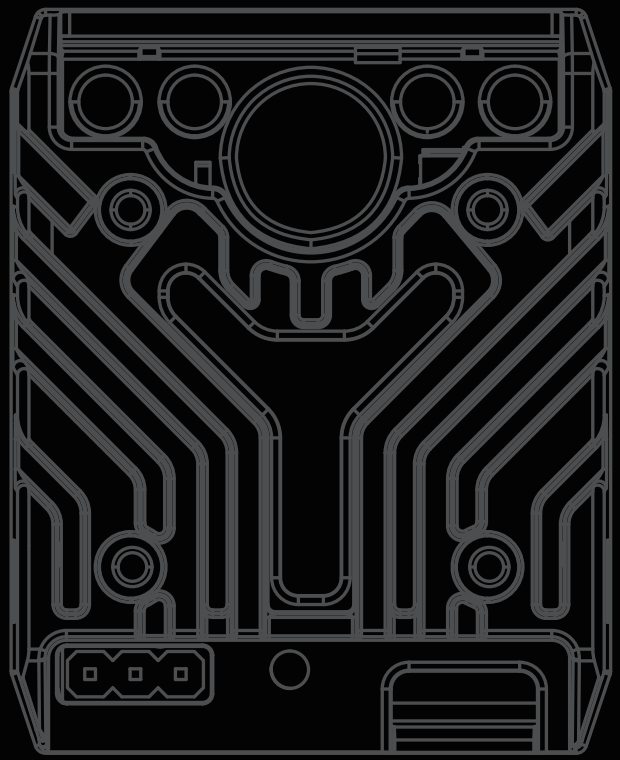
V1.4_2026.07

TYROTE
Rumble 80

使用说明书

User Manual



CAYOTE TEAM

Warnings

This product is a high-performance brushed electronic speed controller (ESC) designed for RC model vehicles.
Improper installation or operation may cause personal injury or equipment damage.
Please read this manual carefully before use and always disconnect the battery after operation.

Disclaimer

Thank you for choosing this product. Please read this manual carefully before installation and operation.
The manufacturer is not responsible for any damage or loss caused by improper use, incorrect installation, or failure to follow this manual. Any damage resulting from unauthorized disassembly or modification is not covered.
Product design, specifications, and instructions may change without prior notice.

Safety Notes

Ensure all wires and connectors are properly insulated before connecting the ESC.
Confirm all components are connected correctly and securely.
Use properly matched motor and battery specifications to avoid system overload.
Ensure adequate cooling during operation. ESC temperature should not exceed 90°C / 194°F.
Disconnect the battery from the ESC after use to prevent battery over-discharge.

警告

本产品为RC模型车的高性能有刷电子调速器（ESC）。
错误的安装或操作可能造成人身伤害或设备损坏。
使用前请仔细阅读本说明书，并在使用后断开电池连接。

免责声明

感谢您选择本产品。安装及使用前请仔细阅读本说明书。
对于因不当使用、错误安装或未按照说明书操作所造成的损失或损坏，本公司不承担责任。用户自行拆解或改装产品所导致的问题亦不在责任范围内。
本公司保留在不另行通知的情况下，对产品设计、规格及说明进行更新或调整的权利。

注意事项

连接电调前，请确保所有电线和接头绝缘良好，避免短路。
请确认所有设备连接正确且牢固。
使用前请确保电机与电池规格匹配，避免系统过载。
使用过程中保持良好散热，电调温度勿超过 90℃ / 194℉。
使用结束后请断开电池与电调连接，避免电池过度放电。

Contents

01-Product features - - -

目录

01-产品特色 - - -

01 Product features

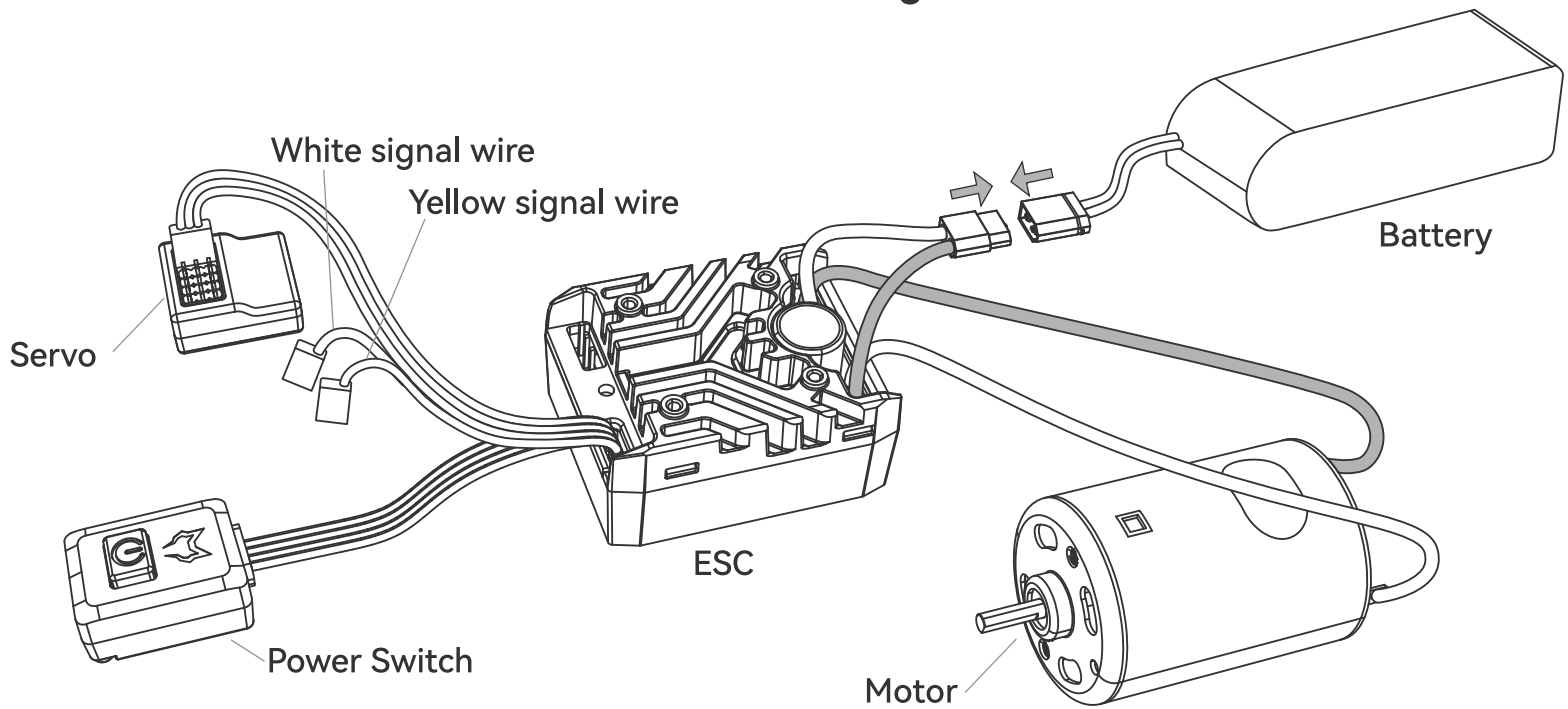
- Fully waterproof design with electronic power switch for safe and stable performance.
- Designed for crawler models, featuring switchable DEO function for smooth low-speed control and strong drag brake.
- Built-in high-current adjustable BEC (6V/7.4V/8.4V), compatible with high torque servos.
- Multiple protection features: low-voltage cutoff, ESC/motor overheat protection, and signal loss shutdown.

