



ACE RC BLC-80C PLUS/BLC-150C PLUS BRUSHLESS SPEED CONTROLLER INSTRUCTION MANUAL

Product no. #8080 BLC-80C PLUS
#8081 BLC-150C PLUS

DECLARATION

Thanks for purchasing ACE RC Electronic Speed Controller (ESC). High power system for RC model can be very dangerous, please read this manual carefully. In that we have no control over the correct use, installation, application, or maintenance of our products, no liability shall be assumed nor accepted for any damages, losses or costs resulting from the use of the product. Any claims arising from the operating, failure of malfunctioning etc. Will be denied. We assume no liability for personal injury, consequential damages resulting from our product or our workmanship. As far as is legally permitted, the obligation to compensation is limited to the invoice amount of the affected product.

FEATURES

- Compatible with all sensorless brushless motors and most of sensed brushless motors such as LRP, Speed Passion, Novak, etc.
- Seamlessly change to sensorless working mode when the sensor cable is broken,
- Excellent start-up, acceleration and linearity features.
- Built-in switch mode BEC has a powerful output to supply all the electronic equipments.
- Firmware can be updated through a USB adapter on the advanced LCD Program Box (Optional equipment).
- User programmable. Easily programmed with the "SET" button on the ESC and also compatible with the 3 digital LEDs Program Card and the advanced professional LCD Program Box.
- 3 running modes (Forward mode, Forward/Reverse mode, Rock Crawler mode)
- 4 steps of maximum reverse force adjustment.
- Proportional ABS brake function with 5 steps of maximum brake force adjustment, 8 steps of drag-brake force adjustment and 4 steps of initial brake force adjustment.
- 9 start modes (Also called "Punch") from "very soft (Level 1)" to "very aggressive (Level 9)".
- 8 steps of timing adjustment to suitable for all brushless motors.
- Multiple protection features: Low voltage cut-off protection / Over-heat protection / Throttle signal loss protection / Motor blocked protection.
- Compatible with traditional mechanical disc-brake system.
- Splash proof and dustproof.

SPECIFICATIONS

Item No.	8080	8081
Product Name	BLC-80C PLUS	BLC-150C PLUS
Cont./ Burst Current	80A / 380A	150A/950A
Resistance	0.0006 ohm	0.0002 ohm
Suitable Car	1/8 on-road, off-road, monster RTR applications	1/5, 1/8 on-road, off-road, monster Super powerful applications
Sensored and sensorless brushless motors		
Suitable Motor	≥6T, KV≤2400 The 80A ESC works with 4S Lipo	≥4.5T, KV≤3000 (Works with 4S Lipo) ≥6T, KV≤2400 (Works with 6S Lipo)
Battery	6-12 cells NiMH or 2-4 cells Li-Po	6-18 cells NiMH or 2-6 cells Li-Po
BEC Output	5.75V@3A Switch mode built-in BEC	
Dimension	58mm(L) * 46.5mm(W) * 35mm(H)	
Weight	105g (Wires not included)	
Cooling Fan Working Voltage	5V, maximum 8V. (The fan gets the power supply from the built-in BEC)	

BEGIN TO USE THE NEW ESC

WARNING! This Brushless System Is Very Powerful! For Safety, Please Always Keep The Wheels Away From The Track When You Begin to Switch On The ESC.

1. Connect The ESC, Motor, Receiver, Battery and Servo

A) Sensored brushless motor wiring

When using brushless motor with Hall sensor, it is necessary to connect the sensor cable to the "SENSOR" port on the ESC, and ESC can automatically identify the motor type (sensored or sensorless) by detecting the signal coming from the SENSOR port.

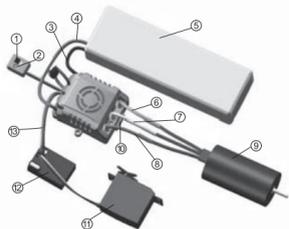
WARNING! For sensed brushless motor, the #A, #B, #C wires of the ESC MUST be connected with the motor wire #A, #B,#C respectively. Do not change the wires sequence optionally!

B) Sensorless brushless motor wiring

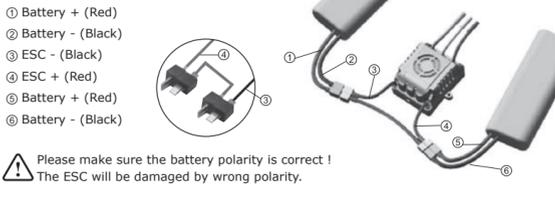
When using brushless motor without Hall Sensor, the #A, #B, #C wires of the ESC can be connected with the motor wires freely(without any sequence). If the motor runs in the opposite direction, please swap any two wire connections.

Note1: The small black connector coming out from the ESC is used for connecting with the cooling fan of the ESC.

- ① Switch
- ② "SET" Button
- ③ Battery Negative (Black)
- ④ Battery Positive (Red)
- ⑤ Battery
- ⑥ Orange Wire (#C)
- ⑦ Yellow Wire (#B)
- ⑧ Blue Wire (#A)
- ⑨ Motor
- ⑩ Hall Sensor Port
- ⑪ Steering Servo
- ⑫ Receiver
- ⑬ Control Wire To Throttle Channel



If there are 2 battery packs need to be connected in series, Please refer to the following picture:



2. Throttle Range Setting (Throttle Range Calibration)

In order to make the ESC fit the throttle range, you must calibrate it when you begin to use a new ESC, or a new transmitter, or change the settings of neutral position of the throttle stick, ATV or EPA parameters, etc. Otherwise the ESC cannot work properly.

