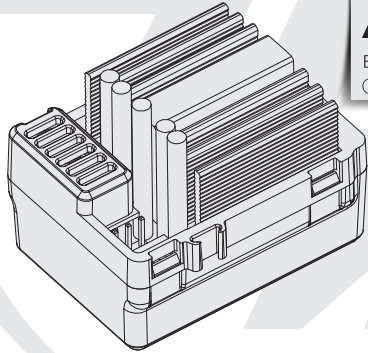


USER MANUAL

QUICRUN

Brushed Electronic Speed Controller
QuicRun WP 880 Dual Brushed



20181120

01 Introduction



Congratulations and thank you for your trust in Hobbywing product. By purchasing the QuicRun WP 880 Dual Brushed , you have chosen a high performance sensorred brushed electronic speed controller! This speed controller is equipped with high-tech features to enhance your experience with Hobbywing brushed power systems. Improper usage and unauthorized modification to our product is extremely dangerous and may damage the product and related devices. Please take your time and read the following instructions carefully before you start using your speed control. 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.

02 Warnings

- To avoid short circuits, ensure that all wires and connections must be well insulated before connecting the ESC to related devices.
- Ensure all devices are well connected to prevent poor connections and avoid damages to your electronic devices.
- Read through the manuals of all power devices and chassis and ensure the power configuration is rational before using this unit.
- Please use a soldering iron with the power of at least 60W to solder all input/output wires and connectors.
- 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 crack to cause serious injury.
- Stop immediate usage once the casing of the ESC exceeds 90°C/194°F as this may cause damage to both the ESC and motor. Hobbywing recommends setting the “ESC Thermal Protection” to 105°C/221°F (this refers to the internal temperature of the ESC).
- Users must always disconnect the batteries after use as the current on the ESC is consuming continuously if it is connected to the batteries (even if the ESC is turned off). The battery will completely be discharged and may result in damage to the battery or ESC when it is connected for a long period of time. This WILL NOT be covered under warranty.

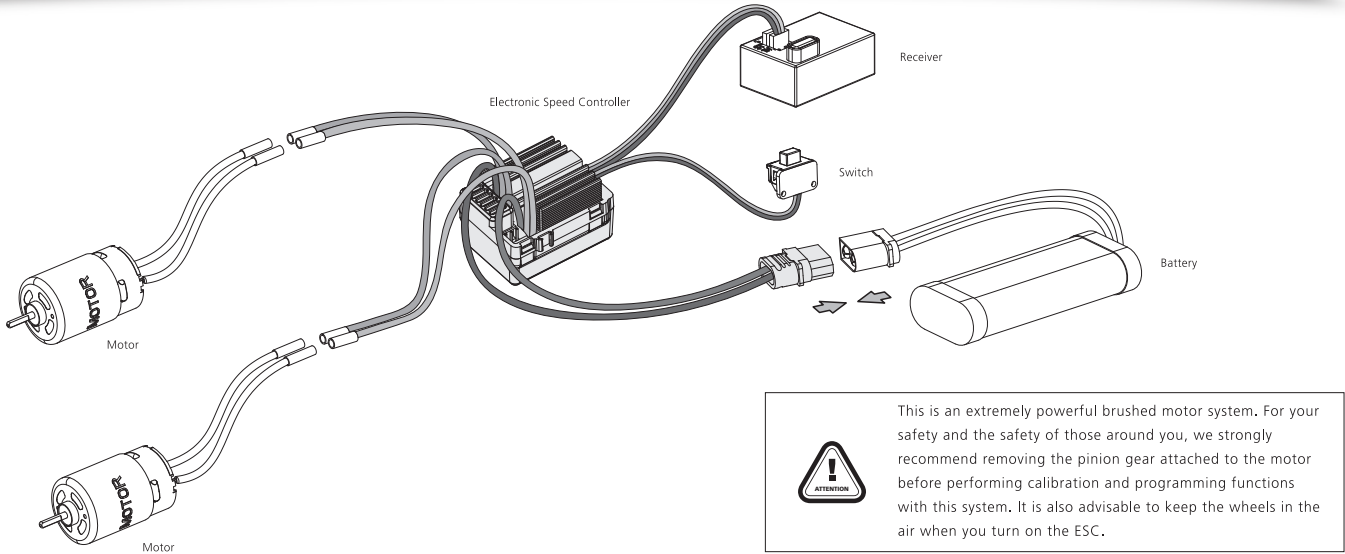
03 Features

- 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 aluminum heat sink for great heat dissipation.
- Built-in switch-mode BEC with cont. current of 4A.
- 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.
- 9 levels of acceleration/punch from soft to aggressive for different vehicles, tires and tracks.
- Proportional brake with 9 levels of initial brake force, maximum brake force and drag brake force.
- 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.
- ESC programming via Hobbywing LED program card.

