EZRUN

USER MANUAL

Brushless Electronic Speed Controller

EZRUN MAX8 G2S
EZRUN MAX6 G2
EZRUN MAX5 HV Plus G2

20250401

01 Disclaimer

Thank you for purchasing this HOBBYWING product! Please read this instruction manual carefully before use, once you use the product, it is understood 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 usage 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.

HW-SMA434DUL01

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.
- Do not hold the vehicle in the air and rev it up to full throttle, as rubber tires can “expand” to extreme size or even explode and cause serious injury.
- 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 Features

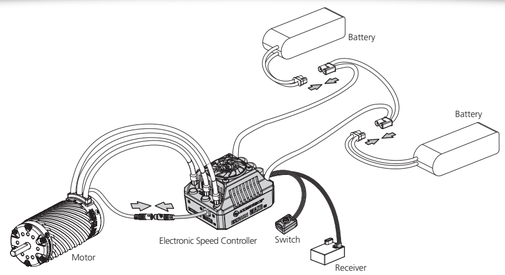
- The esc has an innovative waterproof sensor interface, enhancing the overall waterproof and dustproof performance. It is easy to deal with the harsh conditions containing sediment, ice and snow, water accumulation.
- Built-in ultra-powerful switch mode BEC and support for 6V/7.4V/8.4V switching, supporting a wide range of powerful and high-voltage servos.
- Supports turbo timing setting, the timing response is remarkable when used with the matching motor.
- The built-in (integrated in the switch) Bluetooth function allows for setting and upgrading the esc by directly connecting to the mobile app, without any additional devices, making it simpler and more convenient.
- Data logging function to view various running data on the HW LINK app.
- Supports the firmware upgrade of the ESC, you can enjoy the latest functions.

04 Specifications

MODEL	EZRUN MAX8 G2S	EZRUN MAX6 G2	EZRUN MAX5 HV Plus G2
Cont. / Peak Current	160A / 1050A	200A / 1200A	330A / 2000A
Motor Type	Sensored and sensorless brushless motor	Sensored / Sensorless Brushless Motor	Sensored and sensorless brushless motor
Applications	1/8 On-road, Short course truck, Monster truck	1/6&1/7 On-road,Truck,Monster Truck	1. 1/7 and 1/8 vehicles for Extreme Speed 2. 1/5 Truck,Monster for Extreme Bashing
Motor Limit (Note*)	With 4S LiPo: KV≤ 3000 With 6S LiPo: KV≤ 2400 4278 size motor	With 6S LiPo: KV≤ 2400 With 8S LiPo: KV≤ 1700 4990/5690 size motor	With 8S LiPo: KV≤ 2500 With 12S LiPo: KV≤ 1600
LiPo Cells	3-6S LiPo	3-8S LiPo	6-12S LiPo
BEC Output	6V / 7.4V / 8.4V adjustable, continuous current 6A (Switch-mode)	6V/7.4V/8.4V adjustable, continuous current 8A (Switch-mode)	6V/7.4V/8.4V adjustable, continuous current 8A (Switch-mode)
Cooling Fan	Powered by the BEC voltage	Powered by the BEC voltage	Powered by the BEC voltage
Size	60(L) x 48(W) x 40.5(H)mm	70(L) x 56(W) x 45.5(H)mm	94.5(L) x 59.4(W) x 51.6(H)mm
Weight	192g(Included wires&connectors)	245g (Included wires)	450g (Included wires&connectors)
Programming Method	iOS or Android smart phone (installed with the HW LINK app)	iOS or Android smart phone (installed with the HW LINK app)	iOS or Android smart phone (installed with the HW LINK app)

Note *: 1. The range of KV value here is the recommended value under the standard application (combined with the rpm supported by the motor and the actual load of the whole vehicle), and does not represent the maximum rpm supported by esc.
2. As the MAX5 HV Plus G2 is mainly designed for super high speed applications and supports high motor rpm, it is necessary to confirm whether the motor used supports higher rpm when matching it to avoid damaging the motor.

05 Connections

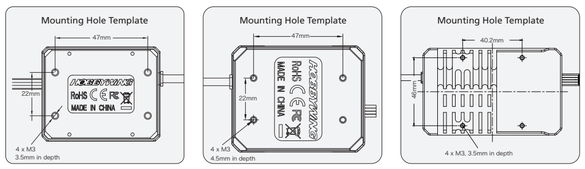


Refer to the wiring instructions and wiring diagram:

1. Motor connection:
There is a difference between connecting a sensored brushless motor and a sensorless brushless motor:
A. When connecting to a sensored brushless motor:
The ESC to Motor connections must be connected correctly, **the three A/B/C ESC wires must connect to the three A/B/C motor wires correspondingly, otherwise, it may damage the ESC.** Next, connect the sensor cable of the esc and motor according to the arrow mark on the sensor connector. If you don’t plug the sensor cable in, your ESC will work in sensorless mode even if you’re using a sensored motor.
Note: If the motor direction is reversed, change the parameter on item 4 “Motor rotation direction” to achieve the correct setting.
B. When connecting to a sensorless brushless motor:
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 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.