There are 3 points need to be set, they are "Top point of forward", "Top point of backward" and the "Neutral point."

The following pictures show how to set the throttle range with a ACE RC Cougar PS3 transmitter.

A) Switch off the ESC, turn on the transmitter, set the direction of throttle channel to "REV", set the "EPA/ATV" value of throttle channel to "100%", and disable the ABS function of your transmitter.

B) Hold the "SET" key and then switch on the ESC, and release the "SET" key as soon as possible when the red LED begins to flash. (Note2)

C) Set the 3 points according to the steps shown as the pictures on the right side. 1) The neutral point Move the throttle stick at the neutral point, and then click the SET key, the green LED flashes 1 time. 2) The top point of forward direction Move the throttle stick at the top point of forward direction, and then click the SET key, the green LED flashes 2 times. 3) The top point of backward direction Move the throttle stick at the top point of backward direction, and then click the SET key, the green LED flashes 3 times.

D) Throttle range is calibrated; motor can be started after 3 seconds.

Note2: If you don't release the "SET" key as soon as the red LED begins to flash, the ESC will enter the program mode, in such a case, please switch off the ESC and re-calibrate the throttle range again from step A to step D.

3. Check The LED Status In Normal Running

- Normally, if the throttle stick is in the neutral range, neither the red LED nor the green LED lights.
- The red LED lights when the car is running forward or backward and it will flash quickly when the car is braking.
- The green LED lights when the throttle stick is moved to the top point (end point) of the forward zone or backward zone.

4. Check The Lipo Cells Setting If You Are Using Lithium Battery

If you are using Lipo battery, we strongly suggest setting the "Lipo Cells" programmable item manually to avoid the over-discharge problem. Please read the instructions on step of program the ESC 2.12.

In normal case, when the ESC is switched on, the motor will emit several "Beep" tones to express the cells amount of the battery pack. For example, "Beep-Beep-" means 2s Lipo, "Beep-Beep-Beep-" means 3s Lipo, etc.

PROGRAM THE ESC

1. Programmable Items List (The *italics>* texts in the form are the default settings)

Programmable Items	Value								
	1	2	3	4	5	6	7	8	9
Basic Items									
1. Running Mode	Forward with Brake	<i>Forward/Reverse with Brake</i>	Forward/Reverse (For Rock Crawler)						
2. Drag Brake Force	0%	5%	10%	20%	40%	60%	80%	100%	
3. Low Voltage Cut-Off Threshold	No-Protection	2.6V /Cell	2.8V /Cell	3.0V /Cell	<i>3.2V /Cell</i>	3.4V /Cell			
4. Start Mode(Punch)	Level1	Level2	Level3	Level4	<i>Level5</i>	Level6	Level7	Level8	Level9
Advanced Items									
5. Max Brake Force	25%	50%	<i>75%</i>	100%	Disable				
6. Max Reverse Force	<i>25%</i>	50%	75%	100%					
7. Initial Brake Force	= <i>Drag Brake Force</i>	0%	20%	40%					
8. Neutral Range	6% (Narrow)	<i>9% (Normal)</i>	12% (Wide)						
9. Timing	0.00°	3.75°	7.50°	11.25°	<i>15.00°</i>	18.75°	22.50°	26.25°	
10. Over-heat Protection	<i>Enable</i>	Disable							
11. Motor Rotation	<i>Counter Clockwise</i>	Clockwise							
12. Lipo Cells	<i>Auto Calculate</i>	2 Cells	3 Cells	4 Cells	5 Cells	6 Cells			

2. Explanation For Each Programmable Item

2.1. Running Mode: With "Forward with Brake" mode, the car can go forward and brake, but cannot go backward, this mode is suitable for competition; "Forward/Reverse with Brake" mode provides backward function, which is suitable for daily training.

Note

"Forward/Reverse with Brake" mode uses "Treble-click" method to make the car go backward. When you move the throttle stick from forward zone to backward zone for the 1st and 2nd time, (the 1st and 2nd "click"), the ESC begins to brake the motor, the motor speeds down but it is still running, not completely stopped, so the backward action is NOT happened immediately. When the throttle stick is moved to the backward zone again (The 3rd "click"), if the motor speed is slowed down to

zero (i.e. stopped), the backward action will happen. The "Treble-Click" method can prevent mistaken reversing action when the brake function is frequently used in steering.

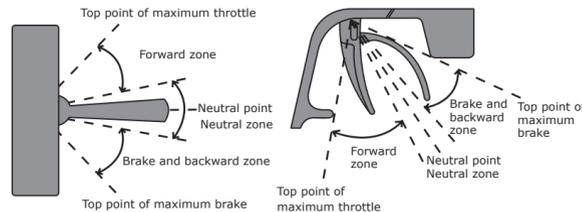
By the way, in the process of brake or reverse, if the throttle stick is moved to forward zone, the motor will run forward at once.

"Forward/Reverse" mode uses "Single-click" method to make the car go backward. When you move the throttle stick from forward zone to backward zone, the car will go backward immediately. This mode is usually used for the Rock Crawler.