04 Specifications

Model	QuicRun WP 880 Dual Brushed		
PN	30120301		
Cont. / Peak Current	80A / 400A		
Motor Type	Brushed Motor (540 / 550 / 775 size motors)		
Applications	Various 1/10 th & 1/8 th Vehicles		
Motor Limit	Brushed Motor Limit with 2S LiPo / 6S NiMH: ≥ 12T or RPM<30000	7.4V (540/550 size motors)	
	Brushed Motor Limit with 3S LiPo / 9S NiMH: ≥ 18T or RPM<20000	7.4V (540/550 size motors)	
	Brushed Motor Limit with 4S LiPo/12S NiMH: ≥ 24T or RPM<15000	7.4V (540/550 size motors)	
LiPo / NiMH Cells	2-4S LiPo or 5-12S NiMH		
BEC Output	6V@4A (Switch-mode)		
Connectors	Input End: No Connectors; Output End: 4.0mm Female Bullet Connectors		
Size / Weight(w./Wires)	45.9*34.7*26.5mm/75g		
Programming Port	Separate Port		

05 Begin to Use a New Brushed ESC



- Motor Wiring
This ESC has two sets of output/ESC wires, each set can be randomly connected to the two input/motor wires, but please ensure that the driving directions are the same when connecting the ESC to two motors.
Notes:
1) **When driving two motors simultaneously, the Turns/T count (of the motors) need to be increased accordingly.**
2) **The two sets of output/ESC wires are connected in parallel and they can only be used to drive the motors synchronously.**
- Receiver Wiring
Plug the throttle control cable on the ESC into the throttle (TH) channel on receiver. The throttle control cable will output the voltage of 6V to the receiver and steering servo. Hence, no separate battery can be connected to the receiver. Otherwise, your ESC may be damaged.
- Battery Wiring
Proper polariy is esential. 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 under warranty!

06 ESC Setup

1 Radio Calibration

Turn on the transmitter and set parameters (of the throttle channel) like “D/R”, “EPA”, “ATL” to 100% (if there is no LCD display on the transmitter, please adjust the corresponding knob to its limit), (if the transmitter supports the “forward/reverse or backward” proportion setting, then you need to set the proportion to 5:5.), set the throttle trim to 0 (if there is no LCD display, then adjust the knob to the neutral position). For FUTABA and similar transmitters, set the throttle direction to “REV”, while the throttle direction of others to “NOR”. Besides, we strongly recommend users to enable the “Fail Safe (F/S)” function of the transmitter, set the “F/S” of the throttle channel to the Shutdown mode or set the protection value to the neutral position, so the car can be stopped if the receiver fails to get the radio signals from the transmitter. Move the throttle trigger/stick to the **neutral position**, turn on the ESC, let the ESC do the self test and automatic throttle calibration (all this can be completed in 3 seconds), and the power system will be ready to go after you hear the “beep” sound.

2 Power ON/OFF & Warning Tones

- Power ON/OFF:**
Slide the switch to the “ON/OFF” position to turn on/off the ESC.
- Warning Tones:**
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 indicate a 2S LiPo, 3 beeps indicate 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 “White text with Black background” options are the factory default settings.

