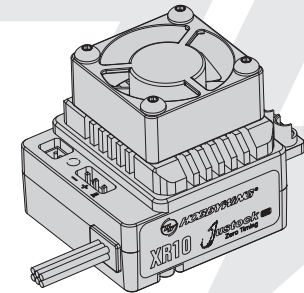


01 Disclaimer



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.



XERUN USER MANUAL Brushless Electronic Speed Controller XERUN XR10 Justock G3S

20231225

HW-SMA36DUL00

02 Warnings

- Ensure all wires and connections are well insulated before connecting the ESC to related devices, as short circuit will damage your ESC.
- Ensure all devices are well connected, in order to prevent poor connections that may cause your vehicle to lose control or other unpredictable issues like damage to the device.
- Please carefully check power devices and manual of car frame to ensure the power pairing is reasonable. Avoid incorrect pairing to overload the motor and damage the ESC.
- Please use a soldering iron with the power of at least 50W to solder all input/output wires and connectors.
- Stop using the ESC when its outer temperature exceeds 90 C/194 F; otherwise your ESC will be damaged and may also damage your motor.
- Always disconnect and remove batteries after use, as the ESC will continue to consume current if it's still connected to batteries (even if the ESC is turned off). Long-time contact will cause batteries to completely discharge and result in damage to batteries,ESC, or both. This will not be covered under warranty.)

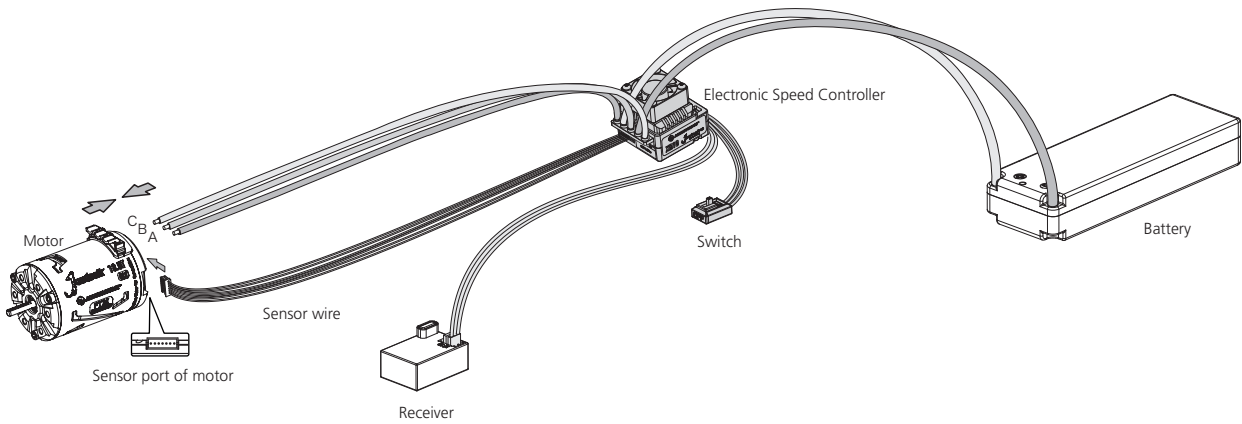
03 Features

- The timing has been permanently set to 0 degree. With the identical competition motor, this ensures that every driver will have the same power system and have a equal race.
- The built-in capacitor avoids the trouble of finding installation position for the external capacitor module, saves space and is convenient for layout;
- The built-in reverse connection protection circuit prevents damaging ESC due to reverse connection of battery.
- The innovative capacitor overheat protection function can avoid the capacitor explosion caused by overload and damage the ESC.
- Multiple protections: battery low-voltage cutoff protection, over temperature protection, fail safe (throttle signal loss protection) and motor lock-up protection.
- Supports multi-function LCD program box pro and OTA programmer to set parameters of ESC, which is convenient for outside use.
- Supports firmware upgrade of ESC (Multi-function LCD program box pro or OTA Programmer need to be purchased), Enjoy the latest features.
- Supports various RPM limit values to meet the needs of different races. It can be set directly by the program box pro or OTA programmer.