- 2.2. Drag Brake Force: Set the amount of drag brake applied at neutral throttle to simulate the slight braking effect of a neutral brushed motor while coasting.
- 2.3. Low Voltage Cut-Off: The function prevents the lithium battery pack from over discharging. The ESC detects the battery's voltage at any time, if the voltage is lower than the threshold for 2 seconds, the output power will be reduced 70%, after 10 seconds the output will be completely stopped, and the red LED flashes in such a way: "•••••,•••••,•••••". There are 6 preset options for this item. You can customize the cutoff threshold by using an advanced LCD program box (optional equipment) to trim it with a step of 0.1V, so it will be more suitable for all kinds of batteries (NiMH, NiCd, Li-ion, Lipo, LFP, etc).

Please always keep in mind that the customized value is not for each cell, it is for the WHOLE battery pack.

- 2.4. Start Mode (Also called "Punch"): Select from "Level1" to "Level9" as your like, Level1 has a very soft start effect, while level9 has a very aggressive start effect. From Level1 to Level9, the start force is increasing. Please note that if you choose "Level7" to "Level9" mode, you must use good quality battery pack with powerful discharge ability, otherwise these modes cannot get the burst start effect as you want. If the motor cannot run smoothly (the motor is trembling), it may caused by the weak discharge ability of the battery pack, please choose a better battery or increase the gear rate (Use a smaller pinion).
- 2.5. Maximum Brake Force: The ESC provides proportional brake function. The brake force is related to the position of the throttle stick. Maximum brake force refers to the force when the throttle stick is located at the top point of the backward zone. A very large brake force can shorten the brake time, but it may damage the gears. The "Disable" option inhibits the inherent brake function of the speed controller. When this option is selected, the brake function is realized by a traditional disc-brake system driven by a servo.
- 2.6. Maximum Reverse Force: Sets how much power will be applied in the reverse direction. Different value makes different reverse speed.
- 2.7. Initial Brake Force: It is also called "minimum brake force", and it refers to the force when the throttle stick is located at the initial position of the backward zone. The default value is equal to the drag brake force, so the brake effect can be very smoothly.
- 2.8. Throttle Neutral Range: Please refer to the following picture to adjust the neutral range as your like.



- 2.9. Timing: The "timing" item is usable for both sensed and sensorless brushless motors. There are many differences among structures and parameters of different brushless motors, so a fixed timing ESC is difficult cult to compatible with all brushless motors. It is necessary to make the timing value programmable. Please select the most suitable timing value according to the motor you are just using. Generally, higher timing value brings out higher power output, but the whole efficiency of the system will be slightly lower down.
- 2.10. Over-Heat Protection: If the function is activated, the output power will be cut-off when the temperature of the ESC or the internal temperature of the sensed brushless motor is higher than a factory-preset value for 5 seconds. When the protection happens, the Green LED will flash.
 - When the ESC is over-heat: The Green LED flashes as "•••••,•••••".
 - When the motor is over-heat: The Green LED flashes as "•••••,•••••,•••••".

Note

The motor over-heat protection function is only available for the sensed brushless motor made by Thunder Tiger Co., Ltd. For motors made by other manufacturers, this function maybe not available or the protection point doesn'tmatch the design of the ESC, please disable the over-heat protection function in such a case.

- 2.11. Motor Rotation: You can use this item to change the rotation direction. Face to the motor shaft (That means the rear cover of the motor is far from your face), and move the throttle stick into the forward zone. If this item is set to "CCW", the shaft runs counter-clockwise; If this item is set to "CW", the shaft runs clockwise.
- 2.12. Lipo Cells:

We strongly suggest setting the "Lipo Cells" item manually. Because the normal voltage of each Lipo cell varies from 2.6V to 4.2V, it is quite difficult to calculate the cells amount of a discharged Lipo battery pack. If it is calculated incorrectly, the Low Voltage Cutoff Protection function may work abnormally, so the option "Auto Calculate" is only available for 2s, 4s and 6s Lipo. If the voltage of the battery pack is lower than 8.8V, it is judged as a 2s Lipo; If the voltage is between 8.8V to 17.6V, it is judged as a 4s Lipo; If the voltage is higher than 17.6V, it is judged as a 6S Lipo. So in order to make the Low Voltage Cutoff Protection function always works correctly, please set the "Lipo Cells" item manually.

3. Program Methods

A) Program the ESC with LED program card (Optional equipment) -----

Please refer to the user manual of LED program card.

B) Program the ESC with the SET button on the ESC

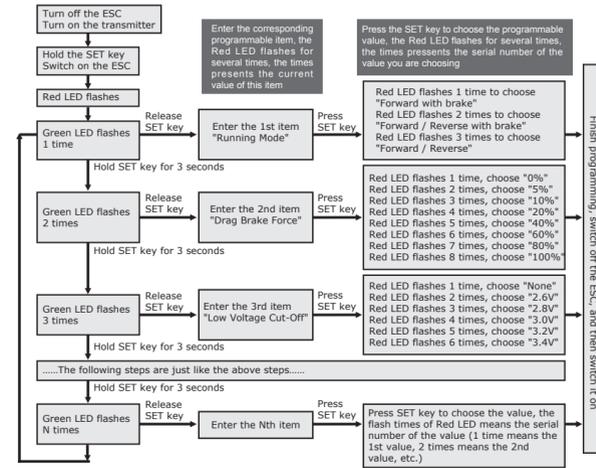
Please refer to the instructions on page 4.

