Flight Mode	*Fixed Wing , Helicopter
13 Governor Parameter P	*4 1-10
14 Governor Parameter I	*3 1-10
15 Telemetry	*1 Real Time Data , 2 SBUS

- ⚠ Remark: When using gyro for the speed calibration, the Flight Mode need to choose Fixed Wing, and the Acceleration need to choose 4.

The values in the figure is just a example, depending on the actual display values. This value is the maximum electrical speed that the motor can achieve at 100% throttle.

- (2) Press "OK" to select options related to "motor poles", press "OK" to select gear ratio (GR) by, then press "OK" will show the speed of the main rotor at 100% throttle

8. Break Protection: If there is a break in the connection between the motor and ESC. Check the motor is fully connected, check connectors or solder joints are as they should be.

Troubles:	Warning Tones:
1.Throttle signal loss	"Beep--Beep--" (every two seconds)
2.Temperature protection	"Beep Beep-Beep Beep--" (every two seconds)
3.Low voltage protection	"Beep Beep Beep--Beep Beep Beep--" (every two seconds)
4.The throttle value is not at 0% throttle	"Beep-Beep" (every 200 milliseconds)
5.The voltage is not within the range	"DoRaMi-DoRaMi-" (every 200 milliseconds)

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