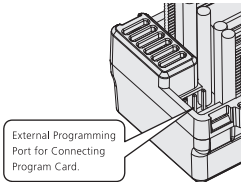
Programmable Item	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
1. Running Mode	Fwd/Brk	Fwd/Rev/Brk	Fwd/Rev						
2. Battery Type	LiPo	NiMH							
3. Cutoff Voltage	Disabled	Auto (Low)	Auto (Medium)	Auto (High)					
4. Initial Start Force	0%	2%	4%	6%	8%	10%	12%	14%	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								
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 forward (brake) (1st push). The motor stops when you quickly release the throttle trigger and then re-push the trigger quickly (2nd push), only then the vehicle will reverse. The reverse function will not work if your car does not come to a complete stop. The vehicle only reverses after the motor stops. This method is for preventing vehicle from being accidentally reversed.
Option 3: Forward and Reverse. This mode is often used by special vehicles (rock crawler). It adopts the “SINGLE-CLICK” method. The vehicle will reverse immediately when you push the throttle trigger forward (reverse).
- 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 4.5V for a 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 5.0V for a NiMH pack.
Option 3: 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 5.5V for a NiMH pack.
- Initial Start Force**
It’s the initial force when you pull the throttle trigger from neutral position toward non-throttle 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 amount will bring different reversing speed. For the safety of your vehicle, we recommend using a low amount.
- 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 power produced when releasing the throttle trigger from full speed to neutral zone.
Attention! Drag brake will consume much power, so apply it cautiously.
- 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**
You can choose the punch from level 1 (very soft) to level 9 (very aggressive) as per the track, tires, grip, your preference and etc. This feature is very useful for preventing tires from slipping during the starting-up process. In addition, “level 7”, “level 8” and “level 9” have strict requirement on battery’s discharge capability. It may affect the starting-up if the battery discharges poorly and cannot provide large current in a short time. The car stutters or suddenly loses power in the starting-up process indicating the battery’s discharge capability is not good, and then you need to reduce the punch or increase the FDR (Final Drive Ratio).
- 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**
This item is not programmable and fixed at 6V.
- 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

Program your ESC with a LED program card

Only the LED program box (PN: 30501003) can be used to program this QUICRUN-WP-880-DUAL-BRUSHED ESC. Its friendly interface makes the ESC programming easy and quick. Before the programming, you need to connect your ESC to the program card via a White/Red/Black PVC cable with two JR male connectors (one end of the cable to the separate programming port on the ESC and the other end to the port marked with “+4V” on the program card), and then turn on the ESC, 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 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 ESC was unable to start the status LED and the motor after it was powered on.	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, or the throttle stick/trigger was not moved to the neutral position.	Please plug the throttle control cable in the TH channel (usually CH2) on receiver or fine-tune the neutral position on the transmitter, if the transmitter supports the “forward/reverse or backward” proportion setting, then you need to set the proportion to 5:5.
The vehicle moved forward or backward slowly when the throttle trigger was at the neutral position.	The throttle range was not calibrated properly.	Please fine-tune the neutral position on the transmitter.
The vehide 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 keeps flashing 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.

QUICRUN

车用有刷电子调速器

使用说明书

QuicRun WP 880 Dual Brushed

01 声明



感谢您购买 QuicRun WP 880 Dual Brushed 有刷电子调速器！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。

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，短路将会毁坏电调；
- 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；
- 若需对电调的输入输出线、插头做相关焊接时，为保证焊接牢靠，请使用至少60W功率的焊接设备进行焊接；
- 为了你和他人的安全考虑，请在车子悬空的情况下进行接线调试；
- 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。如电池未断开，即使电调开关处于关闭状态，电调也会一直消耗电能，长时间连接电池最终会被完全放电，进而导致电池或电调出现故障。