Reset All Items To Default Values

At any time when the throttle is located in neutral zone (except in the throttle calibration process or ESC program mode), hold the "SET" key for over 3 seconds, the red LED and green LED will flash at the same time, which means each programmable item has be reset to its default value.

ALERT TONES

1. Input voltage abnormal alert tone: The ESC begins to check the input voltage when power on, if the voltage is out of the normal range, such an alert tone will be heard: "beep-beep-, beep-beep-, beep-beep-" (There is 1 second interval between every group of "beep-beep-" tone).
2. Throttle signal abnormal alert tone: When the ESC can't detect the normal throttle signal, such an alert tone will be heard: "beep-, beep-, beep-" (There is 2 seconds interval between every "beep-" tone).



Note

- In the program process, when the LED is flashing, the motor will emit "Beep" tone at the same time.
- If the number "N" is bigger than the "5", we use a long time flash and long "Beep—" tone to represent "5", so it is easy to identify the items with bigger series number. For example, if the LED flashes as the following: "A long time flash + 1 short time flash" (Motor sounds "Beep—Beep") = the No. 6 item "A long time flash + 2 short time flashes" (Motor sounds "Beep—BeepBeep") = the No. 7 item "A long time flash + 3 short time flashes" (Motor sounds "Beep—BeepBeepBeep") = the No. 8 item And so on.

MAIN APPLICATIONS

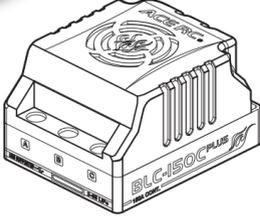
ESC	Motor	Pinion	Gear Rate	Applications
BLC-80C PLUS	IBL 40/20 KV=2000	M1, 13T (Truggy/Buggy)	1/8 Off-Road: 10-16 1/8 Monster: 16-21	1/8 EP Off-Road Truggy / Buggy / Monster RTR. 1/8 NP Off-Road Truggy / Buggy changes to EP. 4 cells Lipo battery is recommended.
BLC-150C PLUS	IBL 40/20 KV=2000	M1, 13T (Truggy/Buggy) 32Pitch, 19T (Monster)	1/8 Off-Road: 10-15.5 1/8 Monster: 13-21	1/8 EP Truggy / Buggy and Monster. Very powerful. 4 cells Lipo battery is recommended.
BLC-150C PLUS	IBL 40/20 KV=2000	32 Pitch 4 cells Lipo:21T 6 cells Lipo:17T	4 Cells Lipo: 12-19 6 Cells Lipo: 15-21	1/8 EP Monster. Super powerful. 4 cells or 6 cells Lipo battery is recommended.

TROUBLE SHOOTING

Trouble	Possible Reason	Solution
After power on, motor doesn't work, and the cooling fan doesn't work	The connections between battery pack and ESC are not correct	Check the power connections Replace the connectors
After power on, motor can't work, but emits "beep-beep-, beep-beep-" alert tone. (Every group of "beep-beep-" has a time interval of 1 second)	Input voltage is abnormal, too high or too low	Check the voltage of the battery pack
After power on, red LED solidly lights, the motor doesn't work	Throttle signal is abnormal	Plug the control wire into the throttle channel of the receiver correctly.
The motor runs in the opposite direction when it is accelerated	1) The wire connections between the ESC and the motor are not correct 2) The chassis is different from the popular design	1) For sensorless motor: Swap any two wire connections between the ESC and the motor. Or use the method #2 2) For sensed motor: Please check the wire connections, they must be A-A, B-B, C-C respectively. If the connections are correct, please change the "Motor Rotation" programmable item setting
The motor suddenly stops running while in working state	The throttle signal is lost	Check the transmitter and the receiver Check the signal wire from the throttle channel of your receiver
	The ESC has entered the Low Voltage Protection Mode or Over-heat Protection Mode	Red LED flashes means Low voltage protection. Green LED flashes means Over-heat protection
When accelerating quickly, the motor stops or trembles	1) The battery has a bad discharge performance 2) The gear rate is too small 3) The "Start Mode (Punch)" of the ESC is too aggressive	1) Use a better battery 2) Use lower KV motor or change the gear rate, choose smaller pinion 3) Select a softer option for the "Start Mode (Punch)"
When the throttle stick is in the neutral range, the red LED and the green LED flashes synchronously	The motor is a sensed motor, but the ESC detects abnormal signal from the sensor, so it changes to sensorless mode automatically	1) Check the connection of Hall sensor cable to make it firmly connect the motor with the ESC. 2) The Hall sensors in the motor are damaged, please change the motor

SERVICE

Thunder Tiger strives to bring you the highest level of quality and service we can provide. We test our products around the world to bring you the state-of-art items. Thunder Tiger guarantees that you should enjoy many hours of trouble free use from our R/C products. Thunder Tiger products have been sold worldwide through the authorized distributors that are supported directly and rapidly from Thunder Tiger. You may find that Thunder Tiger is always pursuing to explore new items creatively with highest quality. To update the latest product information and to get the best technical support, please feel free to contact your local hobby shops or Thunder Tiger authorized distributor.