04 Specifications

Model	XERUN XR10 Justock G3S
Cont./Peak Current	60A / 380A
Motor Type	Sensorless/Sensored Brushless Motor
Applications	1/10、 1/12 On-road and Off-road club competition and normal training
Motor Limit	>10.5T 3650 Motor
LiPo Cells	2S Lipo(Only 2S)
BEC Output	6V/7.4V @ 4A(Switch-mode)
Cooling fan	Powered by built-in BEC
Size/Weight (including wire)	40.9(L)x33.9(W)x32.1(H)/ 75.4g(Including weight of wire)
Programming port	Independent programming port

05 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 sensed 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

Sensored motors have a specific wiring order, 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 8"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. Please do not supply power to the receiver,your ESC will be damaged.

If additional power is required, disconnect the red wire on the throttle plug from the ESC.

3. Battery Connection

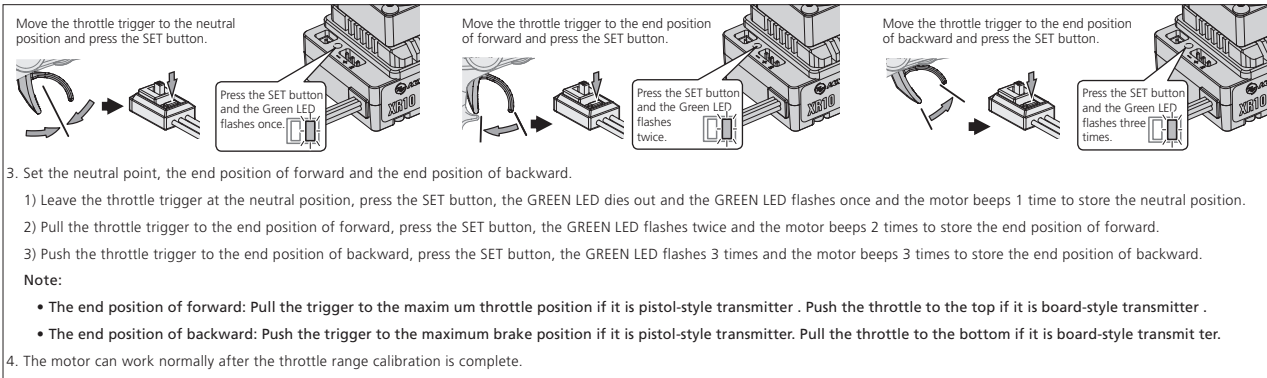
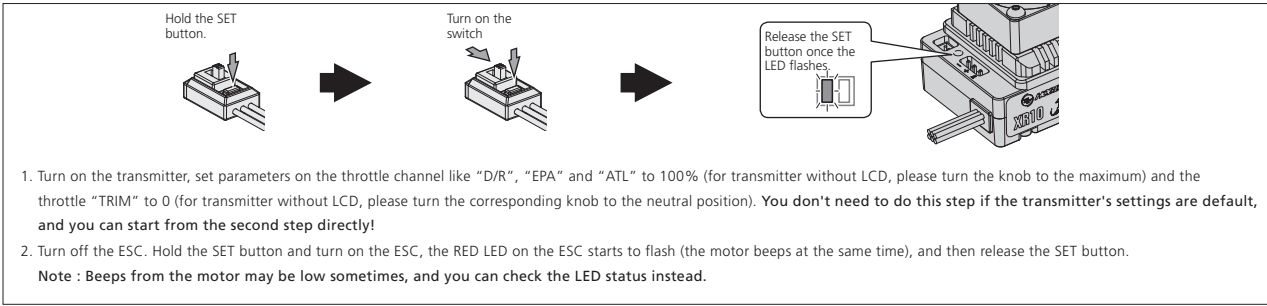
Connect the battery when the ESC is powered off. Make sure positive (+) of ESC connects to positive (+) of battery, and negative (-) of ESC connects to negative (-) of battery when you plug in your battery! Then turn on the ESC to run it.