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.
Note: The anti sparking connector is used with this product, as the anti sparking connector is easily affected by temperature and voltage, its service life is relatively short, therefore, please replace the anti sparking plug in a timely manner according to the situation of the power on spark.



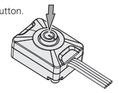
EZRUN MAX8 G2S EZRUN MAX6 G2 EZRUN MAX5 HV Plus G2

06 ESC Setup

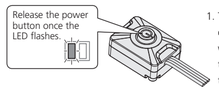
1 Set the Throttle Range - ESC Calibration Process

The calibration must be done on the first use of the ESC, or if a new radio or receiver is installed, otherwise the esc may not work correctly. We strongly recommend to open the fail safe function of the transmitter, set the no signal protection of throttle channel (“F/S”) to no pulses 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 calibration steps are below.

Hold the power button.



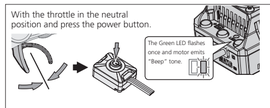
Release the power button once the LED flashes.



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). **This step can be skipped if the radio's settings are default.**
2. Start by turning on the transmitter with the ESC turned off but connected to a battery. Holding the“power” button for about 3 seconds, the RED LED in the switch starts to flash, release the button immediately (if the button is not released within 8 seconds, the Bluetooth name and password will be restored to the factory settings), and the motor will beep synchronously.

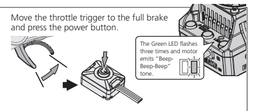
Note : Beeps from the motor may be low sometimes, and you can check the LED status instead.

With the throttle in the neutral position and press the power button.



Move the throttle trigger to the full throttle and press the power button.

Move the throttle trigger to the full brake and press the power button.



3. Set the neutral point, the full throttle endpoint and the full brake endpoint.
   - Leave transmitter at the neutral position, press the “power” button, 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 “power” 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 “power” button, the GREEN LED blinks 3 times and the motor beeps 3 times to accept the full brake endpoint.
4. The motor can be started after the ESC/Radio calibration is complete.

2 Power on/off and beep instructions

Switch instructions: short press power button to power-on, long press on power button to shut down.
Power-on beep description: Under normal circumstances, the ESC will emit a few “beep” to indicate the number of lithium cells. A short “beep-” means the #1, and a long “beep—” means the #5. For example: “beep—, beep-”means 6 cells, “beep—beep—, beep-beep-”means 12 cells.
Finally,a long beep will sound to confirm the completion of the self-check.
Note: Motor beeping at the same time, the ESC light flashes synchronously. For example: when the motor makes a long beep, the esc flashes for a long time, and when the motor makes a short beep, the esc flashes for a short time.

3 Instruction for programmable items

The highlighted options are the default settings of the system.

	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	LiPo Cells	*Auto*	2S	3S	4S	5S	6S	7S	8S	
			6S	7S	8S	9S	10S	11S	12S	
3	Cutoff Voltage	Disabled	Auto (low)	*Auto (medium)*	Auto (high)					
4	Motor Rotation	*CCW*	CW							
5	BEC Voltage	*6.0V*	7.4V	8.4V						
6	Max.Brake Force	12.50%	25%	37.50%	50%	*62.50%*	75%	87.50%	100%	Disabled
7	Max.Reverse Force	*25%*	50%	75%	100%					
8	Punch	Level 1	Level 2	Level 3	Level 4	*Level 5*	Level 6	Level 7	Level 8	Level 9
9	Drag Brake Force	0-100% (Adjust Step 1%), Default 0%.								
10	Initial Throttle Force	0.5%	*1%*	2%	3%	4%	5%	6%	7%	8%
11	Turbo Timing	*0°*	4°	8°	12°	16°	20°	24°	28°	32°
12	Turbo Delay	Instant	0.05s	0.1s	0.15s	*0.2s*	0.3s	0.5s	0.7s	1.0s
13	ESC Thermal Protection	Disabled	*Enabled*							

Note : Regarding the "LiPo Cells" item, MAX8 G2S supports 3-6S adjustable, MAX6 G2 supports 3-8S adjustable, and MAX5 HV Plus G2 supports 6-12S adjustable.
Regarding the "Max.Brake Force" item, the default value for MAX8 G2S is 50%, the default value for MAX6 G2 and MAX5 HV Plus G2 is 62.5%.
Regarding the "Turbo Timing" item, the MAX8 G2S can be set up to 32 degrees, the MAX6 G2 and MAX5 HV Plus G2 can be set up to 24 degrees.
Regarding the "ESC Thermal Protection" item, the MAX8 G2S and MAX6 G2 do not have this parameter setting.

