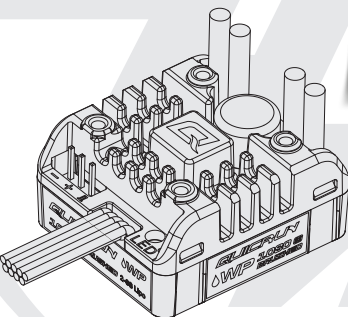


QUICRUN USER MANUAL

Brushed Electronic Speed Controller
QUICRUN WP 1080 G2 BRUSHED



20240131

HW-SMA310DUL01-A2

01 Disclaimer



Thank you for purchasing this HOBBYWING product! Please read this declaration carefully before use, once you use the product, we will assume that you have read and agreed with all the content. Brushless power systems can be very dangerous and any improper use may cause personal injury and damage to the product and related devices, so please strictly follow the instruction during installation and use. Because we 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. We have the right to modify our product design, appearance, features and use requirements without notification. We, HOBBYWING, are only responsible for our product cost and nothing else as result of using our product. Regarding the possible semantic different between two different versions of declaration, for users in mainland China, please take the Chinese version as standard; for users in other regions, please take the English version as standard.

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 through the manuals of all power devices and chassis and ensure the power configuration is rational before using this unit.
- Stop usage once the casing of the ESC exceeds 90°C/194 F as this may cause damages 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.

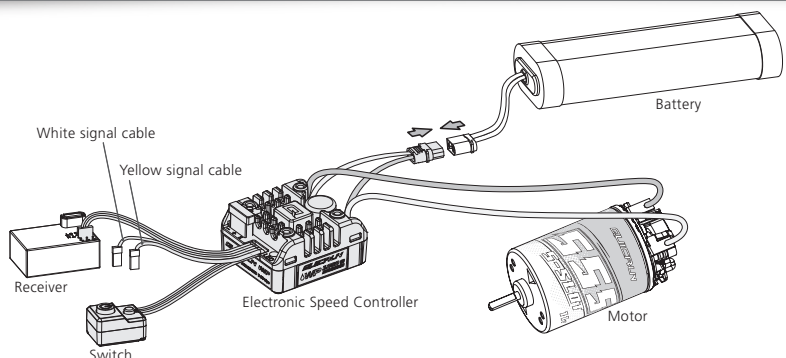
03 Features

- Fully waterproof design for all conditions. (Note: please clean and dry it after use for avoiding rusty connectors)
- HOBBYWING patented copper heat-conductive plates attached to the MOSFET board allows the internal heat to be quickly transferred to the CNC-machined aluminum reticular heat sink for great heat dissipation.
- High reliable electronic switch design prevents mechanical switch failure due to dirt, water, dust and etc.
- Tunable drag brake and drag brake rate for different vehicles, tracks and control feel. Adjustable PWM frequency combined with advanced freewheeling (VDEO) technology guarantees great throttle linearity and driving feel.
- Innovative real car mode, make the downhill control of the vehicle more stable, and provide new fun for the car.
- It has the function of using transmitter (AUX channel) to adjust the drag brake force in real time.
- Multiple protections: low-voltage cutoff protection, thermal protection, and throttle signal loss protection.
- Separate programming port to easily connect the LED program card to the ESC.
- Single-button ESC programming and factory reset.
- ESC programming via Hobbywing LED program card.

04 Specifications

Model	QUICRUN WP 1080 G2 Brushed
Cont. / Peak Current	80A / 400A
Motor Type	Brushed Motor (S40 / S50 size motors)
Applications	1/10th Rock Crawler
LiPo / NiMH Cells	2-3S LiPo / 5-9S NiMH
BEC Output	6V / 7.4V / 8.4V @ 4A (Switch-mode)
Size	37.2 x 31.9 x 18.4mm
Weight	70.2g (with wires&connectors)
Programming Port	Separate Port

