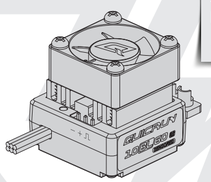


QUICRUN USER MANUAL

Brushless Electronic Speed Controller
10BL60 Sensored G2

20241025

01 Disclaimer

Thank you for purchasing this HOBBYWING product! Any improper use may cause personal injury and damage to the devices. Please read through this 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. 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.

HW-SMA343DUL00-A0

02 Warnings

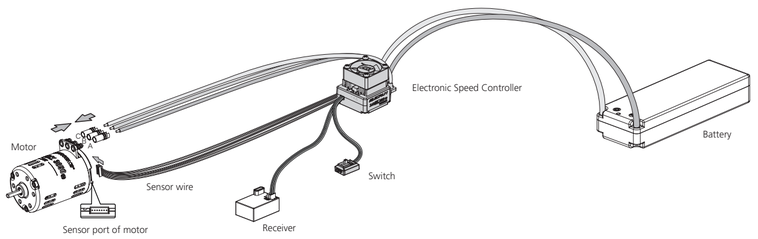
- To avoid short circuits, ensure that all wires and connections are well insulated before connecting the ESC to related devices.
- Ensure all devices in the system are connected correctly to prevent any damage to the system.
- Read the manuals of all the items being used in the build. Ensure gearing, setup, and overall install is correct and reasonable.
- Stop usage if the casing of the ESC exceeds 90℃ / 194℉ as this may cause damage to both the ESC and motor.
- The battery must be disconnected after use. There is a small draw even when the system is off, and will eventually fully drain the battery. This may cause damage to the ESC, and will NOT BE COVERED UNDER WARRANTY.

03 Specifications

Model	QUICRUN 10BL60 SENSORED G2
Cont./Peak Current	60A/200A
Motor Type	Sensored/Sensorless Brushless motor
Applications	1/10 Touring, Buggy, Drift, 1/12 and 1/14 Vehicles
Motor Limit	＞8.5T　3650 size motor
LiPo Cells	2S LiPo
BEC Output	6V/7.4V @ 4A (Switch-mode)
Cooling fan	Powered by built-in BEC
Size/Weight	35 (L) x 31 (W) x 30.8 (H)mm / 66.5g (w/Wires)
Programming port	FAN/PRG Port

Note: The recommended T counts are only applicable with the standard 3650(540) size 2 pole motors and the timing of esc is 0.

04 Connections



This is an extremely powerful brushless motor system. For your safety and the safety of those around you, we strongly recommend removing your pinion gear before performing calibration and programming functions with this system, and keeping wheels in the air when you turn on the ESC.

Please wire correctly according to wiring instructions and wiring diagram.

1. Motor Connection

The sensored motor wiring is a little different from the sensorless motor wiring; please make sure that you will strictly follow the introductions below.

A. Sensored Brushless Motor Connection

There are strict wire sequencing requirements for connecting the ESC to the sensored motor, **the three A/B/C ESC wires must connect to the three A/B/C motor wires correspondingly, otherwise, it may damage the ESC**, and then connect the ESC sensor port and the motor sensor port with the stock 6-pin sensor cable.

Note: If the motor direction is reversed, change the parameter on item 12"Motor Rotation"to achieve the correct setting.

B. Sensorless Brushless 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

Plug the throttle control cable (also called Rx cable) on the ESC into the throttle (TH) channel on receiver. So please do not supply power to the receiver. Otherwise, your ESC may be damaged. If additional power is required, disconnect the red wire on the throttle plug from the ESC.

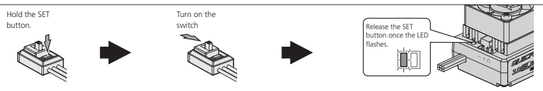
3. Battery Connection

Connect the battery when the ESC is power off. Make sure positive (+) of ESC connects to positive (+) of battery, and negative (-) of ESC connects to negative (-) of battery when you plug in your battery! Then turn on the ESC to run it. If the connection is reversed, the ESC will be damaged and will not be covered by the warranty.

05 ESC Setup

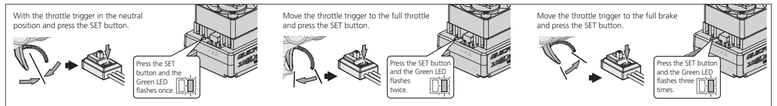
1 Set the Throttle Range - ESC Calibration Process

The calibration must be done on the first use of the ESC, or if a new radio or receiver is installed, otherwise the ESC cannot work properly. We strongly recommend to activate the "Fail Safe" function of the transmitter and set no signal protection for throttle channel of transmitter (F/S) to "OFF" or set its value to the "Neutral Position" to ensure the motor can be stopped when there is no signal received from the transmitter. The throttle calibration steps is as follows:



1. Turn on the transmitter, set parameters on the throttle channel like "D/R", "EPA" and "ATL" to 100% (for transmitter without LCD, please turn the knob to the maximum) and the throttle "TRIM" to 0 (for transmitter without LCD, please turn the corresponding knob to the neutral position). **You don't need to do this step if the transmitter's settings are default!**
2. Turn off the ESC. Hold the SET button and turn on the ESC, the RED LED on the ESC starts to flash (the motor beeps at the same time), and then release the SET button immediately. (The ESC will enter the programming mode if the SET button is not released in 3 seconds, then you need to restart from step 2.)