我们对因此而造成的任何损害负责！

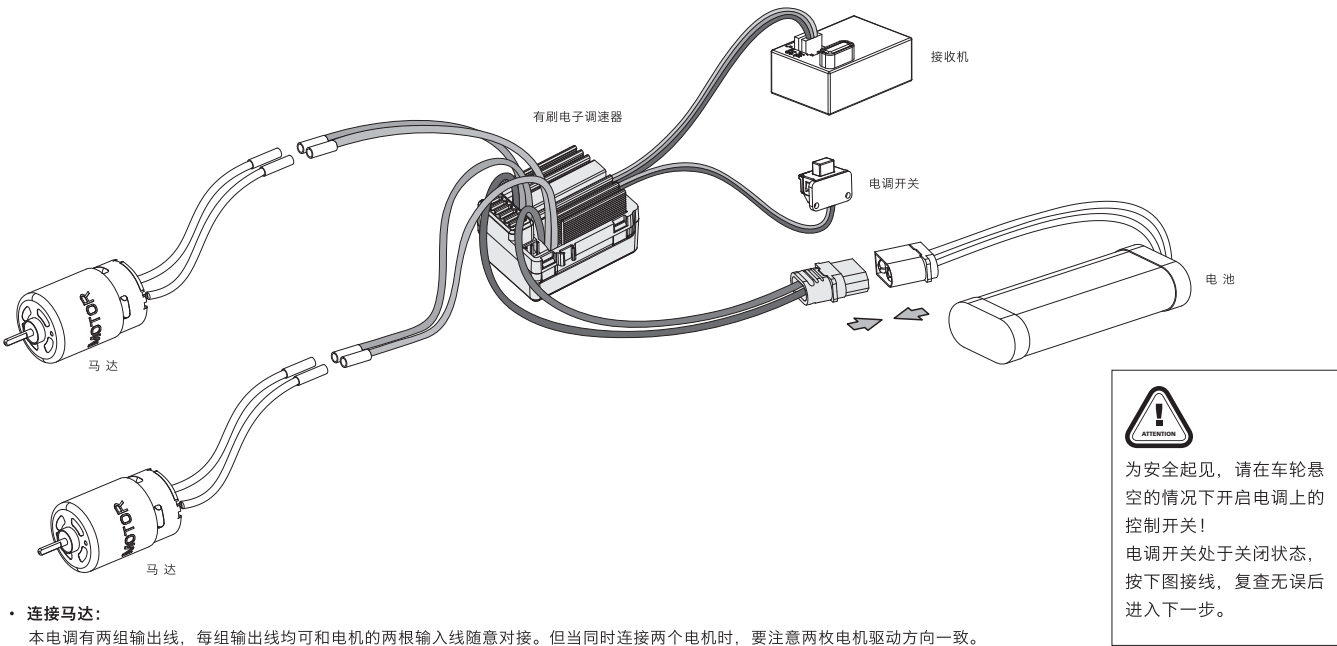
03 产品特点

- 全防水设计，适应各种气候环境；（注：浸水工作后尽快将电调洗净吹干，防止插头氧化）；
- 电调内部功率板上覆有好盈专利技术的铜质导热汇流条，便于将内部热量迅速传导到铝合金材质散热器，散热效果更甚一筹；
- 内置强大的开关模式BEC，持续电流达到4A；
- 非常细腻的拖刹力度以及拖刹加速度调节，满足不同的车型、不同的场地以及不用的操控习惯；
- PWM频率可调以及先进的DEO功能，提供更加完美的油门线性以及更出色的操控性能；
- 9种油门加速度（也叫Punch）调整，从“柔和”到“非常劲暴”，适应不同特性的车型、轮胎及场地；
- 比例式刹车：9段初始刹车力度调节、9段最大刹车力度调节、9段拖刹力度调节；
- 多重保护功能：电池低压保护、过温保护、油门失控保护；
- 具有独立的参数设定接口，连接参数设定卡时无需将电调控制线从接收机中拔出，使用更为方便；
- 兼容便携式车用电调编程设定卡（显示屏为数码LED），设定卡具有友好的人机界面，方便外场使用。

04 产品规格

型号	QuicRun WP 880 Dual Brushed	
PN	30120301	
持续/峰值电流	80A/400A	
支持电机类型	有刷电机（540/550/775级电机）	
主要适用车型	1:10&1:8各类车型	
支持电机T数	2节锂电或6节镍氢： ≥12T或RPM低于 30000 @7.4V 3节锂电或9节镍氢： ≥18T或RPM低于 20000 @7.4V 4节锂电或12节镍氢：≥24T或RPM低于15000@7.4V	540或550尺寸电机 540或550尺寸电机 540或550尺寸电机
电池节数	2-4S LiPo 或 5-12 Cell NiMH	
BEC输出	6V@4A（开关稳压模式）	
插头	输入：无 输出：4.0mm子弹母头两组	
尺寸/含线重量	45.9*34.7*26.5mm/75g	
参数设定接口	独立编程口	

05 连接电子调速器



- 连接马达：**
本电调有两组输出线，每组输出线均可和电机的两根输入线随意对接。但当时连接两个电机时，要注意两枚电机驱动方向一致。
附注1：当同时驱动两个电机时，所支持的T数需相应增加。
附注2：两组输出线为并联关系，不可分别按照不同要求驱动。
- 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）。电调油门控制线亦输出6V的电压给接收机及舵机，故请勿给接收机额外供电，否则可能损坏电调。
- 连接电池：**
电调的输入线有极性之分，插入电池时，请确保电调的(+)极与电池的(+)相连，(-)极与(-)相连。如果电调接反电，电调将会损坏。因电源接反而导致电调损坏是不享有保修服务的。

