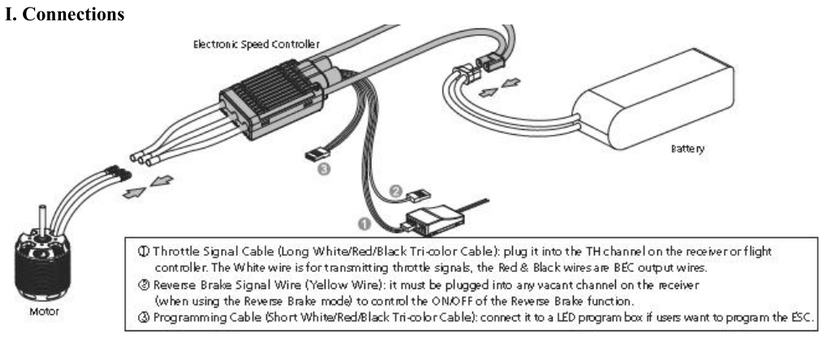
01 Specifications

Model	Cont. Current	Peak Current	Input	BEC Output
120A ESC	120A	140A	3-8S LiPo	5.2V/6V/7.4V Adjustable, Continuous/Peak Current of 8A/20A

02 User Guide

I. Connections



Throttle Signal Cable (Long White/Red/Black Tri-color Cable): plug it into the Throttle channel on the receiver or flight controller. The White wire is for transmitting throttle signals, the Red & Black wires are BEC output wires.
Reverse Brake Signal Wire (Yellow Wire): it must be plugged into any vacant channel on the receiver (when using the Reverse Brake mode) to control the ON/OFF of the Reverse Brake function.
Programming Cable (Short W/R/B Cable): connect it to a LED program box if users want to program the ESC.

II. ESC/Radio Calibration

Turn on the transmitter and move the throttle stick to the top position. → Connect a battery to the ESC; the motor will sound "♪123" to indicate the ESC is normally powered on. → Then the motor will beep two short beeps to indicate the maximum throttle endpoint is accepted. → Move the throttle stick to the bottom position within 5 seconds after the two short beeps, the minimum throttle position will be accepted 1 second later. → The motor will beep "Number" beeps to indicate the number of LiPo cells you have plugged in. → The motor will beep a long beep to indicate the calibration is complete.

III. Normal Start-up Process

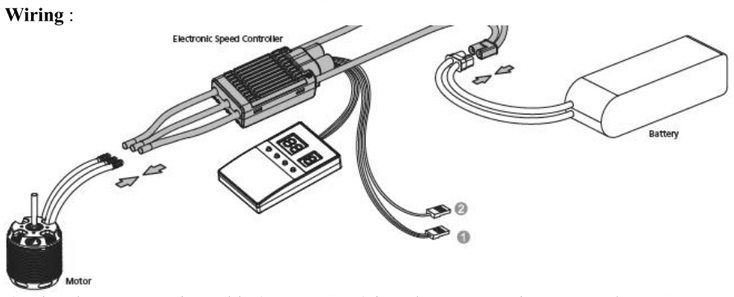
Turn on the transmitter, and then move the throttle stick to the bottom position. → After connected the ESC to a battery, the motor will emit "♪ 123" indicating the ESC is normally powered on. → The motor will emit several beeps to indicate the number of LiPo cells. → The motor emits a long beep to indicate the ESC is ready to go.

03 ESC Programming

There are two ways to program the ESC. One way is to program it with a LED program box; the other way is to program it with the transmitter. The ESC has many programmable items, so we recommend using the LED program box to do the ESC programming.

I. Program your ESC with a LED Program Box

Wiring :



a). Plug the programming cable (on your ESC) into the programming port on the LED program box.