02 Specifications

Model	TYROTE Rumble 80
Continuous/Peak current	80A / 400A
Waterproof capability	Waterproof
Support motor type	Brushed motor
Suggested application	1/10th Rock Crawler
Motors	≥21T 540/550 size motors
Number of battery cells	2-3S Lipo/5-9 Cells NiMH
BEC output	Ultra-stable switch V regulation 6V/7.4V/8.4V; cont.current 4A/8A peak
Dimension/weight	41.6(L)*33.4(W)*20.2(H)mm/77.5g
Parameter setting method	Xlink/Qlink Programming Box, BTune bluetooth module (CAYOTE TEAM APP)

03 Connections

Please refer to the instructions for correct wiring:



1.Connect the motor:

The ESC and motor do not have a strict wiring sequence requirement. The ESC's two wires can be connected to the motor's two wires in any order.

Note: If the motor runs in the opposite direction, simply swap two motor wires to correct the rotation direction.

2.Connect the receiver:

-White-Red-Black signal wire:Insert the throttle control cable of the ESC into the throttle channel of the receiver. Because the red wire in the cable outputs 6V/7.4V/8.4V voltage to the receiver and steering gear, please do not provide additional power to the receiver, otherwise it may damage the ESC.

-White signal wire: Connects to an available AUX channel on the receiver. When the ESC is set to “Real Car Mode”, this allows real-time motor direction switching by remote control.

-Yellow signal wire: Connects to an available AUX channel on the receiver, enabling real-time linear adjustment of drag brake force by remote control.

3.Connect the battery

The input wires of the ESC have polarity. When inserting the battery, please make sure that the (+) pole of the ESC is connected to the (+) pole of the battery, and the (-) pole is connected with the (-) pole. If the ESC is connected to the battery cross connected, it will be damaged. Damage to the ESC caused by reverse power connection is not covered under warranty.

04 Setting up the ESC

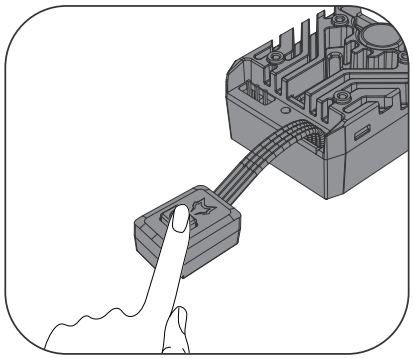
This power of this system is very high.For the safety of you and others around you,we strongly recommend that you remove the small gear of the motor before calibrating and setting the system,and turn on the ESC switch with the wheels suspended!

1 Calibration

When using the ESC for the first time or after adjusting the remote control's throttle "TRIM," D/R, EPA, or other related parameters, you must recalibrate the throttle range. Failure to do so may result in malfunction or improper operation.

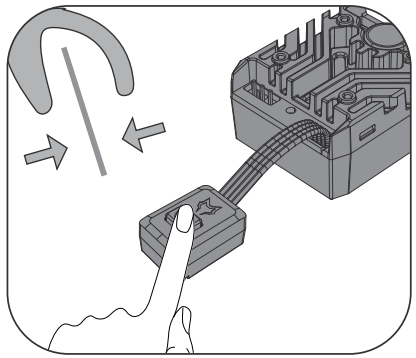
Additionally, we strongly recommend enabling the fail-safe function on the transmitter. Set the throttle channel's fail-safe (F/S) function to either disable output or neutral throttle position. This ensures that if the receiver loses signal from the transmitter, the motor will stop running.

Throttle calibration steps are shown in the figures below:



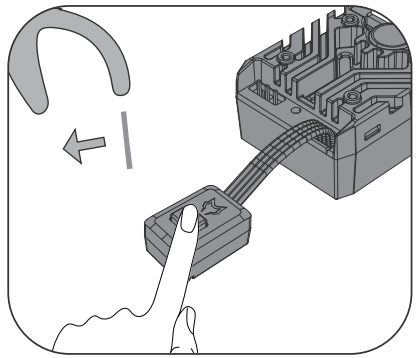
Step 1

Ensure the ESC is in the off state, then long-press the power button until the red indicator light on the ESC flashes rapidly; then release the button.