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
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 and Reverse
When the throttle trigger is pushed to reverse position, the motor reverses. This mode is generally used in special vehicles.

2. LiPo Cells:
Set the correct value according to the actual number of LiPo batteries used. The default is automatically calculated. Please note the “Auto” option will not recognize 5S and 7S, this is to avoid mis-calculation during actual use, for example, 6S LiPo without power may be incorrectly calculated as fully charged 5S LiPo. Therefore, this parameter value needs to be manually set when using 5S or 7S LiPo.
Note: The“2S”option here is only reserved in the parameter table, due to the circuit characteristics and the suitable application of this esc, 2S LiPo is not supported.

3. 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 the power output is completely cut off after a few seconds. When the voltage protection is entered, the red LED flashes in the “-, -, -”. The three levels of low, medium, and high here correspond to 2.8V/Cell, 3.1V/Cell and 3.4V/Cell respectively. For NiMH batteries, it is recommended to set this parameter to “Disabled”.

4. Motor Rotation:
Used to set the rotation direction of the motor. Due to differences in chassis frame structure, it is possible for the car to reverse when the throttle is applied to forward, in this case, you can solve it by adjusting this item.

5. BEC Voltage:
BEC voltage support 6V/7.4V/8.4V. Generally, 6.0V is suitable for standard servos, while 7.4V/8.4V is suitable for high-voltage servos. Please set according to the servo specifications.
WARNING! Do not set the BEC voltage above the maximum operating voltage of the servo and receiver, as this may damage the servo/reveiver or even the ESC.

6. 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.

7. 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.

8. 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.

9. 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.

10. Initial Throttle Force:
It also called as minimum throttle force. Adjusting this setting to the available traction can help with acceleration. Set a lower value for low traction surfaces, and higher values for higher traction surfaces.

11. 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.

12. 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.

13. ESC Thermal Protection:
When it is set to"Enabled", the power will be automatically reduced when the temperature of the esc reaches the preset value during operation, and the powerwill be turned off after about 40 seconds. When the ESC Thermal Protection is activated,the green light will flash: "☆—, ☆—, ☆— ". When this item is set to"Disabled", the ESC Thermal Protection will not take effect,if the temperature of the esc continues to rise, it will be damaged due to overheating.There fore, please be cautious when setting this item. Due to being set to "Disabled" and causing damage to the esc, it will not be covered by the warranty.

4 Programming method

Program your ESC with a smart phone (installed with the HW LINK V2 app)
The esc already has a built-in Bluetooth module (integrated into the switch), which supports direct use of the mobile app for parameter setting,firmware updating and data reading without the need for additional devices. The specific methods are as follows:

- Download and install the Hobbywing’s official app “HW LINK V2” on your smart phone. For smart phones with the iOS operating system, please search “Hobbywing” in the App Store; for smart phones with the Android operating system, search “Hobbywing” in the Google Play or download it from our website. (https://www.hobbywing.com)
- Connect a battery to the ESC and turn it on, then open the Hobbywing official app“HW LINK V2” on your smart phone. It will ask if you want to connect “Bluetooth” or “WiFi” the first time when you open the app; at this point, please select “Bluetooth”. You need to change the connection to “Bluetooth” after using the “WiFi” connection, you can click “Settings” (on the home page) and then “Select the connecting mode” to change the connection.
- A list of Bluetooth devices will pop out when you click the ESC icon on the upper right corner, then select the ESC you want to program to establish the Bluetooth connection between the ESC and smart phone. (Note: the default name & password of the Bluetooth device are HW_BLE**** & 888888.)

ESC Setup: Click【Parameters】on the home page to adjust the ESC parameters, click the ESC icon on the upper right corner to disconnect the Bluetooth connection between the ESC and smart phone after completing and saving the settings.
Firmware Updating: Click【Firmware Update】and then select the【Available Version】to select the firmware version you need, and then click “Update” to upgrade your ESC.
Data Logging: Click on the【Data Log】on the homepage of the APP, select【Peak Record】to view the five extreme value data stored in the esc; Select【Data Record】to view the real-time running data; Click on the【Data Log】button in the upper right corner of the【Data Record】page to view the historical running data (curve chart).

5 Factory reset

Restore the default values (only the ESC parameters) with a smart phone (installed with the HW LINK app):
After entering the app and establishing the Bluetooth connection between the ESC and smart phone, click “Factory Reset” in “Parameters” to factory reset your ESC. After that, please re-calibrate the throttle range.

