

1. Warnings

- Read through the manuals of all power devices and aircraft and ensure the power configuration is rational before using this unit.
- Ensure all wires and connections are well insulated before connecting the ESC to related devices, as the short circuit will damage your ESC.
- Never use this unit in a very hot environment or continue to use it when it gets really hot. Because high temperature will activate the ESC thermal protection or even damage your ESC.
- Never get the motor locked up during high-speed rotation, otherwise the ESC may get destroyed and may also get your motor damaged.
- Never keep the motor running continuously for more than 5 seconds when starting the electric starter, otherwise the motor will overload and be damaged, and it may also damage your ESC.
- Always disconnect and remove batteries after use, as the ESC will continue to consume current if it's still connected to batteries. Long-time contact will cause batteries to completely discharge and result in damage to batteries or/and ESC.
- Any use that violates the above last three warning provisions and causes damage to ESC or motor will not be covered under warranty.

2. Specifications

Input Voltage: 11V - 16.8V (3S-4S LiPo)

Cont. Current: 40A

Peak Current: 60A

Size: 60mm× 25 mm× 8mm

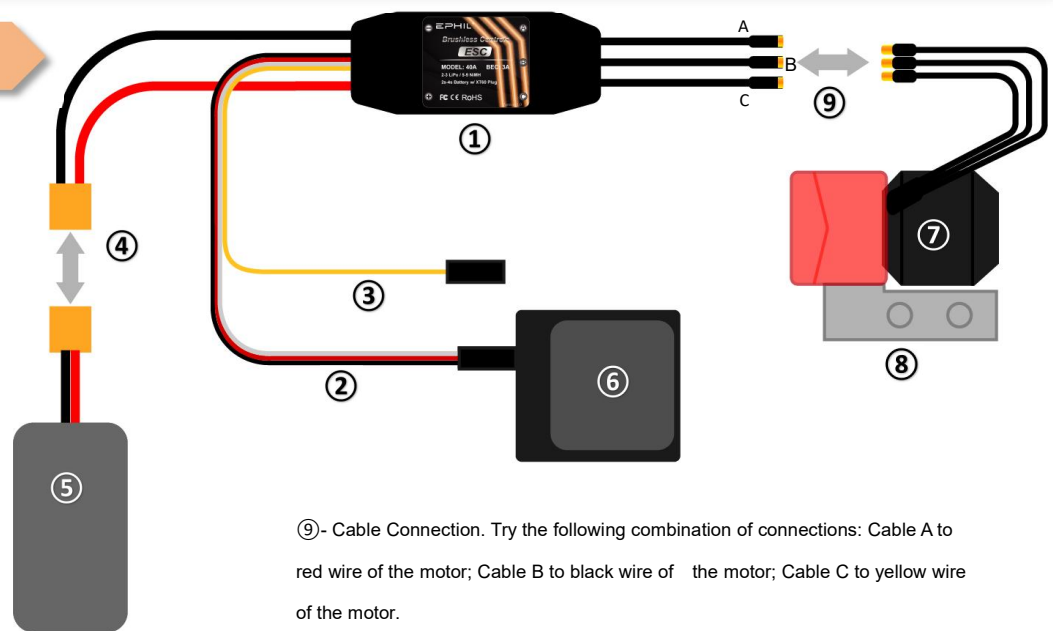
Weight: 42.5g

Power Cord: XT60 plug

3. User Guide

• Connections

- ①- ESC
- ②- Signal Cable. The White wire is for transmitting throttle signals, the Red & Black wires are BEC output wires.
- ③- Programming Cable (Yellow Cable). it will not be used in the electric starting system.
- ④- The XT60 plug. It should be connected with a XT60 female plug of the battery.
- ⑤- Battery. Recommend using a 4S LiPo battery with capacity between 600-1600mAh
- ⑥- Receiver
- ⑦- Brushless Motor
- ⑧- EPHIL Electric Starter