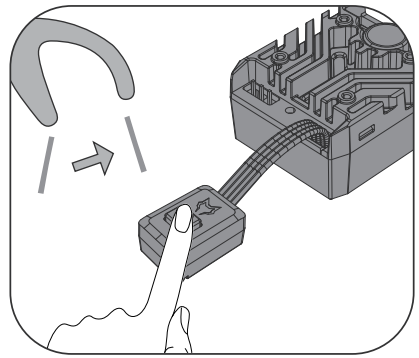
Step 2

Neutral Point calibration=short press the power on button;ESC confirms with short beep.



Step 3

Throttle High point calibration=pull and hold the throttle lever on full power,the short press power on button;ESC confirms with 2 short beep.



Step 4

Brake High point full calibration=push and hold the brake lever on full brake,then short press power on button;ESC confirms with 3 short beeps,and 2 normal beeps.

2 Instructions for switching on and off and beeping

1)Instructions switch on and off

Short press the ON/OFF button to turn it on when it is off;press and hold the ON/OFF button to turn it off when it is on.

2)Instructions for beeps when starting up:

Under normal conditions, when powered on, the motor will emit beeping sounds to indicate the number of LiPo cells.

For example:

"Beep beep" indicates a 2-cell LiPo.

"Beep beep beep" indicates a 3-cell LiPo.

3 Programming options

ITEM		VALUE								
No.	Setting Item	1	2	3	4	5	6	7	8	9
1	Running Mode	Fwd/Brk	Fwd/Rev/Brk	**Fwd/Rev**	Real Car					
2	Battery Type	**LiPo**	NiMH							
3	Cutoff Voltage	Disable	Auto(Low)	**Auto(Medium)**	Auto(High)					
4	Initial Throttle 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%	13%	26%	39%	52%	65%	78%	91%	**100%**
8	Initial Brake Force	**0%**	6%	12%	18%	24%	30%	36%	42%	50%
9	Drag Brake Force	0%	13%	26%	39%	52%	65%	78%	91%	**100%**
10	Drag Brake Rate Control	LV1	LV2	LV3	**LV4**	LV5	LV6	LV7	LV8	LV9
11	Neutral Range	4%	6%	**8%**	10%	12%				
12	Punch Rate	LV1	LV2	LV3	LV4	**LV5**	LV6	LV7	LV8	LV9
13	PWM Frequency	1K	2K	4K	**8K**	16K				
14	BEC Voltage	**6V**	7.4V	8.4V						
15	DEO Mode	**Disable**	Enable							
16	Phase-AC Swap	**Disable**	Enable							

1. **Running Mode:**

   Option 1: Forward with Brake

   Racing mode. It has only forward and brake functions, as used in professional competition racing. Reverse mode is disabled.

   Option 2: Forward/ Reverse with Brake

   This mode provides a reverse function and is usually used for training. The "forward and reverse with brake" mode adopts the intelligent reverse mode. When the accelerator trigger is pushed from the midpoint area to the reverse area for the first time, the motor will brake. When the accelerator trigger returns to the midpoint area and is pushed to the In the reverse zone, if the motor has stopped at this time, a reverse action will occur. If the motor has not stopped, it is still braking, and the accelerator trigger needs to be returned to the midpoint and pushed to the reverse zone. The purpose of doing this is to prevent accidental reversing due to multiple point brakes during vehicle driving.

   Option 3: Direct forward and reverse

   This mode adopts single-click reverse mode, that is, when the throttle stick is pushed from the midpoint area to the reverse area, the motor will immediately generate a reverse action. This mode is generally used for special vehicles like crawler.

   Option 4: Real Car Mode

   In this mode, pushing the throttle trigger forward always applies braking, ideal for crawling vehicles on steep downhill terrain.

   By connecting the ESC's white signal wire to an available AUX channel on the receiver, you can use the remote control to quickly switch motor rotation direction, providing additional braking assistance during descent.

2. **Battery Type:**

   The ESC supports both LiPo and NiMH batteries.Please set the battery type according to your actual

usage.Different battery types will correspond to different low-voltage protection thresholds.

3. **Cutoff Voltage:**

This function is mainly to prevent irreversible damage caused by excessive discharge of lithium batteries. The ESC will monitor the battery voltage at all times, once the voltage is lower than the set threshold, the ESC will immediately reduce the power to 20%. After entering the voltage protection, the red LED will continue to flash with"☆,☆,☆,☆...".

Option 1: No protection

When set to no protection,the ESC will not cut off the power due to low voltage. When using a lithium battery,it is not recommended to set it to "Unprotected", otherwise the battery may be damaged due to excessive discharge. In order to avoid the power drop caused by entering the protection state during the competition, it is recommended to set it to"no protection"(but the battery may be damaged due to over-discharge,which will lead to cell inflation).

Option 2: Auto detection(Low)

The ESC automatically calculates the corresponding low-voltage protection threshold according to 3.0V/Cell according to the detected number of lithium cells. For example when the detection uses 2S, the low-voltage protection threshold is 3.0x2=6.0V.When set to NiMH, the low-voltage protection will trigger at 4.5V (total voltage).

Option 3:Auto detection(Medium)

The ESC automatically calculates the corresponding low-voltage protection threshold according to 3.2V/Cell according to the detected number of lithium cells.For example when the detection uses 2S, the low-voltage protection threshold is 3.2x2=6.4V. When set to NiMH, the low-voltage protection will trigger at 5.0V (total voltage).