Use the switch button to restore the factory Bluetooth name and password:
Connect the esc to the battery and the esc is in the off state. Press and hold the switch button for about 8 seconds. The RED LED in the switch will flash first, and then both the RED and GREEN LEDs will light up, indicating that the factory Bluetooth name and password have been successfully restored, release the button, and the esc will automatically restart. The default factory name for Bluetooth is: HW_ BLE * * * * and the default password is 888888

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 (double flash, “☆☆, ☆☆, ☆☆”): enters the motor overheat protection state.
Note: Motor overheat protection is effective only when Hobbywing supporting motor (such as EZRUN 5690SD/4990SD G2, 4278SD G2R) is used. When non Hobbywing supporting motor is used, there is no motor overheat protection function.
4) The green light flashes (three flashes, “☆☆☆, ☆☆☆, ☆☆☆”): enters the current protection state.
5) 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.	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 testing.
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 transmission on the vehicle is different	Set the parameter item “Motor Rotation” to the opposite direction.
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. The motor is connected incorrectly; 2. ESC fault (partial power MOSFET burned out).	1. Check the plugs and the solder points and whether the sequence of A, B and C wires is correct.; 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. Set the “Running Mode” to “Forward/Reverse with Brake”; 3. Contact the distributor to handle the repair.
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.

09 FCC Information

This equipment complies with FCC radiation exposure limits get forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the equipment & your body.

FCC Warning
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) this device must accept any interference received, including interference that may cause undesired operation.
CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

EZRUN

车用无刷电子调速器
使用说明书

EZRUN MAX8 G2S
EZRUN MAX6 G2
EZRUN MAX5 HV Plus G2

20250401

HW-SMA434DUL01

01 声明

感谢您购买本产品！在使用之前，请仔细阅读本声明，一旦使用，即被视为对本声明全部内容的认可和接受！请严格遵守手册安装和使用该产品，无刷动力系统功率强大，错误的使用可能导致人身伤害和设备损坏，我们不承担因使用本产品或擅自对产品进行改造所引起的任何责任，包括但不限于对附带损失或间接损失的赔偿责任！我们有权在不经通知的情况下变更产品设计、外观、性能及使用要求。关于不同语言版本的免责声明可能存在语义差异，中国大陆地区以中文版为准，其他地区以英文版为准。

02 注意事项

- 电调与相关连接部件连接前，请确保所有电线和连接部件绝缘良好，短路会毁坏电调。
- 请务必仔细连接好各部件，若连接不良，您可能不能正常控制模型车，或出现设备损坏等其他不可预知的情况。
- 使用此电调前，请认真查看各动力设备以及车架说明书，确保动力搭配合理，避免因错误的动力搭配导致电机超载，最终损坏电调。
- 高速运行中，因车子轮胎会“膨”到极致，故而请勿将车子腾空然后扣全油门，否则，轮胎运行故障会引起严重伤害。
- 勿使电调外部温度超过90℃/194℉，高温将会毁坏电调并且可能导致电机损坏。
- 使用完毕后，切记断开电池与电调的连接。只要接着电池，即便开关未开电调也会一直消耗电流，长时间连接会导致电池最终完全放电；进而导致电池或电调出现故障；我们不对因此而造成的任何损害负责。

03 产品特色

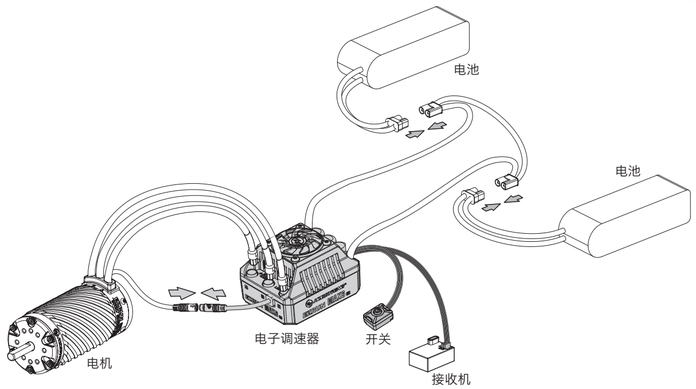
- 电调采用灌封工艺，加上新型防水有感接口，使之具备出色的防水防尘性能，在各种气候条件下，轻松应对含有泥沙、冰雪、积水的复杂路面。
- 内置强大的开关模式BEC，且支持 6V/7.4V/8.4V 切换，轻松驱动各种强力舵机及高压舵机。
- 支持Turbo进角设置，搭配好盈配套电机使用时，进角效果显著，轻松超越对手。
- 电调内置（集成在开关中）蓝牙功能，直连手机即可对电调进行设置和升级，无需其它额外设备，更加简单方便。
- 数据记录功能，在HW LINK App上即可查看电调各种运行数据。
- 支持电调固件升级，享用最新功能。

