HOBBYWING®

QUICRUN
USER MANUAL
Brushless Electronic Speed Controller
QUICRUN WP 10BL120 G2

20200428

01 Disclaimer

Thank you for your purchase.Please read the following statement carefully before use, once used, it is considered to be an acceptance of all the contents. Please follow the manual instructions carefully during the installation. Modification may result in personal injury and product damage.We reserve the rights to update the design and performance of the product without notice.
We, HOBBYWING, are only responsible for our product cost and nothing else as result of using our product.

02 Warnings

• Before using this product, read the instruction manual carefully. Ensure that the equipment is used appropriately to avoid damaging the ESC. The wrong usage will overheat and damage the electronics.
• It is important to ensure that all wires soldered are properly secured to avoid short circuits from happening. A good soldering station is recommended to do such a job to avoid overheating the circuit board as well as to ensure connections are properly soldered.
• Even though the product has relevant protective measures, always use it in a safe manner in accordance with the operating environment noted in the manual (e.g, voltage, current, temperature and etc).
• Always remember to disconnect the battery each time after using it. Failure to do so will cause the battery to be completely discharged, resulting in an unpredictable danger.

03 Features

• Excellent waterproof and dustproof performance, it is easy to deal with various climatic conditions and harsh environment.
• Smart freewheeling technology makes the esc have higher driving efficiency and lower operating temperature, and the stability and reliability of the esc are further improved.
• Built-in powerful switch mode BEC, continuous current up to 5A, instant up to 10A, and support 6V/7.4V adjustable, easy to drive various powerful and high-voltage steering servo.
• Multiple protection functions: battery low voltage protection, esc overheat protection, throttle signal loss protection, current protection, capacitor overheat protection.
• It has an independent programming port. When connecting the program card, it is not necessary to pull the throttle cable out of the receiver, which is more convenient to use.

04 Specifications

MODEL	QUICRUN WP 10BL120 G2
Cont. / Peak Current	120A / 760A
Motor Type	Sensorless / Sensored Brushless Motor (only in sensorless mode)
Applications	1/10th Short course truck,Monster truck
Motor Limit	With 3S Lipo: KV ≤ 4000 3660 size motor With 4S Lipo: KV ≤ 2600 4268 size motor
Lipo Cells	2-4S Lipo
BEC Output	6V / 7.4V adjustable, continuous current 5A (Switch-mode)
Cooling Fan	Powered by built-in BEC
Size / Weight	52.8(L) x 39.8(W) x 38.2(H)mm / 119g (Included wires&connectors)
Programming Port	Independent programming port