Option 4:Auto detection(High)

The ESC automatically calculates the corresponding low-voltage protection threshold according to 3.4V/Cell

according to the detected number of lithium cells.For example when the detection uses 2S,the low-voltage protection threshold is 3.4x2=6.8V.When set to NiMH, the low-voltage protection will trigger at 5.5V (total voltage).

4. **Initial Throttle Force:**
   Also called the minimum starting force, it refers to the starting force acting on the motor at the initial position of the accelerator. The required starting force can be set according to the grip of the tires and the ground; if the ground is too slippery, please set a smaller starting force to avoid slipping.

5. **Max. Forward Force:**
   It refers to the maximum forward force that can be produced when the throttle stick is pushed to the maximum forward position. Different parameter values can be selected to produce different forward speeds(it is recommended to use a relatively big forward speed for flat surfaces or high-speed driving, a relatively small forward speed for crawling in complex terrain to prevent wheel slip).

6. **Max. Reverse Force:**
   It refers to the maximum reverse force that can be produced when the throttle stick is pushed to the maximum reverse position. Different parameter values can be selected to produce different reverse speeds(generally, it is recommended to use a relatively small reverse speed to avoid mistakes due to).

7. **Max. Brake Force:**
   This ESC provides a proportional braking function. The braking force is related to the position of the throttle stick. The maximum braking force refers to the braking force generated when the throttle stick is at the brake limit position. Please select the appropriate maximum braking force parameter according to the specific conditions of the vehicle and the track and your personal habits.

8. **Initial Brake Force:**
   Also known as the minimum braking force, refers to the braking force acting on the motor at the initial position of the brake. If the initial braking force is set to a larger, you can achieve a similar effect of the spot brake.

9. **Drag Brake Force:**
   Drag brake,also known as automatic brake, refers to the braking force generated by the ESC on the motor when the throttle stick is in the midpoint area after the oil is collected. This can assist fingers to control the brake and effectively reduce the difficulty of brake control. It is often used in Flat sports cars decelerate into and out of corners and other occasions.

10. **Drag Brake Rate Control:**
    This parameter controls the response rate of the set drag brake force,enhancing the vehicle's drag brake performance. The adjustable range is 1-9, where a higher value increases the drag brake rate, making the response more sensitive.

11. **Neutral Range:**
    This parameter adjusts the range of the midpoint of the throttle to suit different remote controllers and drivers' control habits. Some poor-quality remote controllers tend to drift in the midpoint position, causing the car to move forward or backward slowly.When this phenomenon occurs, please set the area width to a large value.

12. **Punch Rate:**
    This parameter is used to control the output speed of the throttle. Setting a suitable throttle acceleration can assist the driver to control the throttle when the vehicle is started, and avoid tire slippage when the vehicle is refueled quickly, and the start is too violent to cause poor control in the corner and instant start. If the current is too large, it will be unfavorable to the motor/ESC/battery. The acceleration is divided into 9 gears and can be

adjusted. When it is set to 1%, the accelerator of the throttle will be slower,and there will be more restrictions on the output when the accelerator is fast; the larger the value is, the faster the acceleration will be. The output is less restricted. In general, for a driver who can control the throttle proficiently, a higher acceleration can be set to reduce the limitation of the ESC on the throttle response.

13. **PWM Drive Frequency:**
    Lowering the drive frequency provides stronger burst power at the initial throttle stage, while increasing the drive frequency makes the motor run more smoothly and reduces operational noise. However , higher frequencies also increase ESC switching losses and generate more heat. The specific frequency to use should be determined based on actual track testing.

14. **BEC Voltage:**
    BEC voltage support 6.0V/7.4V/8.4V adjustable, generally 6.0V is suitable for ordinary steering gear; If the high voltage steering gear is used, it can be set to a higher voltage. For details, please refer to the steering gear voltage label; Warning! The BEC voltage set should not exceed the maximum operating voltage of the steering gear, or it may damage the steering gear and even damage the electrical regulation!

15. **DEO Mode:**
    When the DEO function is disabled, throttle response will be more aggressive.It is generally recommended to disable DEO for standard vehicles.For crawling vehicles, enabling DEO is recommended, as it provides smoother low-speed linearity and helps reduce heat buildup.

16. **Phase-AC Swap:**
    Due to the wiring requirements of the frame, if the positive and negative wires of the ESC are connected in reverse to the motor (that is, the positive wire of the ESC is connected to the negative terminal of the motor, and

the negative wire of the ESC is connected to the positive terminal of the motor), enable this option to correct the rotation direction.

4 Programming methods

Notice! The ESC programming interface is an independent programming port; do not use the throttle control cable on the ESC to connect the programming box, otherwise the programming box will not work.

1. **Parameter Configuration Using a Programming Box**

   This product supports rapid parameter adjustment via an Xlink/Qlink programming box. The operation is simple and intuitive, requiring no complex configuration.

   The operating steps are as follows:

   ① Use a connecting cable with JR male connectors at both ends to link the ESC to the programming box:
   * Insert one end into the dedicated programming port on the ESC.
   * Insert the other end into the port labeled " " located at the top of the programming box.

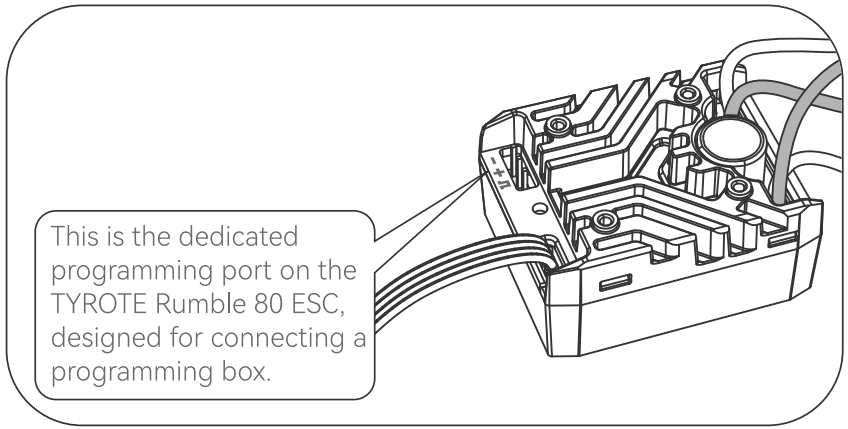
   ② Connect a power source to the ESC and turn on the ESC switch.