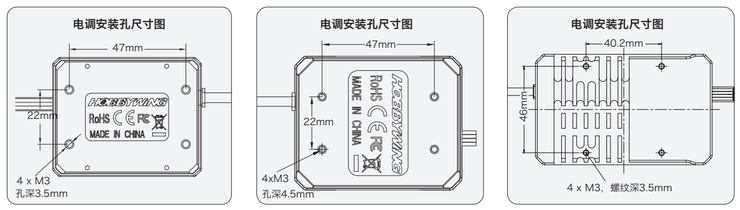
04 产品规格

型 号	EZRUN MAX8 G2S	EZRUN MAX6 G2	EZRUN MAX5 HV Plus G2
持续/峰值电流	160A / 1050A	200A / 1200A	330A / 2000A
支持电机类型	有感无刷电机、无感无刷电机	有感无刷电机、无感无刷电机	有感无刷电机、无感无刷电机
主要适用车型	1/8平路车 / 越野车 / 卡车 / 大脚车	1/6&1/7平路车、卡车、大脚车	1. 1/7、1/8等模型车极速应用 2. 1/5卡车/大脚车暴力应用
推荐无刷马达KV（备注*）	使用4S锂电时：KV≤3000 使用6S锂电时：KV≤2400 4278尺寸电机	使用6S锂电时：KV≤2400 使用8S锂电时：KV≤1700 4990/5690尺寸电机	使用8S锂电时：KV≤2500 使用12S锂电时：KV≤1600
电池节数	3-6S LiPo	3-8S LiPo	6-12S LiPo
BEC输出	6V / 7.4V / 8.4V可调， 持续电流6A （开关稳压方式）	6V / 7.4V / 8.4V可调， 持续电流8A （开关稳压方式）	6V / 7.4V / 8.4V可调， 持续电流8A （开关稳压方式）
风扇取电方式	从内置BEC取电	从内置BEC取电	从内置BEC取电
尺寸	60(长) x 48(宽) x 40.5(高)mm	70(长) x 56(宽) x 45.5(高)mm	94.5(长) x 59.4(宽) x 51.6(高)mm
重量	192g(含线材和插头重量)	245g (含线材重量)	450g （含线材和插头重量）
参数设定方式	手机APP	手机APP	手机APP

备注*：1. 这里的KV值范围是在标配应用下（结合了电机所支持的转速以及整车实际负载）的推荐值，并不代表电调能支持的最大转速。
2. 由于MAX5 HV Plus G2主要是针对极速应用的，支持电机转速比较高，因此在搭配电机时需要确认所用电机是否支持较高转速，避免损坏电机。

05 连接电子调速器





EZRUN MAX8 G2S　　EZRUN MAX6 G2　　EZRUN MAX5 HV Plus G2

请参照接线说明及接线图正确接线：

1. 连接电机：

连接有感无刷马达与无感无刷马达的方式有差异，请务必遵照如下接线方式：

A. 连接有感无刷马达时：

电调与马达相连有严格的线序要求，**电调的#A/#B/#C必须与电机的#A/#B/#C三线严格一一对应，否则可能损坏电调**，然后将电调与电机的感应线按照感应接口上的箭头标识对接起来。

备注：若装上电机后，车子前进与后退反向，请更改参数项第4 项“电机转动方向”，实现电机转向调整。

B. 连接无感无刷马达时：

电调与马达相连无严格的线序要求，电调的#A/#B/#C可以与电机的三线随意对接，若出现转向相反，任意交换两条马达线。

2. 连接接收机：

将电调的油门控制线接入接收机的油门通道（通常为CH2或TH通道）。因电调油门线会输出BEC电压给接收机及舵机，所以请勿给接收机额外供电，若需要额外供电，请断开电调油门线中的红色线。

3. 连接电池：

电调的输入线有极性之分，接入电池时，请确保电调的（+）极与电池的（+）极相连，（-）与（-）相连。如果电调接反电将被损坏，因接反电而导致电调损坏是不享有保修服务的。

备注：EZRUN MAX5 HV Plus G2电调使用的是防打火电源插头，因防打火插头受温度及电压的影响比较大，使用寿命相对较短，故使用时需留意上电打火情况，及时更换防打火插头。

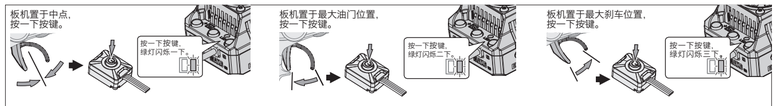
06 设置电子调速器

警告！本系统功率非常强劲，为了您及周边他人的安全，我们强烈建议您在校准及设定该系统前拆下电机小齿，并在车轮悬空的情况下开启电调上的控制开关！

1 设定油门行程

电调第一次使用前或更换过遥控器/接收机，均需重设油门行程，不然可能会导致电调无法使用或误动作。 另外我们建议将遥控器油门通道的无信号保护（“F/S”）功能设置为关闭输出方式或将保护值设置为中点位置，使得当接收机无法收到遥控器信号后，电机能够停止运转。油门校准步骤如下图所示：