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 have been adjusted, otherwise the ESC cannot work correctly.

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:



2 Programmable Items

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

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. Max. Reverse Force	25%	50%	75%	100%					
3. Cutoff Voltage	Disabled	2.6V/Cell	2.8V/Cell	3.0V/Cell	3.2V/Cell	3.4V/Cell			
4. ESC Thermal Protection	Disabled	Enabled							
5. Motor Thermal Protection	Disabled	Enabled							
6. BEC voltage	6.0V	7.4V							
7. Smart Fan	Disabled	Enabled							
8. Motor Rotation	CCW	CW							
9. Freewheeling	Disabled	Enabled							
10. Start Mode (Punch)					1-15 (Adjust Step:1)				
11. Neutral Range	6%	8%	10%						
12. Initial Throttle Force	1%	2%	3%	4%	5%	6%	8%	10%	12%
13. RPM Limit	Unlimited								
					1000RPM - 8800RPM (Adjust Step: 1000RPM)				
14. Drag Brake Force									
					0-100% (Adjust Step: 5%)				
15. Max Brake Force	0%	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%

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. Max. Reverse Force

Different reverse amount will bring different reversing speed. For the safety of your vehicle, we recommend using a low amount.

3. Cutoff Voltage (or Low Voltage Cutoff Threshold)

The ESC will monitor the battery voltage all the time, once the voltage is lower than the threshold value, the ESC will reduce the power to 50% and cutoff the power output in 40 seconds. When enters into voltage pr otection, the RED LED will single flash that repeats (☆, ☆, ☆, ☆.....). Please set the "Cutoff Voltage" to "Disabled" if you are using NiMH batteries.

4. ESC Thermal Protection

The output from the ESC will be cut off with the value you have preset. The GREEN LED flashes (☆, ☆, ☆.....) when the ESC temperature reaches to the preset value. The output will not resume until the ESC temperature gets down.

Warning! Please do not disable this function unless you're in a competition. Otherwise the high temperature may damage your ESC and even your motor.

5. Motor Thermal Protection

After enable this function, the output will be automatically closed when the motor temperature reaches the preset value. The green light flashes until the temperature drops to restore the output. When the motor is overheated, the green light will flash twice in cycle (☆☆, ☆☆, ☆☆.....).

Warning! Please do not disable this function unless you're in a competition. Otherwise the high temperature may damage your motor and even your ESC. For non-Hobbywing motor, the ESC may get this protection activated too early/late because of the different temperature sensor inside the motor. In this case, please disable this function and monitor the motor temperature manually.

6. BEC Voltage

The BEC voltage can be adjusted at 6.0V and 7.4V. The normal steering servo is generally set at 6.0V, and the high-voltage steering servo can be set at 7.4v. Select the appropriate voltage according to the steering servo used.

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

7. Smart Fan

This esc has a fan control function. If this item is set to "Disabled", the fan will continue to run after the ESC is powered on; If this item is set to "Enabled", The fan will start running after the internal temperature of the esc exceeds 50°C/122°F.

8. Motor Rotation

It is used to adjust the rotation direction of the motor (in CW or CCW), that is, when the forward throttle is given, and the rotation direction of the motor is reverse, it can be set to the opposite direction.

9. Freewheeling

When this function is enabled, it will have better low-speed linearity and relatively less heat.

10. Start Mode / Punch

This item is used to control the throttle response. It can be adjustable from 1 to 15 (step: 1), the lower this value, the slower the response; the higher this value, the faster the response. A suitable rate can help driver to control his vehicle properly during the starting-up process.

11. Throttle Neutral Range

As not all transmitters have the same stability at "neutral position", please adjust this parameter as per your radios neutral range.

12. Initial Throttle Force

It also called as minimum throttle force. You can set it according to wheel tire and traction. If the ground is slippery, please set a small throttle force.

13. RPM Limit

It is used to set the max. RPM value of the motor. Set corresponding values according to competition rules.