• Notes During Use

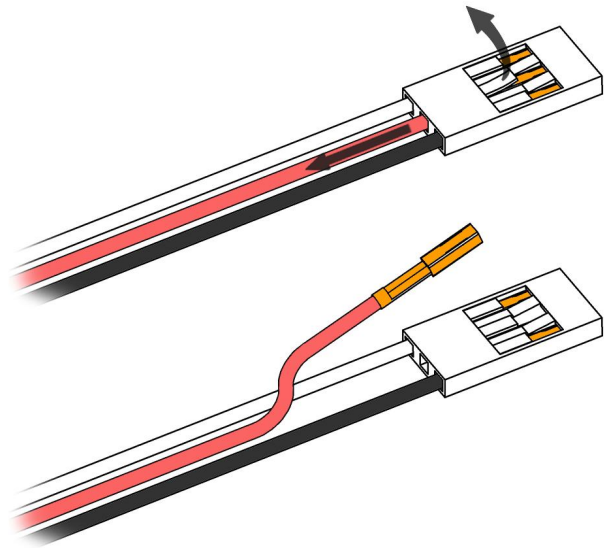
1. Make sure the ignition module is powered off during the connection procedure.
2. To ensure that the motor can obtain maximum torque when the switch is turned on, insert the ESC signal cable into an available switch channel on the receiver.
3. If you observe the propeller hub or motor rotating counterclockwise, it indicates that the circuit is installed correctly. Otherwise, immediately cut off the power to the ESC, then interchange the connection of any two wires between the motor and the ESC, and try again.
4. After connect ESC to the battery, hearing 3 times beeping sounds from the ESC indicates a correct connection.
5. Use cable ties or tapes to secure the all wires after connections. Especially the wire of the motor and the connected ESC cables.
6. At the beginning of using electric starter, when the switch is turned off and the engine is successfully started, the motor will still rotate. This is normal, and it will disappear after a period of time.
7. Due to the high load state of the motor and ESC during operation. It is normal for both parts to heat up.
8. There should be an interval of tens more seconds between two starts, and the duration for each start should not exceed 5 seconds, otherwise it may cause motor or ESC overload and damage.

• Disable BEC

The ESC needs to be connected with a separate battery. Due to ESC's BEC function, ESC will charge the receiver or servo when connecting with the receiver or servo. In this case, you may need to make simple modifications to the signal line to disable the BEC function. In other cases, such as using a separate switch or testing system, this step can be ignored.

Step 1. Using a needle-like tool, insert it into the gap in the middle of the signal wire connector's latch, then lift the plastic latch upward. At this point, pull out the red wire along with its terminal.

Step 2. Wrap the terminal of the removed red wire with tape to prevent a short circuit. Finally, connect the signal wire back to the receiver.



• Engine Start-Up

1. Check to ensure all connections and settings are correct.

2. Ensure the ESC control channel switch is off, and make sure the ignition is off.

3. Turn on the transmitter and receiver switches, then connect the battery to the ESC.

4. Hearing the motor emit the "♪123" sound indicates that the ESC is normally powered on. The motor will emit several beeps to indicate the number of LiPo cells. Hearing the motor emit a long beep indicates that the ESC is ready to go.

5. After completing the preparations, power on the ignition module, connect the fuel line and stay away from the propeller and the aircraft.

6. Turn on the ESC switch for 1-3 seconds, and the engine will start. After the engine successfully starts, immediately turn off the switch. The engine will keep running! Otherwise, repeat this step after ten seconds.

4. Troubleshooting

Troubles (ESC)	Warning Tones	Causes	Solutions
The ESC didn't work after it was powered on while the motor kept beeping.	"BB, BB, BB....."	The input voltage was beyond the operating voltage range of the ESC.	Adjust the power-on voltage and ensure it's in the operating voltage range of the ESC.
The ESC didn't work after it was powered on while the motor kept beeping.	"B-, B-, B-, B-....."	The ESC didn't receive signal from the receiver.	Check if the transmitter and receiver are well bound, or if any poor connection exists between the ESC and receiver.
The ESC was unable to power the motor well, and the motor kept beeping.	"BB, BB, BB....."	The ESC thermal protection has been activated.	Improve the heat dissipating condition.
The ESC was unable to power the motor well, and the motor kept beeping.	"BBB, BBB, BBB....."	The low-voltage cutoff protection has been activated.	Change another full charged battery pack.

Troubles (Starter)	Causes	Solutions
The gear-drive propeller hub was stucked and difficult to rotate.	The Propeller hub has been subjected to strong impact, or the propeller was installed with no shims/washer, resulting in the displacement of the assembly components.	Repair or replace the gear-drive propeller hub assembly.
The motor or ESC emitted smoke during use.	Overloading caused when turn on the electric starter for a long time.	Check and replace the damaged motor or ESC.
The motor rotated rapidly but other gears did not rotate.	Motor spindle fracture due to improper use or installation, foreign objects entering, or other reasons.	Remove the damaged motor and replace it with a new one.
After turning off the remote control power, the motor is automatically turned on.	This situation depends on the type of remote control, and ESC sends a signal to the motor after it is turned off.	Always cut off the power to ESC first.