1. 打开遥控器，将油门通道的“D/R”、“EPA”、“ATL”等参数调到100%（如遥控器无显示屏，则将对应旋钮调到最大位置），油门通道的中点微调“TRIM”调为0（如遥控器无显示屏，则将对应旋钮调到中间位置）。**若遥控器为默认设置，可以不作此设置，直接从第二步开始。**
2. 电调关机状态，持续按住开关按键不松开，约3秒钟，电调开关中的红色LED灯开始闪烁，立即松开按键（若8秒内还未松开按键则会将蓝牙名称和密码恢复出厂设置），马达同步鸣叫起来。



3. 此时需要设定三个点：油门中点、油门最大点、刹车最大点。
   1）油门扳机置于中点位置，按一下按键，绿灯闪烁1次，马达鸣叫“哔”1声，表示已存储中点位置；
   2）扳机拉到最大油门位置，按一下按键，绿灯闪烁2次，马达鸣叫“哔-哔-”2声，表示已存储最大油门位置；
   3）扳机推到最大刹车位置，按一下按键，绿灯闪烁3次，马达鸣叫“哔-哔-哔-”3声，表示已存储最大刹车位置。
4. 油门行程校调完毕，待自检完成后，电机即可正常操作。

2 开关机及鸣音说明

开关机说明：关机状态下短按电源按键开机；开机状态下长按电源按键关机。

开机鸣音说明：在正常情况下开机，电机会发出几声“哔”鸣音表示锂电节数。 一声短音“哔-”代表数字1，一声长音“哔—”代表数字5。例如：“ 哔—，哔-”表示6节锂电，“哔—哔—，哔-哔-”表示12节锂电。最后间隔约1秒会发出一声长音表示自检完成确认音。

备注：电机鸣叫的同时，电调灯同步闪烁。如：电机一声长音的同时电调灯长闪一下，电机一声短音的同时电调灯短闪一下。

3 编程项目说明

下表中黑底白字的选项为可编程项目的默认值。

	编程项目	参数项								
编号	参数项名称	参数1	参数2	参数3	参数4	参数5	参数6	参数7	参数8	参数9
1	运行模式	正转带刹车	*正反转带刹车*	直接正反转						
2	锂电池节数	*自动判别*	2S	3S	4S	5S	6S	7S	8S	
			6S	7S	8S	9S	10S	11S	12S	
3	电池低压保护阈值	不保护	自动（低）	*自动(中)*	自动(高)					
4	电机转动方向	*CCW*	CW							
5	BEC电压	*6.0V*	7.4V	8.4V						
6	最大刹车力度	12.50%	25%	37.50%	50%	*62.50%*	75%	87.50%	100%	无刹车
7	最大倒车力度	*25%*	50%	75%	100%					
8	启动加速度	1级	2级	3级	4级	*5级*	6级	7级	8级	9级
9	拖刹力度	0-100%，调整量为1%，默认0%								
10	初始启动力度	0.5%	*1%*	2%	3%	4%	5%	6%	7%	8%
11	Turbo进角	*0°*	4°	8°	12°	16°	20°	24°	28°	32°
12	Turbo延迟	立即	0.05秒	0.1秒	0.15秒	*0.2秒*	0.3秒	0.5秒	0.7秒	1.0秒
13	电调过热保护	不保护	*保护*							

备注：关于“锂电池节数”参数项，MAX8 G2S支持3-6S可调，MAX6 G2支持3-8S可调，MAX5 HV Plus G2支持6-12S可调。
关于“最大刹车力度”参数项，MAX8 G2S的默认值为50%，MAX6 G2和MAX5 HV Plus G2的默认值为62.5%。
关于“Turbo进角”参数项，MAX8 G2S最高可设置32度，MAX6 G2和MAX5 HV Plus G2最高可设置24度。
关于“电调过热保护”参数项，MAX8 G2S和MAX6 G2无此项参数设置。

1. 运行模式（Running Mode）：

选项1：正转带刹车

此模式下，车辆仅能前进和刹车，但不能倒车，该模式通常用于竞赛。

选项2：正反转带刹车

此模式则提供了倒车功能。当油门扳机第一次推至反向区域时，电机只是刹车，不会产生倒车动作，当油门扳机回到中点区域并第二次推至反向区域时，如果此时电机已停止，则产生倒车动作，如果电机未停止，则不会倒车，仍是刹车，需要再次将油门回到中点并推向反向区。 这样做的目的是防止车辆行驶过程中因多次点刹而造成误倒车。