Note: The RPM limit value here corresponds to a 2-pole motor. If a 4-pole motor (such as a Justock Handout motor) is used, it needs to be divided by 2 to obtain the corresponding mechanical rpm value.For example, using a Justock Handout 13.5T (3200KV) motor, if you want to limit the rpm to 22000rpm (mechanical rpm), you need to set the RPM limit value to: 22000*2=44000.

14. Drag Brake Force

Refers to the brake force generated by the motor when the throttle trigger returns to neutral position. (Attention! Drag brake will consume much power, so please apply it cautiously.)

15. Max. Brake Force

This ESC provides the proportional braking function; the braking effect is determined by the position of the throttle trigger. The max. brake force is produced when the throttle trigger is at the brake bottom position. Please select the max. brake force parameter as per your car condition and your preference.

3 ESC Programming

1. Program your ESC with a LCD program box pro

Connect the interface marked with "+ - + +" on the esc to the interface marked with "ESC" on the program box using a separate programming cable(a cable with JR plugs at both ends included in the program box packaging),then connect the battery to the esc and turn it on. Click[Parameter Settings]to set the esc.

2. Program your ESC with a OTA Programmer

Plug the programming cable of OTA Programmer to the programming port of ESC. Then use the mobile phone to install HOBBYWING HW LINK App to set parameters.

3. Data Logging

- The ESC is able to record the Maximum Temperature of ESC and Motor, Minimum Battery Voltage, Maximum Motor RPM and Maximum Current in running. It automatically saves the recorded data when you turn off the ESC after a run. You can check those data via a multifunction LCD program box pro. Users need to switch on the ESC after the esc is connected with the program box.Click on [Data Record] to view the above five extreme value data.
- The ESC running data is read through the OTA Bluetooth module. After connecting the OTA Bluetooth module to the esc and establishing communication, you can view not only the five extreme value data recorded above, but also the real-time running data and historical record data (graph) in the [Data Log] menu in HW link app.

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) Restore the default values with a multifunction LCD program box pro

After connecting the program box to the ESC, Click on [Parameter Settings], and then click on "Reset parameter" at the bottom of the parameter items.

3) Restore the default values with a OTA Programmer(Use HW LINK mobile phone App)

Connect OTA Programmer to the ESC, enter into **【Parameter】**, click "reset" to factory reset your ESC.

07 Explanations for Different Status LED

1. The throttle is in neutral zone

- In normal Blinky mode (non-rpm limit mode), the red LED flashes rapidly.
- In the RPM limit mode, setting different RPM limit values results in different LED flashing phenomena, the specific rules are: the number of times the green light flashes represents ten thousand digits of the RPM limit value you set, and the number of times the red light flashes represents one thousand digits of the RPM limit value you set. For example, if the RPM limit is set to 25000, the green light will flash twice and then the red light will flash five times. This cycle; If the RPM limit is set to 40000, the green light will flash four times and cycle. And so on.

2. The throttle is in non-neutral zone

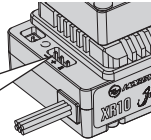
- The RED LED turns on solid when moving forward. Green LED is also on when throttle trigger is at the end position of forward (100% throttle, on non-speed limit mode).
- The RED LED turns on solid when you brake. The GREEN LED will also come on when pushing the throttle trigger to the full brake endpoint and setting the "Max. Brake Force" to 100%.
- The RED LED turns on solid when Activated your vehicle.

3. LED status when some Protection is Activated:

- The RED LED flashes a short, single flash that repeats (☆→, ☆→, ☆→) indicating the low voltage cutoff protection is activated.
- The GREEN LED flashes a short, single flash that repeats (☆→, ☆→, ☆→) indicating the ESC thermal / overheat protection is activated.
- The GREEN LED flashes a short, double flash that repeats (☆→☆→, ☆→☆→, ☆→☆→) indicating the motor thermal /overheat protection is activated.
- The GREEN LED flashes a short, five times flash that repeats (☆→☆→☆→☆→☆→, ☆→☆→☆→☆→☆→) indicating the capacitor thermal /overheat protection is activated.