   ③ Wait a few seconds; the programming box screen will automatically display the current ESC parameters.

   ④ Use the buttons on the programming box to configure settings:
   * Press "ITEM" to select the specific setting item you wish to adjust.
   * Press "VALUE" to modify the parameter value corresponding to the selected setting item.

   ⑤ Once configuration is complete, press the "OK" button to save; the new parameters will be saved into the ESC.

2. **Firmware Upgrage via Programming Box**
   Connect the ESC to a computer using an Xlink/Qlink programming box. Download and install the "Clink" software application on your computer, then use Clink to perform the ESC firmware upgrade.



3. **Parameter Settings and Firmware Upgrade via Bluetooth Module**
   Connect the Cayote BTune external Bluetooth module to the dedicated programming port of the Rumble 80 ESC. Then launch the CAYOTE TEAM App on your mobile phone. The App allows you to adjust parameters and upgrade the firmware of the ESC.

05 LED indicator guide

1.When the throttle trigger is at 50% (neutral), the red LED is off.
2. During forward throttle, the red LED flashes; When the throttle trigger is at its maximum forward position, the red light remains steadily lit.
3. During braking, the red LED flashes; When the throttle trigger is at its maximum reverse position, the red light remains steadily lit.
4. During reverse, the red LED flashes; When the throttle trigger is at its maximum reverse position, the red light remains steadily lit.

06 Troubleshoot guide

Symptom	Possible cause	Solution
After power on, the indicator light is off, the motor cannot be started	1.The battery voltage is not input to the ESC. 2.The ESC switch is damaged.	1.Check whether the connecting wire is defective or not, and whether the solder joint is defective. 2.Replace the switch.

After power on,the indicator light flashes and the motor fails to start	1.ESC throttle wire reversed or connected to the wrong channel 2.Throttle position not centered	1.Insert the ESC throttle cable into the receiver's throttle channel in the correct direction 2.Recalibrate the throttle range
Car moves slowly forward or backward when throttle trigger is at neutral	Throttle range not calibrated properly	1. Fine-tune the neutral position on the transmitter 2. Return the throttle stick to neutral and recalibrate the throttle range
The remote control increases the accelerator, but the car reverses	1.The ESC-to-motor wiring order was incorrect 2.Incorrectly set the direction of the throttle channel	1.Swap motor wires or enable "Polarity Swap" in the setting 2.Change the direction of the throttle channel from "NOR" to "REV" or "REV" to "NOR"
During the rotation of the motor, it suddenly stops or the power output is significantly reduced	1.The receiver encounters interference. 2.The ESC enters the battery low voltage protection state. 3.The ESC enters the over-temperature protection state.	1.Check the receiver for interference and make sure the transmitter battery has enough power. 2.The red LED flashes continuously, it means low-voltage protection is active. Replace the battery. 3.The red LED flashes twice repeatedly, it means over-temperature protection is active. Wait for the ESC to cool down before using it again.

Moving forward normally, but unable to reverse.	1.The midpoint of the accelerator channel of the remote control deviates from the braking area. 2.The parameter item "Run Mode" is set incorrectly 3.The ESC is damaged.	1.Readjust the midpoint of the throttle channel so that when the throttle stick of the remote controller is in the middle position, the indicator light on the ESC will not light up. 2.The parameter item "running mode" needs to be set to "forward and reverse with brake". 3.Contact the buyer to deal with maintenance matters.
Throttle range calibration cannot be completed	1.ESC throttle wire connected to the wrong receiver channel or reversed Receiver or transmitter issue	1.Check whether the ESC throttle wire is connected correctly to the receiver 2.If the servo works, you can connect the ESC throttle wire to the receiver's servo channel for testing, or directly replace the radio system to test