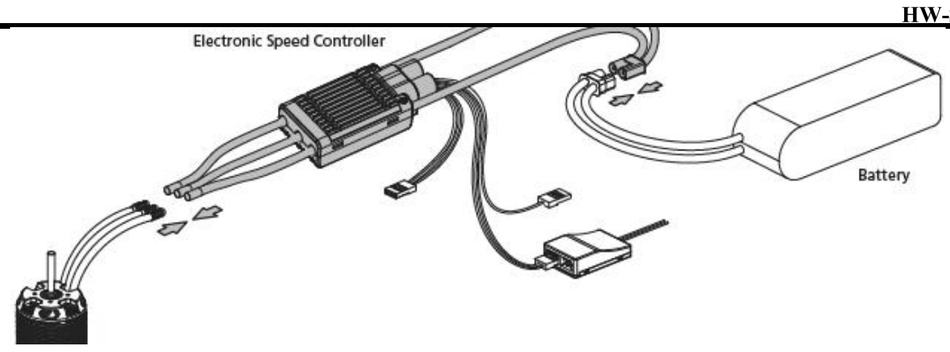
b). (With a battery connected to your ESC), after connected a LED program box to the ESC, you need to disconnect the battery first and then reconnect it to the ESC to enter the programming mode, check and set parameters.

The portable program box is an optional accessory applicable for field use. Its friendly interface makes the ESC programming easy and quick. Connect a battery to your ESC after connecting a LED program box to the ESC, all programmable items will show up a few seconds later. You can select the item you want to program and the setting you want to choose via "ITEM" & "VALUE" buttons on the program box, and then press the "OK" button to save all new settings to your ESC.

Attention! You need to power your ESC off and then on after adjusting parameters. Otherwise, new parameters won't take effect.

II. Program your ESC with the Transmitter

Wiring:



ESC Programming via the Transmitter (Throttle Stick)

It consists of 4 steps: Enter the programming → Select parameter items → Select parameter values → Exit the programming

I. Enter the Programming

Turn on the transmitter, move the throttle stick to the top position, and connect a battery to the ESC, 2 seconds later, the motor will beep "B-B-" first, then emit 56712 5 seconds later to indicate that you are in the ESC programming mode.

II. Select Parameter Items

After entering the programming, you'll hear the following 12 kinds of beeps circularly. Move the throttle stick to the bottom position within 3 seconds after you hear some kind of beeps, you'll enter the corresponding parameter item.

1. "B-"	Brake Type	(1 Short B)	7. "B——B-B-"	Start-up Mode	(1 Long B & 2 Short Bs)
2. "B-B-"	Brake Force	(2 Short Bs)	8. "B——B-B-B-"	Timing	(1 Long B & 3 Short Bs)
3. "B-B-B-"	Voltage Cutoff Type	(3 Short Bs）	9. "B——B-B-B-B-"	Motor Direction	(1 Long B & 4 Short Bs)
4. "B-B-B-B-"	LiPo Cells	(4 Short Bs)	10. "B——B——"	Freewheeling	(2 Long Bs)
5. "B——"	Cutoff Voltage	(1 Long B)	11. "B——B——B-"	Factory Reset	(2 Long Bs & 1 Short B)
6. "B——B-"	BEC Voltage	(1 Long B & 1 Short B)	12. "B——B——B-B-"	Exit	(2 Long Bs & 2 Short Bs)

Note: A long "B——" equals to 5 short "B-", so a long "B——" and a short "B-" represent the 6th item in "Select Parameter Items".

III. Select Parameter Values

The motor will beep different kinds of beeps circularly, move the throttle stick to the top position after you hear some kind of beeps will get you to the corresponding parameter value, then you'll hear the motor emit "i5i5" to indicate the value is saved, then get back to "**Select Parameter Items**" and continue to select other parameter items that you want to adjust.