08 Trouble Shooting

Trouble(s)	Possible Causes	Solution(s)
The motor was unable to start and the LED is not on after power on.	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...) that repeats with GREEN 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)
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)



Connect LCD program box or OTA module at this independent programming port.

01 声明

XERUN
 车用无刷电子调速器
 使用说明书
 XERUN XR10 Justock G3S

感谢您购买该产品！无刷动力系统功率强大，错误的使用可能造成人身伤害和设备损坏。请在使用设备前仔细阅读说明书，严格遵守规定的操作程序。我们不承担因使用本产品而引起的任何责任，包括但不限于对附带损失或间接损失的赔偿责任；同时我们不承担因擅自对产品进行修改所引起的任何责任。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。

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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均绝缘良好, 短接将会损坏电调;
- 请务必仔细连接好各部件, 若连接不良, 您可能无法正常控制电机, 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, 确保动力匹配合理, 避免因错误的动力搭配导致电机超载, 最终损坏电调;
- 若需对电调的输入输出线、端头做相关焊接时, 为保证焊接质量, 请使用至少 50W 功率的焊接设备进行焊接;
- 勿使电调外部温度超过 90°C/194°F, 高温将会损坏电调并且可能导致电机损坏;
- 使用完毕后, 切勿直接断开电调与负载, 只要接着电调, 即使开关未开电调也会一直消耗电流, 长时间连接会导致电调最终完全失效; 进而导致蓄电池电调或者二者故障;
- 我们并不因此对任何造成的任何损害负责。

03 产品特色

- 专为本竞赛设计制造，内部进行结构固定安装位置，不可调整。在发运比赛之前，确保车手动力一致，有效地保证竞赛的公平性；
- 电容采取内置方式，免去为外挂电容寻找安装位置的问题，节省空间布置的情况；
- 内置反接保护电路，无需担心反接电源而损坏电路；
- 创新的电容过热保护电路，有效避免因过放电使用导致的电容爆，以及最终导致的车调损坏；
- 多重保护电路：电池低压保护、过温保护、油门失控保护、堵转保护；
- 支持LCD PRO编程盒、OTA Programmer对调进行参数设定，方便车使用；
- 支持车调固件升级（需另购LCD PRO编程盒或OTA Programmer），永久享用最新功能。
- 支持多种不同比赛选择，满足不同比赛需求，直接通过设定盒或OTA Programmer设置即可，简单方便。

04 产品规格

型 号	XERUN XR10 Justock G3S
持续/峰值电流	60A/380A
支持电机类型	有感无刷电机、无感无刷电机
主要适用车型	1/10、1/12 房车及越野车， 适合CLUB竞赛及初级玩家入门练习
推荐马达T数	>10.5T 3650电机
电池节数	2S Lipo (仅支持2S)
BEC输出	6V/7.4V @ 4A (开关稳压模式)
风扇取电方式	从内置BEC取电
尺寸/含线重量	40.9(长)x33.9(宽)x32.1(高)/ 75.4g (含线材重量)
参数设定接口	独立编程口

05 连接电子调速器

电机

传感器线

电机传感器插座

接收机

无刷电子调速器

电调开关

电池

请参照接线说明及接线图正确接线:

- ### 1、连接电机：
- 连接有感无刷电机与无感无刷电机的方式有点差异，请务必遵照如下接线方式：
- #### A. 连接有感无刷电机时：
- 电调与电机相连有严格的线路要求，电调的#A/#B/#C必须与电机的#A/#B/#C三线严格一一对应，否则可能损坏环调，用6PIN感应线把电调与电机的感应口对接。
- 备注：1.若装上电机后，车子前进与后退方向，请更改参数项第8项“电机转动方向”，实现电机转向调整。
- 2.若有感无刷电机未接上感应线，则电调也是工作在无感模式，相当于电调接的无感无刷电机。
- #### B. 连接无感无刷电机时：
- 电调与电机相连无严格的线路要求，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，任意交换两条电机线即可。
- ### 2. 连接接收机：
- 把电调的油门控制线插入接收机的油门通道（即THROTTLE通道）。故请勿给接收机额外供电，否则可能损坏环调。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：
- 在电调开关于关机的状态下连接电池，正负极对应相接。检测各连接无误，最后方可将电调开机运行。