Note : Beeps from the motor may be low sometimes, and you can check the LED status instead.



3. Set the neutral point, the full throttle and the full brake.
   1) Leave the throttle trigger at the neutral position, press the SET button, the RED LED dies out and the GREEN LED flashes once and the motor beeps 1 time to store the neutral position.
   2) Pull the throttle trigger to the full throttle, press the SET button, the GREEN LED flashes twice and the motor beeps 2 times to store the full throttle.
   3) Push the throttle trigger to the full brake, press the SET button, the GREEN LED flashes 3 times and the motor beeps 3 times to store the full brake.
4. The motor can work normally after the throttle range calibration is complete.

2 Programmable Items

The highlighted options are the default settings of the esc.

Programmable Items	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 and 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. Boost Timing	0°	*4°*	8°	12°	16°	20°	24°		
9. Turbo Timing	*0°*	4°	8°	12°	16°	20°	24°		
10.Turbo Delay	Instant	0.05s	0.1s	0.15s	*0.2s*	0.3s	0.5s	0.7s	1.0s
11. BEC Voltage	*6.0V*	7.4V							
12. Motor Rotation	*CCW*	CW							

1. Running Mode:

Option 1: Forward with Brake

The vehicle can go forward and brake but cannot reverse in this mode. This mode is usually for racing.

Option 2: Forward/Reverse with 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 position. If the motor stops when the throttle trigger return to the neutral position and then re-push the trigger to reverse position, the vehicle will reverse, if the motor does not completely stop, then your vehicle won't reverse but still brake, you need to return the throttle trigger to the neutral position and push it to reverse again. This method is for preventing vehicle from being accidentally reversed.

Option 3: Forward/Reverse

The motor will reverse immediately when the throttle trigger is pushed to reverse position. 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 about 40 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".

For example: Using 2S Lipo and set the value to 3.2V/Cell, so the total battery low voltage cut-off value is 3.2*2=6.4V.

3. Punch:

Punch can be used to control overall motor response,in relation to the throttle input. The higher the set value, the faster the acceleration. Lower punch settings are advised for softer starts, lower traction, or to help with motor hesitations or stuttering when throttle is applied rapidly.

4. Drag Brake Force:

Refers to the brake force generated by the motor when the throttle trigger returns to neutral position. Typically drag brake will be 0. Drag brake can add some heat so use only as needed.

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. Boost Timing:

It is effective within the whole throttle range; it directly affects the car speed on straightaway and winding course. The ESC adjusts the timing dynamically as per the throttle amount in the operation. The Boost Timing is not constant but variable.

9. Turbo Timing:

It can be used to provide more top speed(at full throttle). The higher the value the higher the motor RPM will reach. PLEASE NOTE: Using the Turbo Timing will increase the running current, and temperatures of the motor and ESC.Use this with caution.

10.Turbo Delay:

When "TURBO DELAY" is set to "INSTANT", the Turbo Timing will be activated right after the throttle trigger is moved to the full throttle position. If the delay is set the Turbo Timing will be delayed for the set amount, the throttle will need to be held at full throttle for the set delay before it initiates.

11. 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.

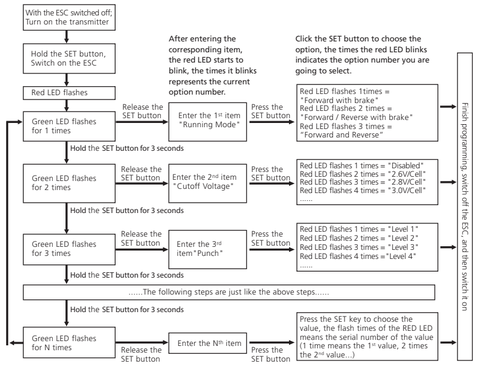
Note: Do not set the BEC voltage above the maximum operating voltage of the servo, as this may damage the servo or even the ESC.

12. Motor Rotation:

With the motor shaft facing you (the rear end of the motor is away from you), increase the throttle input, the motor (shaft) will rotate counterclockwise if the "Motor Rotation" set to "CCW". Generally, the vehicle runs forward when the motor (shaft) rotates in the CCW direction. However, some vehicles only run forward when the motor rotates in the CW direction due to the different chassis design. In that case, you only need to set the "Motor Rotation/Direction" to "CW".

3 ESC Programming

1. Programming your ESC with the SET button



- For easy recognition, the motor beeps at the same time when the LED flashes.
- When "N" (the number) is equal to/bigger than 5, we use a long flash to represent "5". For example, the LED flashes a long flash (and the motor beeps a long beep at the same time) indicating you are in the 5th programmable item; if the LED flashes a long flash and a short flash (and the motor beeps a long beep and a short beep at the same time) indicating you are in the 6th programmable item; a long flash and two short flashes (a long beep and two short beeps at the same time) indicating you're in the 7th programmable item and so on.