05 Connections



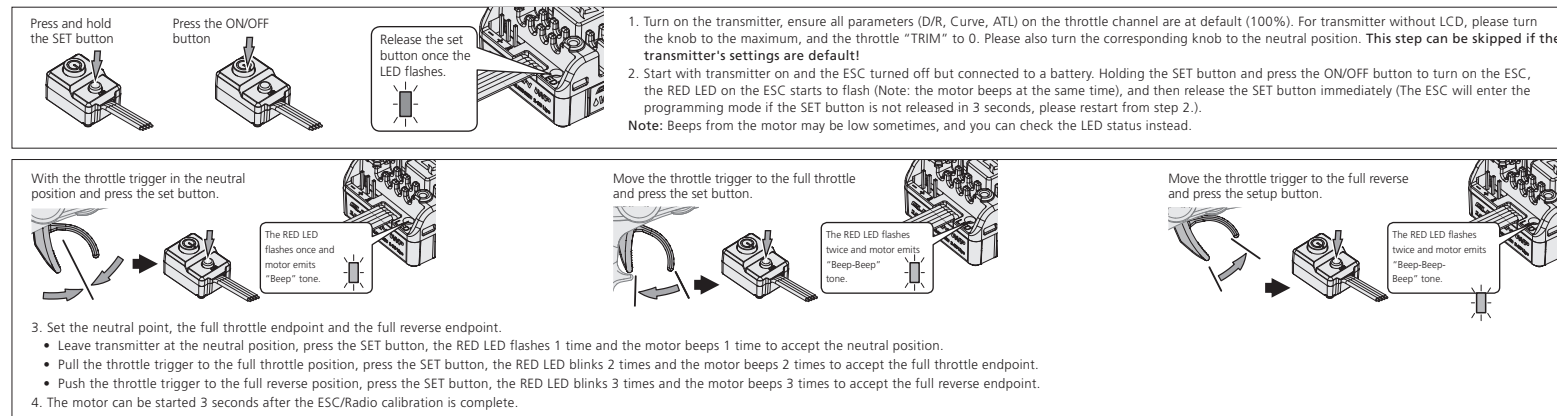
This is an extremely powerful brushed motor system. For your safety and the safety of those around you, we strongly recommend removing the pinion gear attached to the motor before performing calibration and programming functions with this system. It is also advisable to keep the wheels in the air when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

- Motor Wiring**
There is no polarity on the M+/M- two ESC-to-motor wires, hence, do not worry on how you connect them initially. You may find it necessary to swap two wires if the motor runs in reverse.
- Receiver Wiring**
Plug the throttle control cable (white/red/black cable) on the ESC into the throttle (TH) channel on receiver. Since the throttle cable of esc will have BEC voltage output 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.
Single white cable: This cable is used to connect the receiver AUX channel and cooperate with the "real car mode" in the running mode of esc to realize the function of real-time switching of motor rotation direction through the transmitter. For details, please refer to the introduction of "real car mode" below the parameter items.
Single yellow cable: This cable is used to connect the receiver AUX channel, which can realize the function of real-time adjustment of drag brake force through the transmitter.
- Battery Wiring**
Proper polarity is essential. Please ensure positive (+) connects to positive (+), and negative (-) connects to negative (-) when plugging in the battery! When reverse polarity is applied to your ESC from the battery, it WILL damage your ESC. This WILL NOT be covered by warranty!

06 ESC Setup

1 Set the Throttle Range - ESC Calibration Process

You must calibrate throttle range when you begin to use a new ESC, the transmitter has been replaced, or the Throttle TRIM has been adjusted, otherwise the ESC cannot work correctly.



2 Power on/off and beep instructions

- Power ON/OFF:**
(Start with the ESC turned off), short press the ON/OFF button to turn on the ESC.
(Start with the ESC turned on) long press the ON/OFF button to turn off the ESC.
- Warning Tones:**
With the ESC is turned on in the normal way (that is turn it on without pressing and holding the SET button): if you set the "Battery Type" to "LiPo", the motor will beep N (number) beeps to indicate the number of LiPo cells you have plugged in (i.e. 2 beeps indicates a 2S LiPo, 3 beeps indicates a 3S LiPo.) and then a long beep to inform you that your ESC is ready to work. If you set the "Battery Type" to "NiMH", the motor will only beep a beep to indicate the ESC is in NiMH mode and then another beep to inform you that your ESC is ready to function.