Items \ Values (Bs)		1 B-	2 B-B-	3 B-B-B-	4 B-B-B-B	5 B——	6 B——B-	7 B——B-B-	8 B——B-B-B-
1	**Brake Type**	Disabled	Normal	Proportional	Reverse				
2	**Brake Force**	Disabled	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
3	**Voltage Cutoff Type**	Soft	Hard						
4	**LiPo Cells**	Auto Calc.	3S	4S	5S	6S	8S		
5	**Cutoff Voltage**	Disabled	2.8V	3.0V	3.2V	3.4V	3.6V	3.8V	
6	**BEC Voltage**	5.2V	6.0V	7.4V					
7	**Start-up Mode**	Normal	Soft	Very Soft					
8	**Timing**	0°	5°	8°	12°	15°	20°	25°	30 °
9	**Motor Direction**	CW	CCW						
10	**Freewheeling**	On	Off						

VI. Exit the Programming

Move the throttle stick to the bottom position within 3 seconds after you hear two long beeps and two short beeps (emitting from the motor) can get you exit the programming mode. The motor beeps "Number" beeps to indicate the number of LiPo cells you have plugged in, and then a long beep to indicate the power system is ready to go.

04 Programmable Items

Items \ Values		1	2	3	4	5	6	7	8
1	**Brake Type**	Disabled	Normal	Proportional	Reverse				
2	**Brake Force**	Disabled	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
3	**Voltage Cutoff**	Soft	Hard						
4	**LiPo Cells**	Auto Calc.	3S	4S	5S	6S	8S		
5	**Cutoff Voltage**	Disabled	2.8V	3.0V	3.2V	3.4V	3.6V	3.8V	
6	**BEC Voltage**	5.2V	6.0V	7.4V					
7	**Start-up Mode**	Normal	Soft	Very Soft					
8	**Timing**	0°	5°	8°	12°	15°	20°	25°	30 °
9	**Motor Direction**	CW	CCW						
10	**Freewheeling**	Enabled	Disabled						

1. Brake Type

Normal Brake

After selected this option, the brake function will be activated when you move the throttle stick to the bottom position. In this mode, the brake amount equals to the brake force you've preset.

Proportional Brake

After selected this option, the throttle range of 20% to 100% (on the transmitter) will correspond to the ESC throttle output of 0% to 100% while the throttle range of 20% to 0% (on the transmitter) will correspond to the brake force of 0 to 100%.

Reverse Brake

After selected this option, the Reverse Brake signal wire (its signal range must be the same as the throttle range) must to be plugged into any vacant channel on the receiver, and you can control the motor direction via that channel. The channel range of 0-50% is the default motor direction, and the channel range of 50% to 100% will cause the motor to spin counterclockwise. The channel stick should be within the channel range of 0-50% (0 would be better) when the first time you power on the ESC. After the Reverse function is activated, the motor will stop first and then spin in the reversed direction and then increase to the speed corresponding to the throttle input. Either signal loss, no matter reverse brake signal loss or throttle signal loss during the flight, can cause the throttle signal loss protection to be activated. If this function is enabled, the reverse signal cable is not connected to any channel. This function is disabled.

2. Brake Force

This item is adjustable from level 1 to level 7. The higher the level, the stronger the braking effect. It's only effect in the "Normal brake" mode.

3. Voltage Cutoff Type

Soft Cutoff

After selected this option, the ESC will gradually reduce the output to 50% of the full power in 3 seconds after the low-voltage cutoff protection is activated.

Hard Cutoff

After selected this option, the ESC will immediately cut off the output when the low-voltage cutoff protection is activated.

4. LiPo Cells: The ESC will automatically calculate the number of LiPo cells you have plugged in as per the "3.7V/Cell" rule if "Auto Calc." is selected, or you can set this item manually.

5. Cutoff Voltage

This item is adjustable from 2.8V to 3.8V (they are the cutoff voltages for one cell), it's 3.0V by default; or you can disable it if necessary.

6. BEC Voltage

This item adjusts the switch-mode BEC output voltage , it can be adjustable among 5.2V, 6.0V and 7.4V.

7. Start-up Mode

Normal Start-up

After selected this option, the motor will immediately start spinning and then quickly reach to the corresponding speed when you move the throttle stick from bottom position to top position.