2. The LED or LCD Program Box Pro/G2 is used to set the parameters

This system supports the use of LED and LCD Program Box Pro/G2 for parameter settings. Below is an example of the setting method using the LED program box,the connection method for the LCD Program Box Pro/G2 is the same: With the system turned off, connect the 3pin setting interface on the switch with the interface marked with"- +ת"on the program box according to the polarity using a cable with JR plug at both ends. Then power on the system, after a few seconds, all parameters of the ESC can be displayed. The "ITEM" and "VALUE" button on the programming card can quickly select the programming items and parameter values, press "OK" button to save the new parameters in ESC.

4 Factory Reset

1) Restore the default values with the SET button

Press and hold the SET button for over 3 seconds anytime when the throttle trigger is at the neutral position (except during the ESC calibration and programming) can factory reset your ESC. RED & GREEN LEDs flash simultaneously indicating you have successfully restored all the default values within your ESC. Once you power the ESC off, and then back on, your settings will be back in the default mode.

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.

3) The LCD G2 program box:

Once the LCD G2 program box is connected to the ESC, the "Restore Default" item is selected by the ITEM option and saved by pressing the OK (R/P) button to restore to the factory settings.

06 Explanation for LED status

1. In Operation:

- **The throttle trigger is in the neutral zone:**
  1) If the Boost or Turbo timing is activated, The RED LED turns on solid.
  2) If both the Boost and Turbo timing are set to 0, the red light flashes, which is called the Blinky mode.
- Forward: The green light flashes when your vehicle runs forward, the GREEN LED will also turn solid when pulling the throttle trigger to the full (100%) throttle endpoint.
- Brake: The green light flashes when you brake, the GREEN LED will also turn solid when pushing the throttle trigger to the full brake endpoint and setting the"Max. Brake Force" to 100%.
- Reverse: The green light flashes when your vehicle runs reverse.

2. When Some Protection is Activated:

The RED LED flashes a short, single flash and repeats "☆, ☆, ☆" indicating the low voltage cutoff protection is activated.

- The GREEN LED flashes a short, single flash and repeats "☆, ☆, ☆" indicating the ESC thermal protection is activated.
- The GREEN LED flashes a short, double flash and repeats "☆☆, ☆☆, ☆☆" indicating the motor thermal protection is activated.

07 Trouble Shooting

Trouble(s)	Possible Causes	Solution(s)
The motor was unable to start and the LED is not on after power on, and the cooling fan does not work.	1. No power was supplied to the ESC. 2. The ESC switch was damaged.	1. Check if all ESC & battery connectors have been well soldered or firmly connected. 2. Replace the broken switch.
The ESC was unable to start the motor after it was powered on, but the motor emitted a short, double beep (BB, BB, BB...) that repeats with RED LED on the ESC blinked. (The interval between two beeps was 1 second.)	The battery voltage was beyond the normal operating voltage range of the ESC.	Check the battery voltage.
ESC was unable to start the motor after it was powered on, but the red LED flashes quickly.	The throttle signal is not detected.	Check if the transmitter is turned on and bound, check if the throttle wire is reversely plugged in or whether the receiver is good (Insert the throttle wire to the channel of servo to debug), re-calibrate the esc/radio.
The motor suddenly stopped or significantly reduced the output in operation.	1. The receiver was influenced by some foreign interference. 2. The ESC entered the LVC protection. 3. The ESC entered the thermal shutdown protection.	1. Check the cause of interference on the receiver, and check the battery power of the transmitter. 2. The RED LED keeps flashing indicating the LVC protection is activated, please replace your pack. 3. The GREEN LED keeps flashing indicating the thermal protection is activated, please let your ESC cool down before using it again.
The motor stuttered but couldn't start.	1. The wire connections between the motor and ESC were not A-A, B-B and C-C. 2. Some soldering between the motor and the ESC was not good. 3. The ESC was damaged (some MOSFETs were burnt).	1. Check the connections; 2. Check all soldering points, please re-solder if necessary. 3. Contact the distributor for repair.
The vehicle could run forward (and brake), but could not reverse.	1. The throttle neutral position on your transmitter was actually in the braking zone. 2. Set the "Running Mode" improperly. 3. The ESC was damaged.	1. Re-calibrate the throttle neutral position. The LED on the ESC is not on when the throttle trigger is at the neutral position. 2. Set the "running mode" to "Forward/Reverse with Brake". 3. Contact the distributor for repair.
The car ran forward/backward slowly when the throttle trigger was at the neutral position.	1. The neutral position on the transmitter was not stable, so signals were not stable either. 2. The throttle range is not calibrated properly.	1. Replace a transmitter with stable signal. 2. Re-calibrate the throttle range or fine tune the neutral position on the transmitter.
The setting of throttle range cannot be completed.	The ESC did not receive correct throttle signal.	Check if the transmitter is turned on and bound, check if the throttle wire is reversely plugged in or plugged in wrong channel, whether the receiver is damaged (Insert the throttle wire to the channel of servo to debug)