3 Programmable Items

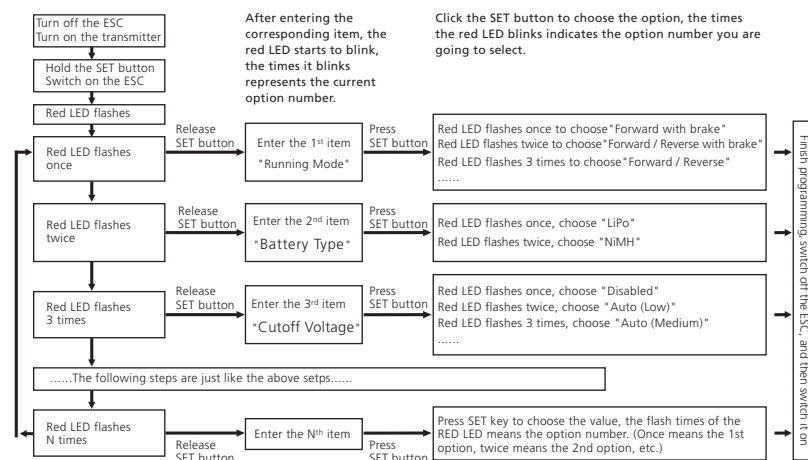
Those "black background and white text" options are the factory default settings.

Item	Programmable Item	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
1	Running Mode	Fwd/Brk	Fwd/Rev/Brk	Fwd/Rev	Real car					
2	Battery Type	LiPo	NiMH							
3	Cutoff Voltage	Disabled	Auto (Low)	Auto (Medium)	Auto (High)					
4	Initial Start Force	0%	2%	4%	6%	8%	10%	12%	14%	16%
5	Max. Forward Force	25%	50%	75%	100%					
6	Max.Reverse Force	25%	50%	75%	100%					
7	Max. Brake Force	0%	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%
8	Initial Brake Force	0%	6.25%	12.5%	18.75%	25%	31.25%	37.5%	43.75%	50%
9	Drag Brake	0%	5%	10%	50%	60%	70%	80%	90%	100%
10	Drag Brake Rate	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
11	Neutral Range	0.02ms	0.03ms	0.04ms	0.05ms	0.06ms	0.07ms	0.08ms	0.10ms	0.12ms
12	Start Mode/Punch	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
13	PWM Frequency	1K	2K	4K	8K	16K				
14	BEC Voltage	6V	7.4V	8.4V						
15	Freewheeling	Enabled	Disabled							

