



01 Disclaimer

Thank you for purchasing this product! Any improper use may cause personal injury and damage to the product and related devices. We strongly recommend reading through this user manual before use and strictly abide by the specified operating procedures. We shall not be liable for any liability arising from the use of this product, including but not limited to reimbursement for incidental or indirect losses. Meanwhile, we do not assume any responsibility caused by unauthorized modification of the product. We have the right to change the product design, appearance, performance and use requirements without notice.

02 Attentions

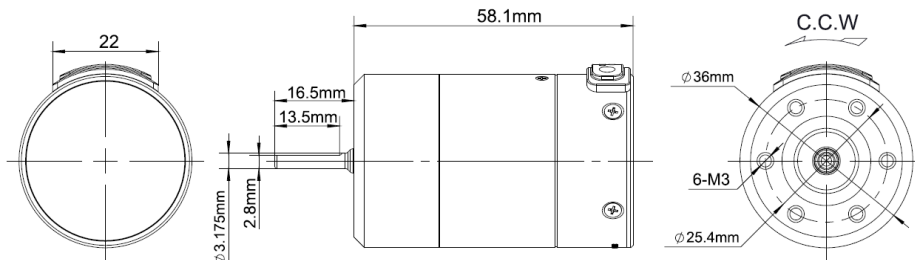
- ★ Please make sure that all wires and connecting parts are well insulated before the ESC connected with relevant connecting parts, because short circuit will damage the ESC.
- ★ Before using this system, please carefully check each power device and car frame instructions to ensure the power matching is reasonable. Prevent wrong matching from damaging power system.
- ★ Do not let the external temperature of the system exceed 90°C/194°F, high temperature will destroy the power system.
- ★ After use, remember to disconnect the battery and the ESC. If the battery isn't disconnected, the ESC will consume electric energy all the time even if it is off. It will discharge completely if connect the battery for a long time, thus resulting in the failure of the battery or the ESC. We are not responsible for any damage caused by this!

03 Features

- ★ The integrated design of the ESC and the motor greatly reduces the overall volume and weight, and makes the layout and wiring of car frame simpler and more convenient.
- ★ The FOC driving mode, low speed torque is strong. Smooth running at extreme low speed.
- ★ Thanks to the sine wave driving mode, the whole system has high efficiency, small heat, and effectively extends the endurance time, and the motor runs more quietly and soft.
- ★ The protection grade of the whole set of power is IP67, with excellent waterproof and dustproof performance.
- ★ Intelligent torque output and speed closed-loop control, fully experience the cruise control and steep slope slow descent function of 1:1 vehicle, making the control handy.
- ★ Active drag brake force adjustment, providing unprecedented parking capacity on slope.
- ★ Multiple protection functions: battery low voltage protection, overheat protection, throttle lost protection, lock-up protection.
- ★ It supports LED setting box to set ESC parameters, and has independent parameter setting interface, which is integrated on electronic switch, making setting parameters more convenient.

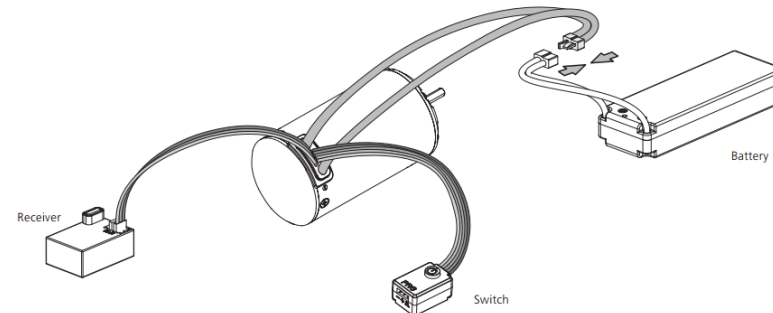
04 Specification

Model	WP Fusion BL SYS for Crawler-540Spec-RTR
Continuous peak current	40A/160A
Main applications	1/10 rock crawler
LiPo/NiMH Cells	2-3S Lipo, 6-9 Cells NiMH
BEC output	6V/4A (Switch mode)
Size/Weight(entirety)	36mm(diameter)x58.1mm(length) / 204g (including wires)
Parameter setting	Independent programming interface(switch position)
Motor KV	1200KV , 1800KV
Diameter/length of Motor	36mm / 58.1mm
Shaft diameter / exposed shaft length	3.175mm / 16.5mm
Motor Poles	4 poles



05 Wiring guidance

Warning: The power of the system is powerful. For the safety of you and other people around you, we strongly recommend that you remove the pinion gear before calibrating and setting the system, and turn on the control switch of the ESC when the wheel is suspended!