ACE RC BLC-80C PLUS/BLC-150C PLUS 車用無刷電子調速器 操作使用說明書

產品編號 #8080 BLC-80C PLUS #8081 BLC-150C PLUS

產品介紹

感謝您購買本產品！無刷動力系統功率強大，錯誤的使用可能造成人身傷害和設備損壞。我們強烈建議您在使用設備前仔細閱讀本說明書，並嚴格遵守規定的操作程序。我們不承擔因使用本產品而引起的任何責任，包括但不限於對附帶損失或間接損失的賠償責任；同時，我們不承擔因擅自對產品進行修改所引起的任何責任。我們有權在不經過通知的情況下變更產品設計、外觀、性能及使用要求。

產品特色

- 支持無感（即無霍爾傳感器）無刷和有感無刷馬達（RTR配置之車用無刷電子調速器為無感配置）。有感模式兼容NOVAK、LRP、FEIGAO等主流有感無刷，無感模式兼容所有無刷馬達。
- 內置開關模式（Switching Mode）BEC，具備強大的電流輸出能力，無需外掛UBEC。
- 主要電子零件被密封，防濺水防塵土。底面及側邊均有安裝孔，方便固定於不同的車架。
- 全新程序算法，具有優異的啟動效果（9種啟動加速度）、加速性能及油門線性度。
- 比例式制車：4段最大制車力度調節、8段拖力力度調節、4段初始制車力度調節。
- 多重保護功能：電壓過低保護（默認支持鋰電池和鎳氫電池，設置後可以支持所有類型電池）、過溫保護、油門失控保護、堵轉保護。
- 採用軟件方式進行進角調整，具有8個進角選項，和傳統的進角調整方式（旋轉馬達後蓋以改變傳感器的相對位置）具有同等效果。
- 單鍵編程設定，且有單鍵恢復出廠設置的功能。
- 可選購精巧便攜的車用電調編程設定卡，方便外場使用。設定卡具有友好的界面，讓您輕鬆設定功能強大的車用電調。

規格表

產品編號	8080	8081
產品名稱	BLC-80C PLUS	BLC-150C PLUS
持續電流/峰值電流	80A / 380A	150A/950A
支持電機類型 <small>備註1</small>	無感無刷馬達/有感無刷馬達	
主要適用車型	1/8 平跑/越野/大腳, RTR配置	1/8, 1/5 平跑/越野/大腳, 頂級暴力配置
支持無刷馬達T數 <small>備註2</small>	≥6T, KV≤2400 (本電調支持4S 鋰電, 不支持6S鋰電)	≥4.5T, KV≤3000 (4S 鋰電) ≥6T, KV≤2400 (6S 鋰電)
內阻	0.006歐姆	0.0026歐姆
電池節數	6-12 Cells NiMH, 2-4S Lipo	6-18 Cells NiMH, 2-6S Lipo
BEC輸出	5.75V/3A	
底部尺寸	58mm (長) *46.5mm (寬) *35 mm (含風扇高度)	
重量	105克 (不含動力線材)	

備註1: RTR配置之車用無刷電子調速器為無感配置，並不支持有感無刷馬達
備註2: 電調上的散熱風扇由內置BEC供電而不是從電池組直接取電，所以使用 5V 風扇即可，無需考慮輸入電壓的高低。

首次使用車用無刷電子調速器

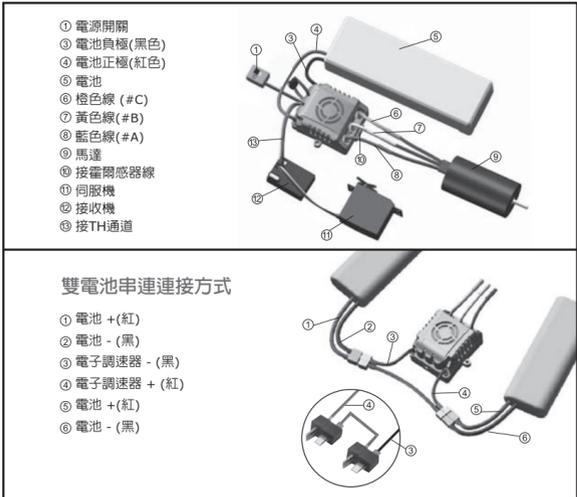
警告！本系統功率十分強勁，為安全起見，請在車輪懸空的情況下開啓電調上的控制開關！

第一步：根據所使用的電機，按相應的圖示接線並復查無誤後，進入下一步。

接有感無刷電機：當使用有感傳感器的無刷電機時，需要將電機上的傳感器引線接到SENSOR插座，電調通過檢測SENSOR插座的信號自動判別是有感電機還是無感電機。

特別提醒：配合有感無刷電機使用時，電調輸出線A、B、C要分別和電機線A、B、C相連，切勿隨意調換！否則會損傷電調和電機！

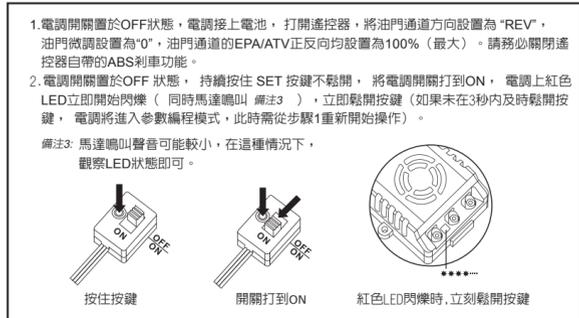
接無感無刷電機：當使用無霍爾傳感器的無刷電機時，電調輸出線A、B、C可以和電機線任意相連。若轉向不對，任意調轉其中兩條線即可。