选项3：直接正反转

此模式采用单击式倒车方式，当油门扳机推至反向区域时，电机就会产生倒车动作。该模式一般用于特种车辆。

2. 锂电池节数（LiPo Cells）：

根据实际所用锂电池节数设置正确的值。默认为自动判断。自动判断时不识别5S和7S锂电，这是为了避免实际使用过程中将没电的6S（或8S）锂电误判为充满电的5S（或7S）锂电，故当使用5S或7S锂电时需手动设置该参数值。

备注：这里的“2节”选项只是参数表上保留了，由于电路特性加之此电调的设计应用，实际不支持使用2S锂电。

3. 电池低压保护阈值（Low Voltage Cut-Off）：

这项功能主要是防止锂电池过度放电而造成不可恢复的损坏。电调会时刻监视电池电压，一旦电压低于设定的阈值，将减低动力输出，数秒后将彻底切断动力输出。当进入电压保护后，红色 LED 会以“☆－，☆－，☆－”方式闪烁。这里的低/中/高三档分别对应2.8V/Cell，3.1V/Cell，3.4V/Cell。对于镍氢电池，建议将此项参数设置为“不保护”。

4. 电机转动方向（Motor Rotation）：

用于设置电机的转动方向。由于有些车架结构设计差异，有可能出现给前进的油门车子却后退，此时可以将“电机转动方向”设置为相反的方向。

5. BEC电压（BEC Voltage）：

BEC电压支持6V/7.4V/8.4V可调。一般6.0V适用于普通舵机，7.4V/8.4V适用于高压舵机，请根据所用舵机规格设置合适的值。

警告！设置的BEC电压请勿超过舵机最高工作电压，否则可能损坏舵机甚至电调。

6. 最大刹车力度（Max. Brake Force）：

本电调提供比例式刹车功能，刹车力度的大小和油门扳机的位置相关，最大刹车力是指油门扳机处于刹车极限位置时所产生的刹车力。请根据车辆的具体情况，选择合适的最大刹车力度。

7. 最大倒车力度(Max. Reverse Force)：

指油门扳机打到反向最大的位置所能产生的倒车力度，选择不同的参数值可以产生不同的倒车速度。一般情况下建议使用比较小的倒车速度，以免因倒车太快而导致失误。

8. 启动加速度（Start Mode / Punch）：

用于控制油门输出快慢，分1-9级可设置，设置值越大，则加速越快。需要根据场地、轮胎抓地特性、车辆配置等情况综合考虑。如设置过大可能会造成轮胎打滑、启动电流过大而对电机/电调/电池产生不利影响。

9. 拖刹力度（Drag Brake Force）：

拖刹是指当油门扳机进入到中点区域内时，电机产生的刹车力，请根据车辆类型、配置、场地等情况选择合适的值。

10. 初始启动力度（Initial Throttle Force）：

也叫做最小启动力度，是指在油门初始位置作用于电机上的启动力，可根据轮胎、场地抓地力设置需要的启动力度；如果场地太滑，可以设置较小的启动力度。

11. Turbo进角（Turbo Timing）：

激爆进角，可以额外的提高电机转速。这个是该进角的大小设置项，只有在全油门时才会开启，通常用于较长的直道上，释放出马达的最大功率。此值越大，电机的转速提升越多，同时运行电流越大，电机电调温度更高，故请合理设置此值。

12. Turbo延迟（Turbo Delay）：

是指触发Turbo所需要的持续全油门时长。当持续全油门的时间达到此设定值后，才能触发Turbo开启。

13. 电调过热保护（ESC Thermal Protection ）：

此项设为保护时，当运行过程中电调温度达到厂方预设值时会自动降低功率，约40秒后会关断动力。触发电调过热保护后，绿灯闪烁方式为单闪：“☆－，☆－，☆－”。此项设为不保护时，则电调的过热保护不会生效，若电调的温度持续升高则会因过热而损坏电调，故请谨慎设置此项。因设置为不保护而损坏了电调不享受售后保修服务！

4 编程方法

该电调内置了蓝牙模块，支持直接使用手机APP进行电调参数设置和固件升级，具体方法如下：

- 移动端下载好盈官方APP：HW LINK V2，iOS直接在App Store中搜索Hobbywing即可找到；Android在Google Play中查找 Hobbywing即可找到，或从Hobbywing官网（https://www.hobbywing.com）下载。
- 给电调通电并开机，然后在移动端进入官方APP：HW LINK V2。
  首次进入APP，会提示选择蓝牙连接或是WiFi连接，此处选择蓝牙连接。 使用过WiFi连接后如果要切换为蓝牙连接请点击“系统设置”中的“选择连接方式”改变设置。
- 点击APP内右上方的电调标识，会弹出附近可连接的蓝牙设备，点选所需设置的电调蓝牙名称以连接（蓝牙出厂默认名称：**HW_BLE******，出厂默认密码：**888888**）