01 产品特色

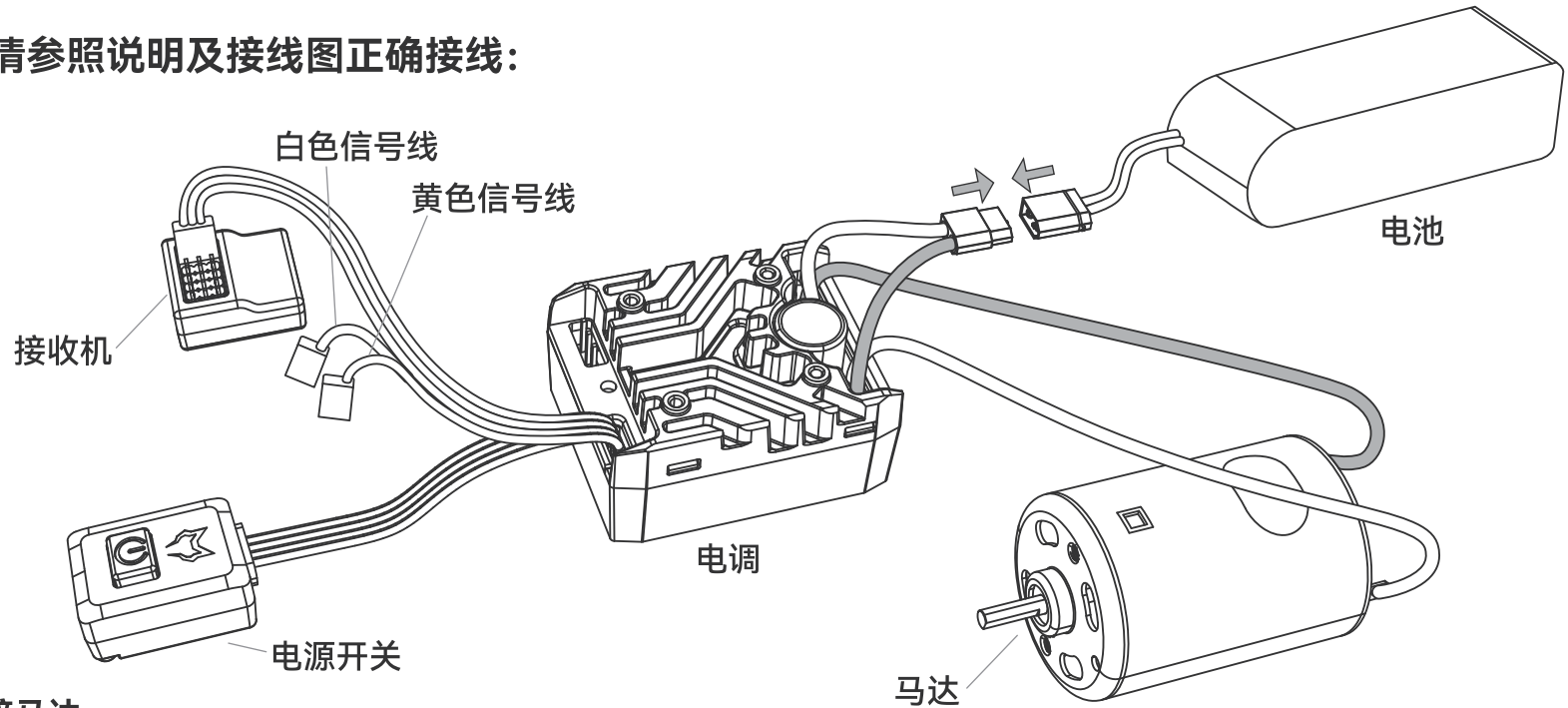
- 电调采用全防水设计，配备电子开关，保障产品安全稳定。
- 专为攀爬模型车打造，具有可开关DEO功能，为车手提供丝滑低速控制与强力拖刹表现。
- 内置稳定6V/7.4V/8.4V高电流可调BEC输出模块，兼容高扭矩舵机。
- 多重保护功能：电压过低保护、电调及电机过热保护，无操作断电保护；

02 产品规格

型号	TYROTE Rumble 80
持续/峰值电流	80A / 400A
防水能力	防水
支持电机类型	有刷电机
主要适用车型	1/10th 攀爬车
支持有刷马达KV	≥21T 540/550电机
电池节数	2-3S Lipo 或 5-9 Cell NiMH
BEC输出	超稳定电压6V/7.4V/8.4V，持续电流4A，峰值电流8A(开关稳压方式)
尺寸/重量	41.6(长)*33.4(宽)*20.2(高)mm/77.5g
参数设定方式	Xlink/Qlink编程盒，BTune外置蓝牙模块（CAYOTE TEAM APP）

03 连接电子调速器

请参照说明及接线图正确接线：



1.连接马达：

电调与马达相连无严格的线序要求，电调的两根输出线可以与电机的两根线随意对接，若出现转向相反，交换两条马达线即可。

2.连接接收机：

白红黑排线：用于接入接收机的油门控制通道(即THROTTLE通道)。因为排线中的供电线输出6V/7.4V/8.4V电压给接收机

及舵机，所以请勿给接收机额外供电，否则可能损坏电调。

-单根白色线：用于接入接收机空闲通道（AUX通道），当电调运行模式为“真车模式”时，可通过遥控器实时切换电机转向。

-单根黄色线：用于接入接收机空闲通道（AUX通道），可通过遥控器实时线性调整拖刹力度。

3.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(-)极相连，如果电调与电池接反，电调将会损坏。因电源接反导致电调损坏不在保修范围内。

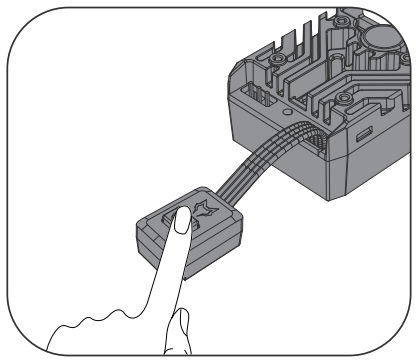
04 设置电子调速器

本系统功率强劲，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开关!

1 设定油门行程

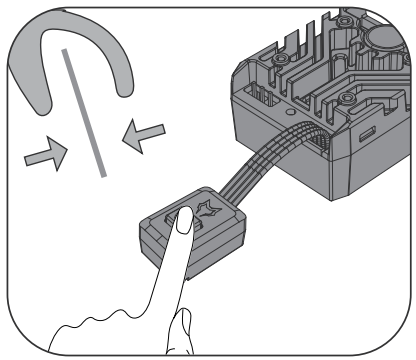
电调第一次使用或遥控器更改过油门“TRIM”微调、D/R、EPA等参数后，均需重设油门行程，不然可能会导致无法使用或误动作。 另外我们强烈建议同时开启遥控器的失控保护功能，将遥控器油门通道的无信号保护(“F/S”)功能设置为关闭输出方式或将保护值设置为油门中立点位置，使得当接收机无法收到遥控器信号后，电机能够停止运转。

油门校调步骤如下图所示:



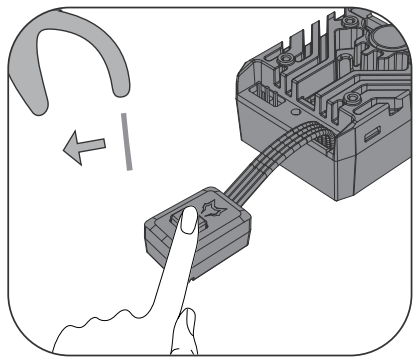
步骤一

将电调处于关机状态，长按电源键，直至电调红灯快速闪烁后松开。



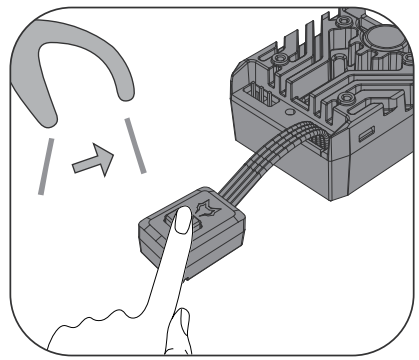
步骤二

将油门扳机处于油门中位，短按一下电源键，电调鸣音1声。



步骤三

将扳机处于正向全油门，短按一下电源键，电调鸣音2声。



步骤四

将扳机处于反向全油门，短按一下电源键，电调鸣音3声。

2 开关机及鸣音说明

1）开关机说明：

关机状态下短按ON/OFF键开机；开机状态下长按ON/OFF键关机

2）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。例如：“ 哔哔”表示2 节锂电,“哔哔哔”表示3节锂电。

3 编程项目说明

ITEM		VALUE								
编号	设定项	1	2	3	4	5	6	7	8	9
1	运行模式	正转带刹车	正反转带刹车	**直接正反转**	真车模式					
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%	13%	26%	39%	52%	65%	78%	91%	**100%**
8	初始刹车力度	0%	6%	12%	18%	24%	30%	36%	42%	50%
9	拖刹力度	0%	13%	26%	39%	52%	65%	78%	91%	**100%**
10	拖刹加速度控制	1级	2级	3级	**4级**	5级	6级	7级	8级	9级
11	油门中点范围	4%	6%	**8%**	10%	12%				
12	油门加速度	1级	2级	3级	4级	**5级**	6级	7级	8级	9级
13	运行驱动频率	1K	2K	4K	**8K**	16K				
14	BEC电压	**6V**	7.4V	8.4V						
15	DEO功能	**关闭**	开启							
16	相位交换	**关闭**	开启							

1、运行模式：

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”模式采用的是智能倒车方式，当油门扳机第一次从中点区域推至反向区域时，电机将产生刹车，当油门扳机回到中点区域并第二次推至反向区域时，如果此时电机已停转，则产生倒车动作，如果电机未停转，仍是刹车，需要再次将油门扳机回到中点并推至反向区域。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，该模式一般用于特种车辆。

选项4：真车模式

此模式下，油门扳机前推始终对应刹车操作，适用于攀爬车在极端地形下坡。将电调白色信号线接到接收机的空闲AUX通道后，可通过遥控器快速切换电机前进/后退，从而提供额外的制动力辅助下坡。

2、电池类型：

电调可适配锂电和镍氢两种电池类型，请根据实际使用情况设置，不同的电池类型设置与选择将对应不同的低压保护阈值。

3、低压保护阈值：

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，

电调立即将动力降为20%，当进入电压保护后，红色 LED 会以“☆,☆,☆,☆...”方式闪烁。

选项1：不保护

设置为不保护时，电调不会因为电池低压而切断动力。使用锂电时，不建议设为“不保护”，否则电池可能因为放电过度而损坏。比赛时为了避免进入保护状态而导致动力下降，建议设置为“不保护”（但有可能因为过放而损坏电池）。

选项2：自动（低）

电调根据自动检测到的锂电节数，按3.0V/Cell算出对应的低压保护阈值，如检测使用2S时，低压保护阈值为3.0x2=6.0V，适用于放电能力较弱的电池。设置为镍氢时触发电压为4.5V（总电压）。

选项3：自动（中）

电调根据自动检测到的锂电节数，按3.2V/Cell算出对应的低压保护阈值，如检测使用2S时，低压保护阈值为3.2x2=6.4V，适用于放电能力一般的电池。设置为镍氢时触发电压为5.0V（总电压）。

选项4：自动（高）

电调根据自动检测到的锂电节数，按3.4V/Cell算出对应的低压保护阈值，如检测使用2S时，低压保护阈值为3.4x2=6.8V，适用于放电能力较强的电池。设置为镍氢时触发电压为5.5V（总电压）。

4、初始启动力度：

也叫最小启动力度，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。

5、最大前进力度：

指油门摇杆打到正向最大位置所能产生的最大前进力度，选择不同的参数值可以产生不同的前进速度（如平路等需要高速行驶的场景下推荐使用较大的前进力度；如果在复杂地形攀爬时，推荐设置较小的最大前进力度，以免车辆打滑）。

6、最大倒车力度:

指油门摇杆打到反向最大位置所能产生的最大倒车力度，选择不同的参数值可以产生不同的倒车速度（一般情况下推荐使用比较小的倒车速度，以免因倒车太快而导致失误）。

7、最大刹车力度:

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及个人的使用习惯，选择合适的最大刹车力参数。

8、初始刹车力度:

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，默认值是等于拖刹力度，以便形成柔顺的刹车效果，如果初始刹车力设置得较大，可以达到类似点刹的效果。

9、拖刹力度:

拖刹又名自动刹车，是指当油门摇杆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，常用于平跑车减速入弯及出弯等场合。

10、拖刹加速度控制:

该参数用于控制设定的拖刹力度响应速度，可以改善车辆的拖刹效果，可调范围为1-9，数值越大，拖刹加速度越快，响应更灵敏。

11、油门中点范围：

该参数调整油门中点区域范围以适合不同的遥控器和车手操控习惯。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。

12、油门加速度：

此参数用于控制油门输出快慢，设置适合的加速度可以辅助车手在车辆启动时对油门的控制，避免当快速加油时，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1-9%可设置，当设置为1%时，则油门加速较慢，对于快速加油门时的输出有较多的限制；设置值越大，则加速越快，对油门输出的限制越少。一般情况下，对于能够熟练控制油门的车手，可以设置较高的加速度，以减少电调对油门响应的限制。

13、运行驱动频率：

驱动频率降低，在油门初段可以提供更强动的爆发力;驱动频率升高可以使马达驱动更平滑，驱动嗓音更小，但同时也导致电调的开关损耗加大，发热量增加。具体使用顿率，请以车子在车场实测效果为准。

14、BEC输出电压：

BEC电压支持6V/7.4V/8.4V三档可调，一般6.0V适用于普通舵机；若使用高压舵机可设置为更高电压，具体设置电压请参照舵机电压标识；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，甚至损坏电调。

15、DEO功能：

DEO功能关闭可获得较快的油门加速；一般车型建议关闭DEO功能，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。

16、AC互换

因车架布线需要，电调线交换连接（即电调正极线与电机负极线连接，电调负极线与电机正极线连接）时，把此项设为开启（Enabled）即可。

4 编程方法

注意！此电调编程接口为独立编程口；不要使用电调上的油门控制线连接编程盒,否则编程盒无法工作。

1. 使用编程盒进行参数设置

本产品支持通过Xlink/Qlink编程盒快速完成参数调整，操作简单直观，无需复杂设置。

操作步骤如下:

① 使用一条两端带JR公头的排线，将电调与编程盒连接:

*一端插入电调上的独立编程接口

*另一端插入编程盒顶部标有“ ”的接口

② 给电调接通电源，并打开电调开关

③ 等待数秒，编程盒屏幕将自动显示当前电调参数

④ 使用编程盒按键进行设置：

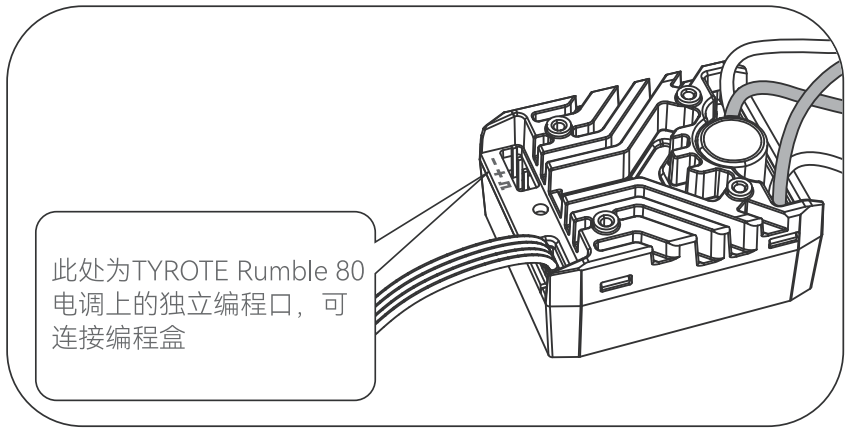
*按“ITEM”选择需要调整的设定项

*按“VALUE”修改各设定项对应的参数数值

⑤ 设置完成后，按“OK”键保存，新参数将写入电调

2. 使用编程盒进行固件升级

通过Xlink/Qlink编程盒连接到电脑，在电脑上下载安装Clink程序软件，通过Clink进行电调固件升级。



3. 使用蓝牙模块进行参数设置和固件升级

将Cayote BTune外置蓝牙模块连接至Rumble 80电调的独立编程接口，然后打开手机端的CAYOTE TEAM APP，即可通过APP对电调进行参数调节和固件升级。

05 电调状态指示灯（LED）说明

（1）油门扳机处于50%，红灯熄灭。
（2）前进时，红灯闪烁；当油门扳机处于正向最大时，红灯常亮。
（3）刹车时，红灯闪烁；当油门扳机处于反向最大时，红灯常亮。
（4）倒车时，红灯闪烁；当油门扳机处于反向最大时，红灯常亮。

06 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.检查连接线是否有不良，焊点是否不良 2.更换开关
上电后红色LED闪烁，电机无法启动	1.电调油门线插反、通道插措 2.油门不在中点	1.将电调的油门排线按正确方向插到接收机的油门通道 2.重新设置油门行程
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	1.使用遥控器的油门微调校准中点 2.油门摇杆归中位，重新校准油门行程

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.遥控器油门方向设置错误 3.电调设置了“真车模式”	1.将电调输出两根线互换位置或在设置中开启“相位交换” 2.将遥控器油门通道反向，从”NOR”改为“REV”或从原“REV”改为“NOR” 3.检查是否通过遥控第三通道设置了电机转向
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，检查发射机电池电量 2.红灯持续闪烁为电压保护，请更换电池 3.红灯两下循环闪烁为温度保护，请等电调温度降低后继续使用
前进正常，但无法倒车	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.重新校调油门通道中点，使遥控器油门摇杆置于中位时， 电调上的指示灯不亮 2.参数项“运行模式”需设置为“正反转带刹车” 3.联系购货商处理维修事宜
无法完成油门行程校准	1.电调油门线接错接收机通道或插反 2.接收机或遥控器故障	1.检查电调油门线与接收机的连接是否正确 2.若舵机可以工作，可以将电调油门线接到接收机的舵机通道进行测试确认，或直接更换遥控系统测试

TYROTE

Rumble 80

CAYOTE TEAM