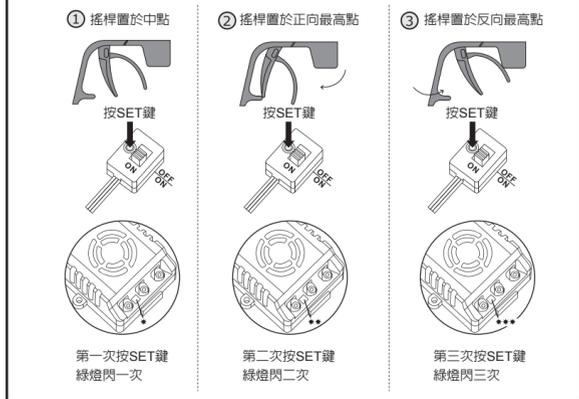
第二步：設定油門行程。

強調：電調第一次使用或遙控器更改過油門中點、ATV、EPA等參數後，均需重設油門行程，不然可能會導致無法使用或誤動作。

下面以ACE RC Cougar PS3遙控器為例，說明油門行程的設定過程。



- 3 此時需要設定三個點：油門中點、正向最高點和反向最高點。
- 1)油門搖桿留在中點位置時，按一下 SET 鍵，紅燈熄滅，綠燈閃爍1次，馬達嗚叫“嗶”1聲，表示已存儲中點位置。
 - 2)油門搖桿打到正向最高點，按一下SET鍵，綠燈閃爍2次，馬達嗚叫“嗶-嗶”2聲，表示已存儲油門正向最高點。
 - 3)油門搖桿打到反向最高點，按一下SET鍵，綠燈閃爍3次，馬達嗚叫“嗶-嗶-嗶”3聲，表示已存儲油門反向最高點。
 - 4)油門行程校調完畢，三秒鐘後，電機即可正常操作。



第三步：接線及基本設置完成，電機已經可以正常運行。行駛過程中指示燈 (LED) 狀態說明：

- 當油門搖桿處於中點區域時，紅色和綠色LED均熄滅。
- 前進和倒車時，紅色LED恆亮，當油門處於正向（前進）最高點或者反向（倒車）最高點，綠色LED也將點亮。
- 制車時，紅色LED快速閃爍。

第四步：若您使用鋰電池，我們強烈建議您準確設置電調的“鋰電池節數”參數項，以確保電池不會過度放電（詳見編程設定 備註4的說明）

在正常情況下開機（即不按SET的情況下開機），電機會發出幾聲“嗶”嗚音表示鋰電池節數，以便於您確認電池節數設置正常。“嗶嗶-”表示2節鋰電池，“嗶嗶嗶”表示3節鋰電，“嗶嗶嗶嗶”表示4節鋰電，“嗶嗶嗶嗶嗶”表示5節鋰電，“嗶嗶嗶嗶嗶嗶”表示6節鋰電。

編程設定說明

*下表中斜體字表示出廠默認值

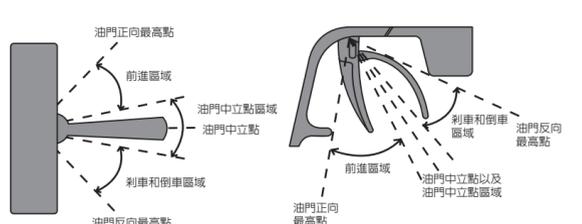
選項	1	2	3	4	5	6	7	8	9
基本設定項目									
運行模式	正轉帶制車	正反轉帶制車	直接正反轉						
拖力力度	0%	5%	10%	20%	40%	60%	80%	100%	
電池低壓保護閾值	不保護	2.6V /Cell	2.8V /Cell	3.0V /Cell	3.2V /Cell	3.4V /Cell			
啟動模式(Punch)	1級	2級	3級	4級	5級	6級	7級	8級	
高級設定項目									
最大制車力度	25%	50%	75%	100%	Disable				
最大倒車力度	25%	50%	75%	100%					
初始制車力度	等於拖力力度		0%	20%	40%				
油門中立點區域寬度	6% (窄)	9% (正常)	12% (寬)						
進角 (僅適用於無刷馬達)	0.00度	3.75度	7.50度	11.25度	15.00度	18.75度	22.50度	26.25度	
過熱保護		保護	不保護						
馬達轉動方向	CCW逆時針	CW順時針							
鋰電池節數 <small>備註4</small>	自動判別	2節	3節	4節	5節	6節			

備註4: 設定為“自動判別”時，電調僅可以自動判別2節和6節的鋰電。電調上電時，若電池電壓低於 8.8V，則判別為2節鋰電，若電池電壓在 8.8V到 17.6V之間，則判別為4節鋰電；若高於 17.6V，則判別為6節鋰電。如果使用3節或5節鋰電時，我們強烈建議您手動選擇電池節數。