1. Connect receiver

Insert the throttle cable of the ESC into the throttle channel of receiver. Because the red wire of throttle cable output voltage to receiver and servo, do not supply power to receiver alone, otherwise the ESC may be damaged. If need to supply power, pick out the red wire among throttle cable, wrap it and suspend.

2. Connect battery

The input wire of the ESC has polarity. When connecting the battery, make sure that the (+) pole of the ESC is connected to the (+) pole of the battery and the (-) pole is connected to the (-). If the ESC is connected reversely, the ESC will be damaged.

06 ESC Setup

1 Set the Throttle Range – ESC Calibration

- 1: turn on the transmitter/radio first, in the power off state of esc, and then press the power button and hold it continuously, the red light on the ESC's switch will flash, then release the button immediately (If the button is not released within 8 seconds, the ESC will enter other modes), and the motor will beep at the same time.
- 2: At this time, three points need to be set: the neutral position, the end position of forward and the end position of reverse.
 - A: The throttle trigger stays at the neutral position, press the button, the green light will flash once, and the motor will beep once at the same time, indicating that the neutral position has been stored;
 - B: Move the throttle trigger to the end position of forward, press the button, the green light will flash twice, and the motor will beep twice, indicating that the end position of forward has been stored;
 - C: Push the throttle trigger to the end position of reverse, press the button, the green light will flash three times, and the motor will beep three times, indicating that the end position of reverse has been stored.
- 3: After calibrating, the system can be operated normally.

2.Instruction for power on/off and Tones

Instruction for power on/off: Short press the switch button to start in off state; long press the switch button to shut down in on state.

Instruction for sound: Start in normal condition (Not setting throttle range), the times of beep emitted by motor indicates the number of Lipo Cells, for example, "Beep, Beep" indicates 2S Lipo; "Beep, Beep, Beep" indicates 3S Lipo.

3.Instruction for programmable items

The column of white words on black background in the following table are the default values of programmable items.

Item	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Cutoff Voltage	Disabled	Low	Intermediate	High		
Motor Rotation	CCW	CW				
Drag Brake Force	Disabled	Level 1	Level 2	Level 3	Level 4	Level 5
Drag Brake Rate	Level 1	Level 2	Level 3	Level 4	Level 5	

1.

Cutoff Voltage:

This function is mainly to prevent the irrecoverable damage caused by over discharge of Lipo battery. If the voltage protection is turned on, the ESC will monitor the battery voltage all the time during operation. When the voltage is lower than the set threshold value, the power output will reduce to 50% of the normal power, and the power will be completely closed after about 10 seconds. When entering the low-voltage protection, the red LED will blink in the way of “☆—, ☆—, ☆—” in single cycle. When set to no protection, the ESC will not cut off power due to low voltage. When using Lipo Cells, it is not recommended to set to (Disabled), otherwise the battery may be damaged due to over discharge. For NiMH batteries, it is recommended to set this parameter to no protection. The low, medium and high options correspond to 3.0v/3.2v/3.4v respectively.
2.

Motor Rotation:

The front of the motor shaft faces the user's face (i.e. the tail of the motor is far away from the user's face), when the radio is increasing the throttle in the forward direction, if it is set to CCW, the motor shaft rotates counterclockwise; if it is set to CW, the motor shaft rotates clockwise. Due to the structure difference of car frame, the rotation direction would not correct. If the rotation direction is wrong, change to the reverse direction.
3.

Drag Brake Force:

Drag brake means a brake force on the motor when the throttle trigger moves from the non-neutral range to the neutral range. There are 6 levels of drag brake force to adjust, "Disabled" means the drag brake force is 0; the corresponding drag brake force increases from level 1 to level 5. Select the appropriate drag brake force according to the actual situation.
4.