06 设置电子调速器

1 设定油门行程

电调第一次使用遥控器更改油门“TRIM”微调或更换遥控器后，均需重设油门行程，不然可能会导致无法使用或误动作。

另外我们强烈建议同时开启遥控器的失控保护功能，将遥控器油门通道的无线信号保护（“F/S”）功能设置为关输出方式或将保护位置设置为中点位置，使得当接收机无法收到遥控器信号后，电机能够停止运转。油门校调步骤如下图所示：

-
- 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，则将对应按钮调到最大位置）。油门通道的中点微调“TRIM”调为0（如遥控器无显示屏，则将对应按钮调到中间位置）。**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、电调开关置于OFF状态。持续按住SET按钮不松开，将电调开关打到ON，电调上红色LED立即开始闪烁（同时马达鸣叫），可以松开SET按钮。
- 备注：马达鸣叫声音可较小，在这种情况下，观察LED状态即可。**

-

2 参数说明

以下黑底白字的选项为可编程项目的默认参数值。

设定项目	选项1	选项2	选项3	选项4	选项5	选项6	选项7	选项8	选项9
1. 运行模式	正转带刹车	正反转带刹车	直接正反转						
2. 最大侧车力度	25%	50%	75%	100%					
3. 电池低压保护阈值	不保护	2.6V/Cell	2.8V/Cell	3.0V/Cell	3.2V/Cell	3.4V/Cell			
4. 电机过热保护	不保护	保护							
5. 电机过热保护	不保护	保护							
6. BEC电压	6.0V	7.4V							
7. 智能风扇	关	开							
8. 电机转动方向	CCW	CW							
9.DE0功能	关	开							
10. 启动加速度				1-15 (默认为12, 调整量为1)					
11. 油门中立点区域宽度	6%	8%	10%						
12. 初始启动力度	1%	2%	3%	4%	5%	6%	8%	10%	12%
13. RPM限速	不限速	10000RPM-88000RPM (调整量为1000RPM)							
14. 抱刹力度		0-100% (默认为10%, 调整量为5%)							
15. 最大刹车力度	0%	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%