1. 運行模式（Running Mode）：“正轉帶制車”模式下，車輛僅能前進和制車，但不能倒車，該模式通常用於競賽；“正反轉帶制車”模式則提供了倒車功能，通常用於訓練。“正反轉帶制車”模式採用雙擊式倒車方式，即油門搖桿在第一次從中點區域推至反向區域時，電機只是制車，不會產生倒車動作；當油門搖桿快速回到中立點區域並第二次推至反向區域時，如果此時馬達已停止，則產生倒車動作，如果馬達未停止，則不會倒車，仍是制車，需要再次將油門回到中點並推向反向區，此時如果馬達已經停止才會倒車，這樣做的目的是防止車輛行駛過程中因多次點刹而造成誤倒車。“直接正反轉”模式採用單擊式倒車方式，即油門搖桿從中點區域推至反向區域時，馬達立即

產生倒車動作，該模式一般用於攀岩等特種車輛。

2. 拖力 (Drag Brake) 力度：拖力是指當油門搖桿從正向區域轉入中點區域內時，對馬達產生一個微量的制車力，這樣做可以模擬有刷馬達的碳刷對馬達轉子的阻力，適合減速入彎等場合。（值得注意的是，拖力會消耗比較多的電量，使用中選擇合適的拖力力度即可）
3. 電池低壓保護閾值 (Low Voltage Cut-Off)：這項功能主要是防止鋰電池過度放電而造成不可恢復的損壞。電調會時刻監視電池電壓，一旦電壓低於設定的閾值，將切斷動力輸出。當進入電壓保護後，紅色 LED 會以 “-•••-,•••-,•••-” 方式閃爍。您也可以通過 LCD 設定盒（選配件）以 ±0.1V 的精確步長自定義保護電壓閾值，以便適用所有類型電池（鎳氫、鎳鈷化合物、鋰鐵、……）。
4. 啟動加速度 (Start Mode / Punch)：可根據個人習慣、場地、輪胎抓地特性等條件，選擇從1級（“非常柔和”）到9級（“非常勁暴”）等9種啟動加速度，這個功能對於防止啟動時輪胎打滑非常有用。此外，使用“7級”——“9級”模式時，對電池的放電能力要求較高，若電池放電能力較差，不能提供瞬時大電流，則反而會影響啟動效果。當啟動時出現停頓或瞬間失去動力時，則可能是電池放電能力不足引起的，這時需要降低啟動加速度，或將齒輪減速比增大。
5. 最大制車力度 (Brake Force)：本電調提供比例式制車功能，制車力度的大小和油門搖桿的位置相關，最大制車力是指油門搖桿處於制車極限位置時所產生的制車力，請根據車輛的具體情況及個人的使用習慣，選擇合適的最大制車力參數。
6. 最大倒車力度 (Reverse Force)：選擇不同的參數值可以產生不同的倒車速度（一般情況下推薦使用比較小的倒車速度，以免因倒車太快而導致失控撞車）。
7. 初始制車力度 (Initial Brake Force)：也叫做最小制車力度，是指在制車初始位置作用於馬達上的制車力，在它的作用下可以達到類似點刹的效果，默認值是等於拖力力度，以便形成柔順的制車效果。
8. 油門中立點區域寬度 (Neutral Range)：油門中立點區域如下圖所示，請根據個人習慣進行調整。



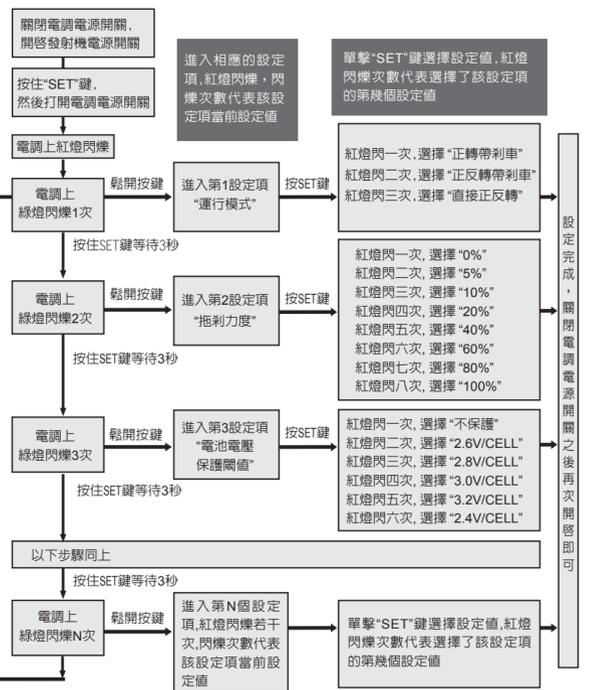
9. 進角 (Timing)：此功能有三個作用：
 - a)兼容不同的馬達。某些馬達在默認進角下工作異常，需要調整到合適的進角方可正常工作。
 - b)通過調整進角，可以微調馬達輸出的最大轉速，進角越高，則最大輸出轉速也越高，同時消耗的功率也越大。
 - c)通過調整進角，可使馬達工作在最佳效率點。進角為一個高級編程選項，請仔細測試更改進角後的實際效果，再決定是否確實需要更改。
10. 過熱保護 (Over-Heat Protection)：啓用該功能後，馬達或有感無刷馬達溫升達到廠方預設特定值時自動關閉輸出，而且綠燈會閃爍，直到溫度降低才恢復輸出。
 - 如果是電調過熱保護時，綠燈閃爍方式為單閃 “•••-,•••-,•••-”。
 - 如果是馬達過熱保護時，綠燈閃爍方式為雙閃：“•••-,•••-,•••-,•••-,•••-,•••-”。