06 设置电子调速器

1 设定油门行程

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)，若遥控器支持前后比例设置，需设置为5：5。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)。FUTABA及类似的遥控器需要将油门通道方向设为“REV”，其它品牌遥控器的油门通道方向应设为“NOR”。我们强烈建议开启遥控器的失控保护功能，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。将遥控器油门摇杆置于**中点位置**，打开电调开关，等待电调自检和自动油门校正过程结束(3秒内完成)，听到自检成功鸣音后即可正常运行。

2 开关机及鸣音说明

- 开关机说明：**
拨动开关至ON位置即为开机，至OFF为关机。
- 开机鸣音说明：**
若电池类型设置为锂电时，电机会有几声“哔”鸣音表示锂电节数。例如：“哔哔”表示2节锂电池，“哔哔哔”表示3节锂电，检测完锂电节数后电机会再鸣叫一声表示确认OK可以运行了；若电池类型设置为镍氢时，电机会有鸣叫一次，表示镍氢模式，然后再鸣叫一次表示确认OK可以运行了。

3 编程项目说明

以下黑底白字的选项为可编程项目的默认参数值

编程项目	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.电池类型	锂电	镍氢							
3.低压保护阈值	不保护	自动（低）	自动（中）	自动（高）					
4.初始启动力度	0%	2%	4%	6%	8%	10%	12%	14%	16%
5.最大前进力度	25%	50%	75%	100%					
6.最大倒车力度	25%	50%	75%	100%					
7.最大刹车力度	0%	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%
8.初始刹车力度	0%	6.25%	12.5%	18.75%	25%	31.25%	37.5%	43.75%	50%
9.拖刹力度	0%	5%	10%	50%	60%	70%	80%	90%	100%
10.拖刹加速度	1级	2级	3级	4级	5级	6级	7级	8级	9级
11.油门中点宽度	0.02ms	0.03ms	0.04ms	0.05ms	0.06ms	0.07ms	0.08ms	0.10ms	0.12ms
12.启动加速度	1级	2级	3级	4级	5级	6级	7级	8级	9级
13.PWM频率	1K	2K	4K	8K	16K				
14.BEC电压	6V								
15.DEO功能	开启	关闭							

- 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，通常用于训练。“正反转带刹车”模式采用双击式倒车方式，即油门摇杆在第一次从中点区域推至反向区域时，电机只是刹车，不会产生倒车动作；当油门摇杆快速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向区，此时如果电机已经停止才会倒车，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，即油门摇杆从中点区域推至反向区域时，电机立即产生倒车动作，该模式主要用于攀爬车。
- 电池类型（Battery Type）：**
本电调提供锂电和镍氢两种电池类型选择，请根据实际使用情况设置，设置不同的电池类型对应不同的低压保护值。
- 低压保护阈值（Cutoff Voltage）：**
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，将切断动力输出。当进入电压保护后，红色LED会以“☆—，☆—，☆—”方式闪烁。
选项1：不保护
选择此参数后，电调不会因为电池低压而切断动力，请留意车子动力的变化，一般车子动力大幅下降时，电池电压则较低了，请停止使用该电池。
选项2：自动（低）
低压保护阈值较低，不太容易触发保护，适用于放电能力较弱的电池；电池类型设置为镍氢时，触发电压为4.5V。
选项3：自动（中）
低压保护阈值较中，比较容易触发保护，适用于放电能力一般的电池；电池类型设置为镍氢时，触发电压为5.0V。
选项3：自动（高）
低压保护阈值较高，容易触发保护，适用于放电能力强的电池；电池类型设置为镍氢时，触发电压为5.5V。
- 启动力度（Initial Start Force）：**
指模型车从零油门启动时的初始力度，设置合适的启动力度可有效防止小油门时可能因动力不足导致的溜车现象。
- 最大前进力度（Max. Forward Force）：**
指油门处于正向最大时的力度，该值分四段可调，出厂默认值为100%。若因在复杂地形操控攀爬仿真车型而对最大速度要求较低时可以适当降低此值，便于更好的操控。
- 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）。
- 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摇杆的位置相关，最大刹车力是指油门摇杆处于刹车极限位置时所产生的刹车力。非常大的刹车力度会缩短刹车时间，但会对齿轮造成损坏。“Disable”选项会禁止电调的刹车功能。请根据车辆的具体情况 & 个人的使用习惯，选择合适的最大刹车力参数。
也叫做最小刹车力度，是指在刹车初始位置作用于电机上的刹车力，在它的作用下可以达到类似点刹的效果。
- 拖刹力度（Drag Brake）：**
拖刹是指当油门摇杆从正向区域转入中点区域内时，对电机产生一个微量的刹车力（值得注意的是，拖刹会消耗比较多的电量，选择合适的拖刹力度即可）。
- 拖刹加速度（Drag Brake Rate）：**
指遥控扳机进入油门中点区域时拖刹力度由零增加至设置值时的加速度，俗称缓刹，合理设置此值可使车辆停得更稳。
- 油门中立点区域宽度（Neutral Range）：**
油门中立点区域，请根据个人习惯进行调整。有些品质欠佳的遥控器中点位置容易漂移，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。
- 启动加速度（Start Mode / Punch）：**
可根据个人习惯、场地、轮胎抓地特性等条件，选择从1级（“非常柔和”）到9级（“非常劲暴”）等9种启动加速度，这个功能对于防止启动时轮胎打滑非常有用。此外，使用“7级”——“9级”模式时，对电池的放电能力要求较高，若电池放电能力较差，不能提供瞬时大电流，则反而会影响启动效果。当启动时出现停顿或瞬间失去动力时，则可能是电池放电能力不足引起的，这时需要降低启动加速度，或将齿轮减速比增大。
- PWM频率（PWM Frequency）：**
指的是驱动电机频率。驱动频率降低，在油门初级可以提供更强劲的爆发力；驱动频率升高可以使马达驱动更平滑，驱动噪音更小，但同时也会导致电调的开关损耗加大，发热量增加。具体使用频率，请以车子在车场实测效果为准。
- BEC输出电压（BEC Voltage）：**
固定为6.0V，不可更改。
- DEO功能（Freewheeling Function）：**
DEO(Driving Efficiency Optimization)也叫Freewheeling，一般车型建议关闭DEO功能，DEO功能关闭可获得较快的油门加速；对于攀爬仿真车型建议开启DEO功能，DEO功能开启可获得更好的低速线性，发热也会相对减少。