- ### 运行模式 (Running Mode) :
- 选项1：正转制动刹车**
- 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**
- 此模式下推荐了倒车功能，通常用于训练。油门扳机在第一次推至反向区域时，电机只是刹车，不会产生倒车动作；当油门扳机回到中立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区停止，这样做的目的是防止车辆行驶过程中因多次点油门而造成倒车。
- 选项3：直接正反转**
- 此模式采用单杆式倒车方式，即油门扳机从中心区域推至反向区域时，电机立即产生倒车动作。
- ### 2、最大倒车力度 (Max. Reverse Force) :
- 选择不同的参数值可以产生不同的倒车速度，一般情况下推荐使用比较小的倒车速度，以免因速度太快造成失误。
- ### 3、电池低压保护阈值 (Low Voltage Cutoff) :
- 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，电机的输出功率将降低50%，此时车手应立即靠边退出比赛，以免阻碍赛道上的其他车辆或被后车快车道撞，40秒后动力将完全关闭。当进入电压保护后，红色LED会以“☆一、☆一、☆一”方式闪烁。
- ### 4、电调过热保护 (ESC Thermal Protection) :
- 开启该功能后，电调温度达到预设特定值时自动关闭输出，且绿灯闪烁，直到温度降低恢复输出。电调过热保护时，绿灯单次循环闪烁：
- 警告！若非比赛场合，请勿关闭电调过热保护，否则可能因过热而损坏电调。**
- ### 5、电机过热保护 (Motor Thermal Protection) :
- 开启该功能后，电机温度达到预设特定值时自动关闭输出，且绿灯闪烁，直到温度降低恢复输出。电机过热保护时，绿灯两下循环闪烁：
- 警告！若非比赛场合，请勿关闭电机过热保护，否则可能因过热而损坏电机。对于非好盈电机，可能会因电机内置感温器差异而出现过早或过晚保护现象，此时可以关闭电机过热保护功能，但需人工监督电机温度。**
- ### 6、BEC电压 (BEC Voltage) :
- BEC电压有6.0V和7.4V两档可选，普通舵机一般设置为6.0V，高压舵机可设置为7.4V，根据所使用的舵机选择合适电压即可。
- 警告！设置的BEC电压请勿超过舵机及接收机最高工作电压，否则可能损坏舵机/接收机甚至电调。**
- ### 7、智能风扇 (Smart Fan) :
- 此电调具备风扇启停控制功能，若该项设置为“关”，则电调开机后风扇会一直运转；若该项设置为“开”，则当电调内部温度高于50摄氏度后，风扇才会自动运转。
- ### 8、电机转向 (Motor Rotation) :
- 用于调整电机的转动方向（顺时针或逆时针），即当出现正向给油门时，电机的转动方向与实际情况不相符时，设置为相反的方向即可。
- ### 9、DEO功能 (Freewheeling) :
- DEO(Driving Efficiency Optimization)也叫Freewheeling。此功能开启可获得更好的低速线性，同时发热也会相对减少。
- ### 10、启动加速度 (Start Mode / Punch) :
- 此参数用于控制油门输出快慢，设置合适的油门加速度可以辅助车手在车辆启动时对油门的控制，避免过快加速油门，出现轮胎打滑、启动过于暴力造成弯内不好控制，启动瞬间电流过大而对电机/电调/电池不利等结果。加速度分为15个档位可调整，设置值越大，则加速越快，反之越慢。请根据实际情况合理设置此值。
- ### 11、油门中立点区域宽度 (Neutral Range) :
- 油门中立点区域宽度如图所示，请根据个人习惯进行调整。对于有些遥控器，因中点位置存在漂移，导致车子缓慢前进或后退，出现此现象时，请把区域宽度设成更大值。
- ### 12、初始启动力度 (Initial Throttle Force)
- 即做最小启动力度，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，请设置较小的启动力度，以免打滑。
- ### 13、RPM限速值 (RPM Limit) :
- 用于设置电机的最高转速值，根据比赛规则设置对应的值即可。
- 备注：此处的限速值是对应2级电机车的，若使用4级电机（如Justock-Handout电机），则需除以2得到对应的电机转速值。
- 例如，使用Justock Handout 13.5T (3200KV) 电机，想要限速2200rpm（机械转速值），那么需要设置限速值为：22000*2=44000
- ### 14、拖刹车力 (Drag Brake Force) :
- 拖刹又名自动刹车，是指当油门扳机收油后处于中点区域内时，电调对电机产生的刹车力，这样做可以辅助手指去控制刹车，有效降低刹车的控制难度，常用于平路车减速进入弯场合。
- ### 15、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位置时所产生的刹车力。请根据车辆的具体情况及个人的使用习惯，选择合适速度的最大刹车力参数。

3 编程方法

有以下几种方法对电调进行参数项设置：

1. **利用LCD PRO编程盒进行参数设置**
用单轴LCD编程盒（编程盒包装中附带的一条两路JH插头的接线）将电调上标注着“- +”的接口与编程盒上标注着“ESC”的接口相连，然后给电调接上电池并开机，点击【参数设置】即可对电调进行设定。
 2. **利用OTA PRO Programmer进行参数设置**
将OTA蓝牙模块接到电调上标注着“- +”的编程接口，然后给电调上电。再使用手机安装HW LINK软件进行电调设置。
 3. **读取电调运行数据**
 1. 通过LCD PRO编程盒读取电调运行过程中记录的电调最高温度、电机最高温度、电池最低电压、电机最高转速、最大电流五个数据。
当运行一次后，关闭电调开关时，电调会自动将记录的极值数据写入电调内部存储空间，将编程盒和电调编程接口相连，打开电调开关，点击【数据记录】即可查看上述五个极值数据。
 2. 通过OTA蓝牙模块读取电调运行数据。
将OTA蓝牙模块接到电调编程接口，电调与OTA模块建立通讯后，在手机HW LINK App中的【数据记录】菜单里既可以查看上述记录的五个极值数据，又可以查看实时运行数据，还可以查看历史记录数据（曲线图）。