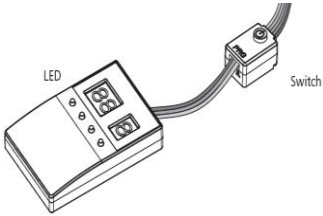
Drag Brake Rate:

It means the rate when drag brake force increases from zero to the set value when the throttle trigger enters the neutral range, commonly called as slow brake. This value has 5 levels to adjust. The higher the level is, the greater the drag brake rate is. Reasonably set this value can make the vehicle stop more stably.

4. Parameter setting method

Use LED program box to set ESC

The ESC is in off state, connect the 3pin programming port on the switch of 2 in 1 system with the port marked with  on the upper right corner of the LED program box according to the polarity with a separate cable with JR plug at both ends. Then power on the ESC, after a few seconds, the parameter of the ESC can be displayed. The "ITEM" and "VALUE" button on the program box can quickly select the programming items and parameter values, press "OK" key to save the new parameters in ESC.



5. Factory reset

Use LED program box to restore factory settings. The method is as follows:
After connect LED program box and the ESC, press "RESET" key and then press "OK" key to save, the factory settings can be restored.

6. Automatic Motor Pairing(Optional)

If the motor has been subjected to severe impact or has abnormal heating and abnormal power output during operation, need to do the following automatic motor pairing. The operation method is as follows:
Step 1: Pull out the throttle cable from the receiver and remove the motor gear.
Step 2: Connect the battery, long press and start key, the switch of ESC will flash the red light first, and then switch to green light flashing after about 8 seconds, now you can release the button, the motor will automatically rotate, wait for the motor to end the rotation and the red light starts flashing, indicating that the automatic motor pairing is completed.
Step 3: After the automatic motor pairing is completed, the ESC will self-check (report Lipo Cells). Reconnect the throttle cable to run normally.
Note: Please remove the motor gear before operation, otherwise it may lead to incorrect matching and unknown risk.

07 Indication for LED of ESC

1. Startup phase

1) In the normal state after startup, the red light is always on.

2) The red light flashes continuously and rapidly: No throttle signal is detected by the ESC or the neutral position of the ESC does not match with the radio.

3) The green light flashes N times: The number of Lipo Cells detection, flashes N times indicates there are N Lipo.
2. Driving stage

1) The throttle trigger is in neutral range, and the green light goes out.

2) When forwarding, the green light flashes; when the throttle is at the end position of forward, the green light is always on.

3) When reversing, the green light flashes; when the throttle is at the end position of backward and the max. reverse force is set to 100%, the green light is always on.
3. When relevant protection functions are triggered, the LED status means:

1) The red light flashes continuously(single flashing, "☆, ☆, ☆"): The ESC enters low-voltage protection status.

2) Green light flashes continuously(single flashing, "☆, ☆, ☆"): The temperature of ESC is too high, and enters overheat protection status.

08 Troubleshooting

Troubles	Possible Causes	Solutions
The indicator light is not on after power on and the motor cannot start.	The battery voltage is not input to the esc.	Check the battery and connection.
	The switch of esc is damaged.	Replace the switch.
Power on and finish inspecting the number of Lipo cells(Green light flashed N times), red light flashes quickly.	Throttle signal is not detected by the esc.	Check whether the throttle cable is inserted reversely, whether the channel is wrongly and whether the radio is on.
	The neutral position of esc does not match with the radio.	Set the throttle trim, calibrate the esc(set the throttle range).
The vehicle run reverse when you pull the throttle trigger towards you.	The rotation direction of the frame is different from the mainstream.	Set the motor rotation to another direction via LED program box.
The motor suddenly stops or reduce the power in running.	The receiver is influenced.	Check radio/receiver system, connection, and check the battery voltage of radio.
	The esc enters the low voltage protection.	The red light keeps flashing indicating the LVC protection is activated, please change the fully charged battery.
	The esc enters the overheat protection.	The green light keeps flashing indicating the overheat protection is activated, please let the esc/motor cool down (or reduce the load).
When you do not move the throttle trigger, the motor will run slowly.	The neutral position of esc does not match with the radio.	Calibrate the esc(set the throttle range).
	The neutral throttle signal is unstable.	Change the radio system to have a test.
Unable to complete esc calibration.	The esc does not receive the correct throttle signal.	Check whether the receiver channel is connected incorrectly or reversely,
		Check whether the receiver is damaged, you can connect the throttle cable to the steering channel for test, or change the radio system for test.