4 参数设置方法

利用LED参数设定卡进行参数设置：（详情请参阅LED参数编程设定卡说明书）

这款电调仅可使用LED设定盒（PN：30501003）进行参数设置，体积小巧，适合外场使用。其界面直观，参数读取和设定过程十分简单快捷。调整参数时，需用一条两端带JR公头的排线（白黑PVC线）将电调和设定卡连接，排线一端连接电调上的独立编程口，另一端连接设定卡右上角标着“→v”的接口，然后给电调接上电源，最后打开电调开关，数秒后该电调的各项参数即可显示出来。利用编程卡上的“ITEM”和“VALUE”按键即可快速选择编程项目和参数值，然后按“OK”键后，新参数即可存入电调中。

在此独立编程口
连接参数设定卡

5 恢复出厂参数设定

- 利用LED参数设定卡恢复出厂设定**
设定卡与电调连通后，按下“RESET”键，然后再按下“OK”保存，即可恢复出厂设置。

07 电调状态指示灯（LED）说明如下

- 油门摇杆处于中点区域，红色LED熄灭。
- 前进时，红色LED闪烁；当油门处于正向最大（100%油门）时，红色LED变成恒亮。
- 刹车时，红色LED闪烁；当油门处于反向最大且最大刹车力度设为100%时，红色LED变成恒亮。
- 倒车时，红色LED闪烁；当油门处于反向最大且最大倒车力度设为100%时，红色LED变成恒亮。

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，并重新焊接； 2、更换开关。
上电后红色LED闪烁，电机无法启动	电调油门线插反或通插错或油门不在中点	将电调的油门排线按正确方向插到接收机的“油门（TH）”通道（Throttle，通常为CH2）；或者微调遥控器上的油门中点，如遥控支持前后比例设置，请设置为5：5。
油门处于中点位置时车子缓慢前进或后退	油门行程没校准好	使用控的油门微调校准中点
遥控器正向加大油门，车子反而倒退	1、电调输出线和电机线连接的线序错误 2、遥控器油门通道方向设置错误	1、将电调输出两根线互换位置 2、将遥控器油门通道反向，从原“NOR”换为“REV”或从原“REV”换为“NOR”。
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、红灯持续闪烁为温度保护，请等电调温度降低后继续使用。
前进正常，但无法倒车	遥控器油门通道中点偏离到刹车区域。	重新校准油门通道中点，使遥控器油门摇杆置于中位时，电调上的指示灯不亮