在此独立编程口连接LCD设定盒或OTA模块。

4 恢复出厂参数设定

有以下几种恢复出厂参数方法:

- 1) 利用**Set**键恢复出厂设置，方法如下
在油门扳机处于中立点位置的任意时刻（除进行油门校准或编程定时时），按住 **SET** 键3秒以上，可恢复出厂设定，出厂设定需重新上电方可生效。
- 2) 利用**LCD PRO**编程盒恢复出厂设定
编程盒与电调连通后，点击【参数设置】，点击参数项最下方的“重置参数”即可。
- 3) 利用**OTA**模块（使用**HW LINK** 手机APP）恢复出厂设置
OTA Programmer 与电调连通后，进入【参数设置】项目，点击“重置”按钮即可。

07 电调状态指示灯 (LED) 说明

- ### 1、油门处于中点区域：
- 1) 普通油门模式时（非限速模式），红色LED快速闪烁。
 - 2) RPM限速模式时，设置不同的限速值，其闪烁现象不一样，具体规则为：绿灯闪烁的次数代表所设限速值的万位数字，红灯闪烁的次数代表所设限速值的千位数字。
例如：限速值设置为25000，则绿灯闪烁两次然后红灯闪烁五次，如此循环；限速值设置为40000，则绿灯闪烁四次并循环。以此类推。
- ### 2、油门处于非中点区域：
- 1) 前进时，红色LED恒亮；当油门处于正向最大（100%油门）时，绿色LED也点亮（非限速模式时）。
 - 2) 刹车时，红色LED恒亮；当油门处于反向最大且最大刹车力度设为100%时，绿色LED也会点亮。
 - 3) 倒车时，红色LED恒亮。
- ### 3、相关保护功能触发时，LED状态含义：
- 1) 红灯持续闪烁（单闪，“☆-、☆-、☆-”方式闪烁）：电调进入低压保护状态。
 - 2) 绿灯持续闪烁（单闪，“☆-、☆-、☆-”方式闪烁）：电调温度过高，电调进入过热保护状态。
 - 3) 绿灯持续闪烁（双闪，“☆-☆-、☆-☆-、☆-☆-”方式闪烁）：电机温度过高，电调开启电机过热保护功能。
 - 4) 绿灯持续闪烁（五次循环闪，☆-☆-☆-☆-☆-、☆-☆-☆-☆-☆-、☆-☆-☆-☆-☆-，方式闪烁）：电容温度过高，电调开启电容过热保护。

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、检查电源输入通路是否有焊接不良情况，并重新焊好； 2、更换开关。
上电后电机无法启动，发出“哔—哔—，哔—哔—”警示音且伴有绿灯闪烁（每组双音间隔时间为1秒）	电池组电压不在正常范围内。	检查电池组电压。
上电后红色LED快闪，电机无法启动	未检测到油门信号	查看遥控器有无开启及对码，电调油门线有没插反，检查接收机有无问题（可将油门线插到舵机通道进行排除测试）
电机转动过程中，突然停转或功率输出上显著降低	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，检查发射机器电池电量； 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，请等电调温度降低后继续使用。
电机抖动，无法启动	1、电调与电机之间接线可能错误，必须一一对应地接线：A-A，B-B，C-C； 2、电调和电机连接的插头有虚焊； 3、电调故障（部分功率管MOSFET烧坏）	1、查看接线是否正确； 2、检查各焊点处，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、重新校准油门中点，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。
油门在中点时，车缓慢前进或缓慢后退；	1、遥控器中位有所漂移，信号不稳。 2、油门行程没校准好。	1、更换信号稳定的遥控器 2、重新校准油门行程，或使用控的油门微调校准中点。
无法完成油门行程设置	电调未收到正确的油门信号	查看遥控有无开启及对码，油门线有无插错通道或插反，接收机是否损坏（可将油门线插到舵机通道进行排除测试）