参数设置：点击APP首页【参数设置】即可调整电调参数，设置完成并保存后点击右上方的电调图标以断开连接。

固件升级：点击APP首页【固件更新】，点击【可用版本】栏目来选择需更新的目标版本，然后点击下方的固件更新即可。

读取电调运行数据：点击APP首页【数据记录】，选择【峰值记录】可查看电调存储的五个极值数据；选择【数据记录】可查看电调实时运行数据；点击【数据记录】页面右上角的【数据日志】可查看电调记录的历史运行数据（曲线图）。

5 恢复出厂参数设定

利用APP恢复出厂设置（仅复位电调参数），方法如下：
进入APP连接电调后，点击APP内参数设置中的恢复出厂设置完成出厂设定恢复。恢复出厂设置后，请重新设置油门行程。
利用电调开关按键恢复出厂时的蓝牙名称和密码，方法如下：
电调与电池连接，电调处于关机状态，持续按住开关按键约8秒钟，开关先是红灯闪烁，然后红绿灯都亮起则表示恢复出厂蓝牙名称和密码成功，可以松开按键，电调会自动重启。 蓝牙出厂默认名称为：HW_BLE****　　出厂默认密码为：888888

07 电调状态指示灯说明

1. 运行状态指示：
1）油门扳机处于中点区域，红绿灯均熄灭。
2）前进时，红灯恒亮；当油门处于前进最大时，绿灯也亮起。
3）倒车时，红灯恒亮； 若倒车力度设置为100%则当油门处于倒车最大时绿灯也亮起。

2. 相关保护功能触发时，LED含义：
1）红灯持续闪烁（单闪，“☆，☆，☆”）：进入低压保护状态。
2）绿灯持续闪烁（单闪，“☆，☆，☆”）：进入电调过热保护状态。
3）绿灯持续闪烁（双闪，“☆☆，☆☆，☆☆”）：进入电机过热保护状态。
备注：只有使用好盈配套电机（如EZRUN 5690SD/4990SD G2，4278SD G2R等）时，电机过热保护才生效，当使用非好盈配套电机时，则无电机过热保护功能。
4）绿灯持续闪烁（三闪，“☆☆☆，☆☆☆，☆☆☆”）：进入电流保护状态。
5）绿灯持续闪烁（五闪，“☆☆☆☆☆，☆☆☆☆☆，☆☆☆☆☆”）：进入电容过热保护状态。

08 故障快速处理

故障现象	可能原因	解决方法
上电后指示灯不亮，电机无法启动。	1. 电池电压没有输入到电调； 2. 电调开关损坏。	1. 检查电池好坏以及电池与电调的连接是否良好； 2. 更换开关。
上电后电机无法启动，发出“哔－哔－，哔－哔－”警示音且伴有红灯闪烁（每组双音间隔时间约0.5秒）。	电池组电压不在电调支持范围内。	检查电池组电压。
上电完成锂电节数检测后（闪N次绿灯），红灯快速闪烁。	1. 电调未检测到油门信号； 2. 电调油门中点与遥控器不匹配。	1. 检查油门线是否插反、通道是否插错、控是否有开启； 2. 微调遥控器油门中点，重新校准油门行程。
遥控器正向加大油门，车子反而倒退。	该车架同主流车架的电机转向不一致。	将参数项“电机转动方向”设置为相反方向即可。
电机转动过程中，突然停转或功率输出显著降低。	1. 接收机遇到干扰； 2. 电调进入电池低压保护状态； 3. 电调进入过温保护状态。	1. 检查接收机出现干扰的原因，检查遥控器电池电量； 2. 红灯持续闪烁为电压保护，请更换电池； 3. 绿灯持续闪烁为温度保护，请等电调或电机温度降低后继续使用（建议减小整车负载）。
电机抖动，无法启动。	1. 电调与电机ABC线序错误； 2. 电调和电机连接不良； 3. 电调故障（部分功率管MOSFET烧坏）。	1. 按照A-A,B-B,C-C顺序相接； 2. 检查各插头及焊接点，必要时重新焊接； 3. 联系经销商处理维修事宜。
前进正常，但无法倒车。	1. 遥控器油门通道中点偏离到刹车区域； 2. 参数项“运行模式”设置错误； 3. 电调损坏。	1. 重新校准油门行程，使遥控器油门扳机置于中位时，电调上的指示灯不亮 2. 参数项“运行模式”设置为“正反转带刹车”； 3. 联系经销商处理维修事宜。
无法完成油门行程设定。	电调未接收到正确的油门信号。	1. 检查有无接错通道、油门线有无接反； 2. 接收机是否损坏，可以将油门线接到舵机通道进行测试。