注：馬達溫度保護功能僅適用於本廠配套的有感無刷馬達，其它廠牌可能因為馬達內沒有溫度傳感器而無此功能，或因內置溫度傳感器參數不一樣而導致保護點不一致，如果馬達過早保護，請關閉溫度保護功能。

11. 電動轉動方向 (Motor Rotation)：馬達軸正面朝向使用者面部（即馬達尾部遠離使用者面部），遙控器正向加大油門時，若設置成 CCW，馬達輪逆時針轉動；若設置成 CW，馬達輪順時針轉動。
12. 鋰電池節數 (Lipo Cells)：當使用 2節，4節，6節，鋰電時，我們建議用自動判斷即可，如果使用3節，5節，我們強烈建議使用手工設置鋰電池節數。

編程方法

1. 利用電調上的編程按鍵進行參數設置，設置方法如下：



注：1) 指示燈閃爍的同時，馬達會發出嗚音“嗶”，以便於識別。
2) 當N≥5時，我們使用一次較長時間的指示燈閃爍（同時伴有一次較長時間的嗚音）來表示數字“5”。比如，電調上綠燈長閃一次（同時電機發出一次長嗚音“嗶——”），表示進入第5設定項；若電調上綠燈長閃一次再短閃一次（同時電機發出一次長嗚音“嗶——”和一次短嗚音“嗶”），表示進入第6設定項，依次類推，第7設定項為“嗶——嗶嗶”，第8設定項為“嗶——嗶嗶嗶”。



2. 利用設定卡進行參數設置：
編程設定卡為車用電調的升級選配件，體積小巧，適合外場使用。其界面直觀，編程過程十分簡單快速。調整參數時，只需將電調上的控制排線插入編程卡右上角標註著 $\oplus \ominus$ 的插座中，然後給電調接上電源，數秒後該電調的各項參數即可顯示出來。利用編程卡上的“ITEM”和“VALUE”按鍵即可快速選擇編程項目和參數值，然後按“OK”鍵後，新參數即可存入電調中。（詳見設定卡說明書）

建議動力配置

電調	馬達	馬達小齒	最終減速齒比	主要應用
BLC-80C PLUS	IBL 40/20 KV=2000	M1, 13T	1/8越野:10-16 1/8大腳:16-21	1/8電越及1/8油越改電越，建議使用3節或4節鋰電。 1/8越野的經濟選擇
BLC-150C PLUS	IBL 40/20 KV=2000	M1, 13T	1/8越野:10-15.5	1/8越野或者1/8大腳非常暴力級，建議使用4節鋰電。
		32Pitch, 19T	1/8大腳:13-21	
BLC-150C PLUS	IBL 40/20 KV=2000	32 Pitch 4節鋰電:21T 6節鋰電:17T	4節鋰電:12-19 6節鋰電:15-21	1/8大腳瘋狂暴力級，建議使用4節或6節鋰電。

故障快速處理

故障現象	可能原因	解決方法
上電後，指示燈不亮，電機無法啓動，風扇不轉	1.電池電壓沒有輸入到電調 2.電調開關損壞	檢查電源輸入通路是否有焊接不良情況，並重新焊接好。
上電後電機無法啓動，發出“嗶—嗶—，嗶—嗶—”警示音（每組雙音間隔時間為1秒）	電池組電壓不在正常範圍內	檢查電池組電壓
上電後紅色LED恆亮，電機無法啓動	電調油門線插反或通道插錯	將電調的油門排線按正確方向插入接收機的“油門 (TH)”通道 (Throttle, CH2)。
遙控器正向加大油門，車子反而倒退	1.電調輸出線和電機線連接的順序錯誤 2.該車架同主流車架的電機轉向不一致	1.如果是無感電機，將電機的三條線中任意兩條互換即可，或按下一條方法處理。 2.如果是有感電機，檢查電調和電機之間是不是按照A-A、B-B、C-C 接線，如果接線正確而電機轉向和車架不匹配，請設置電調的 Motor Rotation 參數，將電機的轉向方式更改為CW（順時針方式）。
電機轉動過程中，突然停轉	1.接收機遇到干擾 2.電調進入電池低壓保護或溫度保護	紅燈持續閃爍為電壓保護，請更換電池 綠燈持續閃爍為溫度保護，請等電調溫度降低後繼續使用
電機啓動時快速加大油門，電機有卡住或停頓的現象	1.電池放電能力不夠 2.電機轉速過高，減速比過小 3.將電調啟動加速度設置過高	1.更換放電能力強的電池。 2.更換為低速電機，或將減速比提高。 3.將電調啟動加速度 (Punch) 設置得柔和一些。
油門在中點時，紅綠燈同時快速閃爍	接有感電機時，有感模式出現問題，已自動切換至無感模式	1.查看感應線是否有鬆動或接觸不良。 2.馬達內部的霍爾 (HALL) 感應器損壞。

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