05 Connections

Motor
Electronic Speed Controller
Switch
Receiver
Battery
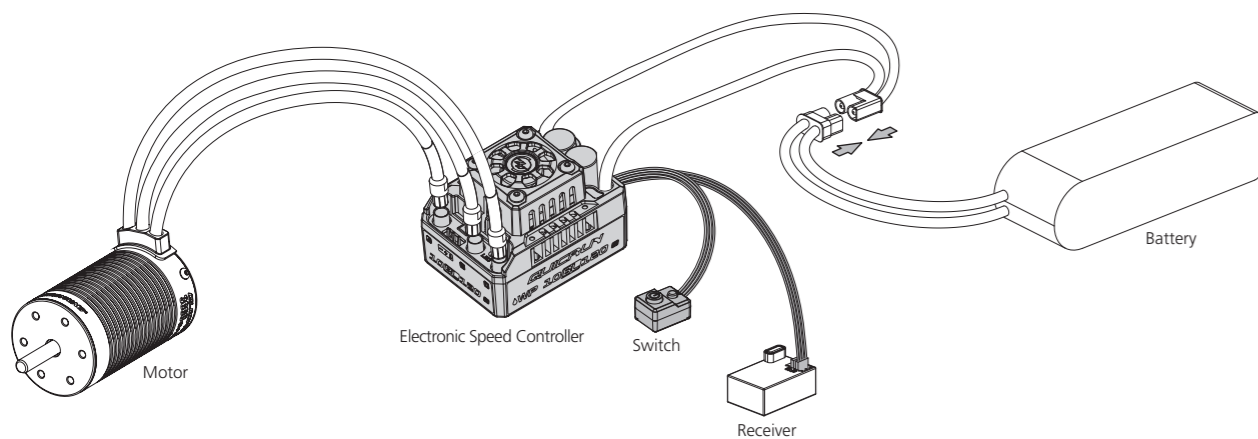
Refer to the wiring instructions and wiring diagram:
1. Motor connection:
   There are no wire sequencing requirements needed when using a sensorless brushless motor, you can swap two wires if the motor runs in opposite direction.
2. Receiver connection:
   Connect the ESC throttle cable to the throttle channel on the receiver. Since the red wire in the throttle cable outputs 6V/7.4V voltage to the receiver and servo, please do not supply additional power to the receiver, otherwise the esc may be damaged. If additional power is required, disconnect the red wire on the throttle plug from the ESC.
3. Battery connection:
   Make sure that the (+) pole of the ESC is connected to the (+) pole of the battery and (-) to the (-). If the connection is reversed, the ESC will be damaged and will not be covered by the warranty service.

06 ESC Setup

1 Set the throttle range

When first use the ESC or the transmitter changes "TRIM" tune, D/R,EPA and other parameters, the throttle range is need to reset. 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 calibrating steps of throttle is as follows:

Hold the SET button.
Press the ON/OFF button
Release the SET button once the LED flashes.

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). You don't need to do this step if the transmitter's settings are default!

2. Start by turning on the transmitter with the ESC turned off but connected to a battery. Holding the"SET" button then press the "ON/OFF" button, the RED LED on the ESC starts to flash (The motor beeps at the same time), and then release the "SET" button immediately.
Note : Beeps from the motor may be low sometimes, and you can check the LED status instead.

Move the throttle trigger to the neutral position and press the SET button.
The Green LED flashes once and motor emits "beep" tone.

Move the throttle trigger to the end position of forward and press the SET button.
The Green LED flashes twice and motor emits "beep-beep" tone.

Move the throttle trigger to the end position of backward and press the SET button.
The Green LED flashes three times and motor emits "Beep-Beep-Beep" tone.

3. Set the neutral point, the full throttle endpoint and the full brake endpoint.
   • Leave transmitter at the neutral position, press the "SET" button, the RED LED dies out and the GREEN LED flashes 1 time and the motor beeps 1 time to accept the neutral position.
   • Pull the throttle trigger to the full throttle position, press the "SET" button, the GREEN LED blinks 2 times and the motor beeps 2 times to accept the full throttle endpoint.
   • Push the throttle trigger to the full brake position, press the "SET" button, the GREEN LED blinks 3 times and the motor beeps 3 times to accept the full brake endpoint.
Note:
   • The end position of forward: Pull the trigger to the maximum throttle position if it is pistol-style transmitter. Push the throttle to the top if it is board-style transmitter.
   • The end position of backward: Push the trigger to the maximum brake position if it is pistol-style transmitter. Pull the throttle to the bottom if it is board-style transmitter.
4. The motor can be started after the ESC/Radio calibration is complete.

2 Power on/off and beep instructions

Switch instructions: short press ON/OFF key to power-on, long press on ON/OFF key to shut down.
Power-on beep description: Under normal circumstances, the ESC will emit a few "beep" to indicate the number of lithium cells. For example: "beep-beep" means 2 cells, "beep-beep-beep" means 3 cells. Finally, a long beep indicates that the self-check is completed.
Note: Motor beeping at the same time, the ESC light flashes synchronously.