- Running Mode**
Option 1: Forward with Brake. It's a racing mode. It has only forward and brake functions.
Option 2: Forward/ Reverse with Brake. This option is known to be the "training" mode with "Forward/ Reverse with Brake" functions. Hobbywing has adopted the "DOUBLE-CLICK" method, that is your vehicle only brakes on the 1st time you push the throttle trigger to the reverse/brake position. The motor will reverse when you release the throttle trigger and re-push the trigger.
Option 3: Forward and Reverse. This mode is often used by special vehicles (rock crawler). It adopts the "SINGLE-CLICK" method. The vehicle will brake immediately when you push the throttle trigger forward (brake).
Option 4: Real car mode
 When this mode is set, pushing the throttle trigger is always braking, the purpose is to simulate the real vehicle and realize the smooth downhill of the vehicle through the control of the brake. In addition, when this mode is set, connect the single white signal cable of the esc to the AUX channel of the receiver, the real-time switching of the motor rotation direction can be realized through the channel switch/key corresponding to the transmitter. That is, the vehicle can move forward or backward by pulling the throttle trigger through the control of the transmitter. When the maximum brake force is not enough to stop the vehicle on the ramp, you can also try to switch the motor rotation direction, and realize the smooth downhill of the vehicle through the reverse control of the motor.
- Battery Type**
Option 1: LiPo. Select this option when you use a LiPo battery and set the cutoff voltage accordingly.
Option 2: NiMH. Select this option when you use a NiMH battery and set the cutoff voltage accordingly.
- Cutoff Voltage**
 Sets the voltage at which the ESC lowers or removes power to the motor in order to either keep the battery at a safe minimum voltage (for LiPo batteries). The ESC monitors the battery voltage all the time; it will immediately cut off the output when the voltage goes below the cutoff threshold. The RED LED will flash a short, single flash that repeats (☆, ☆, ☆) to indicate the low-voltage cutoff protection is activated.
Option 1: Disabled. The ESC does not cut the power off due to low voltage. Please pay attention to the power change of your vehicle. In general, the battery voltage gets pretty low when your vehicle is severely losing power, then you should stop using that pack.
Option 2: Auto (Low). Low cutoff voltage, difficult to get the LVC protection activated, is applicable to batteries with poor discharge capability. The corresponding cutoff voltage is 3.0V/Cell for Lipo battery and 4.5V for whole NiMH pack.
Option 3: Auto (Medium). Medium cutoff voltage, prone to getting the LVC Protection activated, is applicable to batteries with ordinary discharge capability. The corresponding cutoff voltage is 3.2V/Cell for Lipo battery and 5.0V for whole NiMH pack.
Option 4: Auto (High). High cutoff voltage, very prone to getting the LVC Protection activated, is applicable to packs with great discharge capability. The corresponding cutoff voltage is 3.4V/Cell for Lipo battery and 5.5V for whole NiMH pack.
- Initial Start Force**
 It's the initial force when you pull the throttle trigger from neutral position toward throttle position. A suitable start force can effectively prevent vehicle from sliding when you apply a low throttle amount.
- Max. Forward Force**
 It's the force when throttle trigger is at the full throttle position. It's adjustable among 25%, 50%, 75% and 100% (by default). You can lower down the value for better driving feel/control when you drive a crawler (simulation model) over difficult terrains (and don't have any requirement against the maximum speed).
- Max. Reverse Force**
 Different reverse force will bring different reversing speed. For the safety of your vehicle, we recommend using a low level.
- Max. Brake Force**
 The ESC provides proportional braking function; the braking effect is decided by the position of the throttle trigger. It sets what 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. Please select the most suitable brake amount as per your car condition and your preference.
- Initial Brake Force**
 It is also known as "minimum brake force". It is the force when pushing throttle trigger from neutral zone to the initial brake position.
- Drag Brake**
 Drag brake is the braking medium produced when releasing the throttle trigger to neutral zone. This parameter value can be adjusted in real time through the transmitter. When a single yellow cable of the esc is connected to AUX channel of the receiver, the drag brake can be set in real time through the corresponding keys/knobs of the channel.
- Drag Brake Rate**
 It's the rate at which the drag brake increases from zero to the pre-set value when the throttle trigger enters the neutral range. A suitable rate can make the vehicle stop stably. You can choose the drag brake rate from level 1 (very soft) to level 9 (very aggressive) as per the track, tires' grip, and etc.
- 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.
- Start Mode / 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.
- PWM Drive Frequency**
 The acceleration will be more aggressive at the initial stage when the drive frequency is low, a higher drive frequency is smoother but this will create more heat to the ESC.
- BEC Voltage**
 The BEC voltage supports 6V/7.4V/8.4V three levels of adjustment. Generally, 6.0V is applicable to ordinary steering servo, and 7.4V/8.4V is applicable to high-voltage steering servo, please set the appropriate value according to the specification of the steering servo used.
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, when the BEC voltage is set to 7.4V/8.4V and 2S Lipo is used, the BEC cannot stably output 7.4V/8.4V (will decrease as the battery voltage decreases). Therefore, it is recommended to use 7.4V/8.4V BEC when matching with 3S Lipo.
- Freewheeling**
 For regular vehicles, we recommend disabling this function. With it disabled, your vehicle can have quick acceleration. For a crawler (simulation model), we suggest enabling it. With it enabled, your crawler can have better linearity during a low-speed running and also less heat.