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	Option 7	Option 8	Option 9
1	Running Mode	Forward with brake	Forward / Reverse with Brake	Forward with reverse						
2	Cutoff Voltage	Disabled	2.6V/Cell	2.8V/Cell	3.0V/Cell	3.2V/Cell	3.4V/Cell			
3	Punch	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
4	Drag Brake Force	0%	5%	10%	20%	40%	60%	80%	100%	
5	Max. Brake Force	25%	50%	75%	100%	Disabled				
6	Max.Reverse Force	25%	50%	75%	100%					
7	Neutral Range	6%	9%	12%						
8	Timing	0°	3.75°	7.5°	11.25°	15°	18.75°	22.5°	26.25°	
9	Lipo Cells	Auto	2S	3S	4S					
10	BEC Voltage	6.0V	7.4V							

1. Running Mode:
   Option 1: Forward with brake
      The vehicle can only move forward and has brake function. This is also commonly acceptable at races.
   Option 2: Forward/Reverse and Brake
      This option is known to be the "training" mode with "Forward/Reverse with Brake" function. The vehicle only brakes on the first time you push the throttle trigger to the reverse/brake zone. If the motor stops when the throttle trigger return to the neutral zone and then re-push the trigger to reverse zone, the vehicle will reverse, if the motor does not completely stop, then your vehicle won't reverse but still brake. This method is for preventing vehicle from being accidentally reversed.
   Option 3: Forward and Reverse
      When the throttle trigger is pushed from neutral to reverse point, the motor reverses. This mode is generally used in special vehicles.
2. 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 is reduced and then the power output is completely cut off after a few seconds. When the voltage protection is entered, the red LED flashes in the "-, -, -". For NiMH batteries, it is recommended to set this parameter to "Disabled".
3. Punch:
   Set in 1-9 stages, the higher the set value, the faster the acceleration. Kindly take into consideration according to the site, tire grip characteristics, vehicle configuration, etc. An aggressive setting may cause the tire to slip, the starting current to be too large and adversely affect the electronics performace.
4. Drag Brake Force:
   Refers to the brake force generated by the motor when the throttle trigger returns to neutral position. Choose the appropriate value according to the type of vehicle, configuration, site, etc.
5. Max. Brake Force:
   This ESC provides proportional braking function; the braking effect is decided by the position of the throttle trigger. It sets the percentage of available braking power when full brake is applied. Large amount will shorten the braking time but it may damage your pinion and spur gear.
6. Max. Reverse Force:
   Refers to the reversing speed. Selecting different parameter values can produce different reversing speed. It is recommended to use a smaller reversing speed to avoid errors caused by reversing too quickly.
7. Neutral Range:
   As not all transmitters have the same stability at "neutral position", please adjust this parameter as per your preference. You can adjust to a bigger value when this happens.
8. Timing:
   The Timing has three functions. 1) The maximum rpm of the motor can be slightly increased,the higher the timing, the higher the maximum rpm, and the bigger the current at the same time; 2) Compatible with different motors, some motors may work abnormally under the default timing, and need to be adjusted to a suitable timing to work properly; 3) By adjusting the timing, the motor can work at the optimal efficiency point.
9. Lipo Cells:
   Set the correct value according to the actual number of Lipo batteries used. The default is automatically calculated.
10. BEC Voltage:
   BEC voltage support 6V/7.4V. Generally, 6.0V is suitable for standard servos, while 7.4V is suitable for high-voltage servos. Please set according to the servo specifications.
   Note: 1. Do not set the BEC voltage above the maximum operating voltage of the servo, as this may damage the servo or even the ESC.
         2. Due to the characteristics of the BEC circuit, there is a voltage difference between the BEC output voltage and the input voltage, for this esc, when the BEC voltage is set to 7.4V and 2S Lipo is used, the BEC cannot stably output 7.4V. Therefore, it is recommended to use 7.4V BEC when matching with 3S Lipo and above.