4 ESC Programming

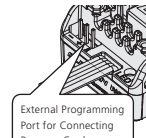
1. Program your ESC with the SET Button



- For easy recognition, the motor beeps at the same time when the Red LED flashes.
- When "N" (the number) is equal to or bigger than 5, we use a long flash to represent "5". For example, the Red 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 Red 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. Program your ESC with a LED Program card

Connect the interface marked with "- + n" on the esc to the interface marked with "- + n" on the program card using a separate programming cable (a cable with JR plugs at both ends included in the program card packaging), then connect the battery to the esc and turn it on, all programmable items will show up a few seconds later. You can select the item by choosing via "ITEM" & "VALUE" buttons on the program card. Press the "OK" button to save all new settings to your ESC.



5 Factory Reset

- Restore the default values with the SET button**
 Press and hold the SET button for over 3 seconds anytime when the throttle is at the neutral position (except during the ESC calibration and programming). The Red LED flashes a long flash (the motor beeps a long beep at the same time) and then a short, single flash that repeats indicating that you have successfully restored all the default values within your ESC. Power on again before running.
- Restore the default values with a LED program card.**
 After connecting the LED program card to the ESC, press the "RESET" button and the "OK" button to factory reset your ESC.

07 Explanation for LED Status

- The Red LED dies out when the throttle trigger is in throttle neutral zone.
- The Red LED flashes when your vehicle runs forward and it turns solid Red when you pull the throttle trigger to the full throttle endpoint.
- The Red LED flashes when your vehicle brakes and it turns solid Red when you push the throttle trigger to the full brake endpoint and set the "maximum brake force" to 100%.
- The Red LED flashes when your vehicle runs backward and it runs solid Red when you push the throttle trigger to the full brake endpoint and set the "maximum reverse force" to 100%.

08 Troubleshooting

Trouble(s)	Possible Causes	Solution(s)
The light does not turn on after power-up, the motor does not start.	1. No power was supplied to the ESC. 2. The ESC switch was damaged.	1. Check if all ESC & battery joints or connections have been well soldered or firmly connected. 2. Replace the broken switch.
The ESC was unable to start the motor (but the Red status LED flashed) after it was powered on	The throttle control cable was reversely plugged in or in the wrong channel on the receiver.	Please plug the throttle control cable in the TH channel (usually CH2) on receiver or recalibrate the throttle range.
The vehicle moved forward or backward slowly when the throttle trigger was at the neutral position	The throttle range was not calibrated properly.	Please recalibrate the throttle range or fine-tune the neutral position on the transmitter.
The vehicle ran backward when you pulled the throttle trigger towards you	1. The ESC-to-motor wiring order was incorrect. 2. Incorrectly set the direction of the throttle channel.	1. Swap motor wires. 2. Change the direction of the throttle channel from "NOR" to "REV" or "REV" to "NOR".
The motor suddenly stopped or significantly reduced its output in operation	1. The receiver was influenced by some foreign interference. 2. The LVC protection was activated. 3. The ESC thermal protection was activated.	1. Check all devices and try to find out all possible causes, and check the transmitter's battery voltage. 2. The Red LED keeps flashing indicating the LVC protection is activated, so please replace your battery pack. 3. The Red LED flashes twice and repeats indicating the ESC thermal protection is activated, please let your ESC cool down before using it again.
The vehicle could run forward but could not reverse	The throttle neutral position on your transmitter was actually in the braking zone.	Recalibrate the throttle neutral position. No LED on the ESC will come on when the throttle trigger is at the neutral position.
The throttle range setting could not be completed	1. The throttle cable of esc is not inserted the correct channel 2. Problem with the receiver or transmitter.	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.