4 Programming method

The LED program card is used to set the parameters:
Connect the program card to the ESC and power up. Using the "ITEM" and "VALUE" buttons on the program card to quickly select and change the values. Press "OK" to save the parameters.

LED Program Box
Electronic Speed Controller
Switch
Receiver
Battery
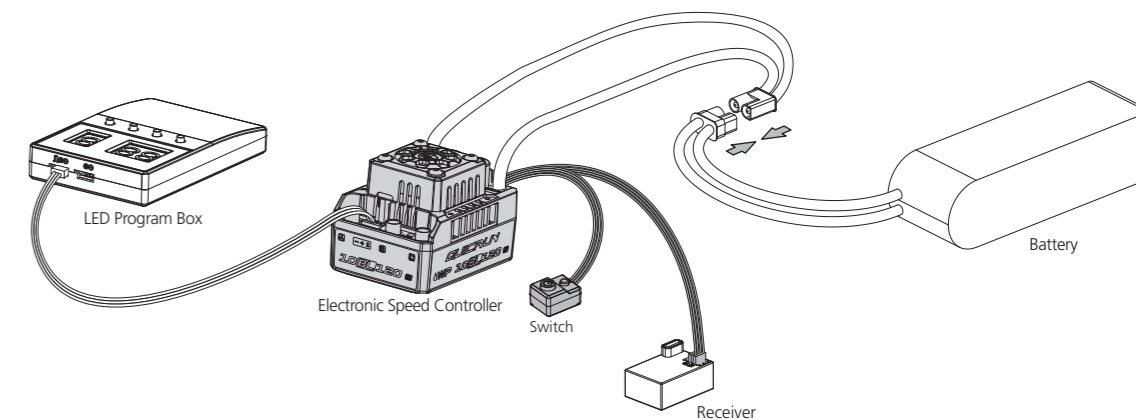
⚠ The program box needs to be connected to the independent programming port. Otherwise, it will not work!

5 Factory reset

Below are several ways to recover factory parameters:
1) The SET button:
   When the throttle trigger is in the neutral position, press and hold the SET button continuously for about 10 seconds, the red and green lights will flash at the same time, indicating that the factory reset is successful and needs to be re-powered before it can be run.
2) The LED program card:
   Once the LED program card is connected to the ESC, press the "RESET" key and then press "OK" to save to restore the factory settings.

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 green light is on.
   3) When reversing, the red light is constantly on; If the reversing force is set to 100%, the green 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.
   2) The green light flashes (single flash, "☆, ☆, ☆"): enters the esc overheat protection state.
   3) The green light flashes (three flashes, "☆☆☆, ☆☆☆, ☆☆☆"): enters the current protection state.
   4) The green light flashes (five flashes, "☆☆☆☆☆, ☆☆☆☆☆, ☆☆☆☆☆"): enters the capacitor overheat protection state.

08 Trouble Shooting

Troubles	Possible Causes	Solution
The light does not turn on after power-up, the motor does not start, and the fan does not work.	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 test.
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 motor rotation direction is inconsistent with the forward direction of the vehicle	Swap any two of the three phase wires of motor A, B and C.
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 green 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. Poor connection between esc and motor; 2. ESC fault (partial power pipe MOSFET burned out).	1. Check all plugs and soldering points, and re-solder them if necessary.; 2. Contact the dealer to handle the repair.
Going forward normally, but not reverse.	1. The neutral point of the remote control throttle channel deviates from the brake area; 2. The parameter item " Running Mode" is set incorrectly; 3. The ESC is damaged.	1. Recalibrate the esc,when the throttle trigger is at the neutral point, the esc lights are off; 2. The parameter item "Running Mode" is set to incorrectly; 3. Contact the distributor to handle the repair.
LED displays three end horizontal lines all the time — — — when connecting LED program card.	The program box is connected incorrectly to the ESC.	Connect the program box with the correct interface, which to the independent programming port, not throttle cable.
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.