Soft Start-up

After selected this option, the motor will slowly start spinning and then quickly reach to the corresponding speed when you move the throttle stick from bottom position to top position.

Very Soft Start-up

After selected this option, the motor will slowly (slower than in "Soft Start-up Mode") start spinning and then quickly reach to the corresponding speed when you move the throttle stick from bottom position to top position. We recommend selecting the "Soft Start-up" or "Very Soft Start-up" mode when you're using a big-sized ducted motor.

8. Timing

This item is adjustable from 0 degree to 30 degrees, and it is 15 degrees by default.

9. Motor Rotation

This item allows you to adjust the rotation direction of your motor between CW and CCW, and it is CW by default.

10. Freewheeling (DEO)

This item is adjustable between "Enabled" and "Disabled", and it is enabled by default. With it enabled, you can have better throttle linearity or smoother throttle response.

05 Troubleshooting & Multiple Protections

Troubleshooting

Troubles	Warning Tones	Causes	Solutions
The ESC didn't work after it was powered on while the motor kept beeping.	"BB, BB, BB……"	The input voltage was beyond the operating voltage range of the ESC.	Adjust the power-on voltage and ensure it's in the operating voltage range of the ESC.
The ESC didn't work after it was powered on while the motor kept beeping.	"B-, B-, B-, B-……"	The ESC didn't receive any throttle signal from the receiver.	Check if the transmitter and receiver are well bound, if any poor connection exists between the ESC and receiver.
The ESC didn't work after it was powered on while the motor kept beeping.	"B, B, B, B……"	The throttle stick has not been moved to the bottom position.	Move the throttle stick to the bottom position and calibrate the throttle range.
The ESC didn't work after the throttle calibration while the motor kept beeping.	"B, B, B, B……"	The throttle range you set was too narrow.	Re-calibrate the throttle range.
The ESC output suddenly reduced to 50% during the flight, the motor kept beeping after the flight completed but the battery was still connected to the ESC.	"BB, BB, BB……" or "BBBB,BBBB,…."	The ESC thermal protection has been activated	Improve the heat dissipating condition (i.e. add a cooling fan) or reduce the ESC load.
The ESC output suddenly reduced to 50% during the flight, the motor kept beeping after the flight completed but the battery was still connected to the ESC.	"BBB, BBB, BBB……"	The low-voltage cutoff protection has been activated.	Change another pack; lower down the cutoff voltage or disable the LVC protection (we do not recommend this).

Multiple Protections

1. Start-up Protection:
The ESC will monitor the motor speed during the start-up process. When the speed stops increasing or the speed increase is not stable, the ESC will take it as a start-up failure. At that time, if the throttle amount is less than 15%, the ESC will try to restart automatically; if it is larger than 20%, you need to move the throttle stick back to the bottom position first and then restart the ESC. (Possible causes of this problem: poor connection/ disconnection between the ESC and motor wires, propellers are blocked, etc.)

2. ESC Thermal Protection:
The ESC will gradually reduce the output but won't cut it off when the ESC temperature goes above 110°C. For ensuring the motor can still get some power and won't cause crashes, so the maximum reduction is about 50% of the full power. The ESC will gradually resume its maximum power after the temperature lowers down. In addition, the ESC temperature cannot exceed 70°C when it's powered on. Otherwise, it cannot be started up. (Here we are describing the ESC's reaction in soft cutoff mode, while if in hard cutoff mode; it will immediately cut off the power.)

3. Throttle Signal Loss Protection:
When the ESC detects loss of signal for over 0.25 second, it will cut off the output immediately to avoid an even greater loss which may be caused by the continuous high-speed rotation of propellers or rotor blades. The ESC will resume the corresponding output after normal signals are received.

4. Overload Protection:
The ESC will cut off the power/output or automatically restart itself when the load suddenly increases to a very high value. (Possible cause to sudden load increase is that propellers are blocked.)

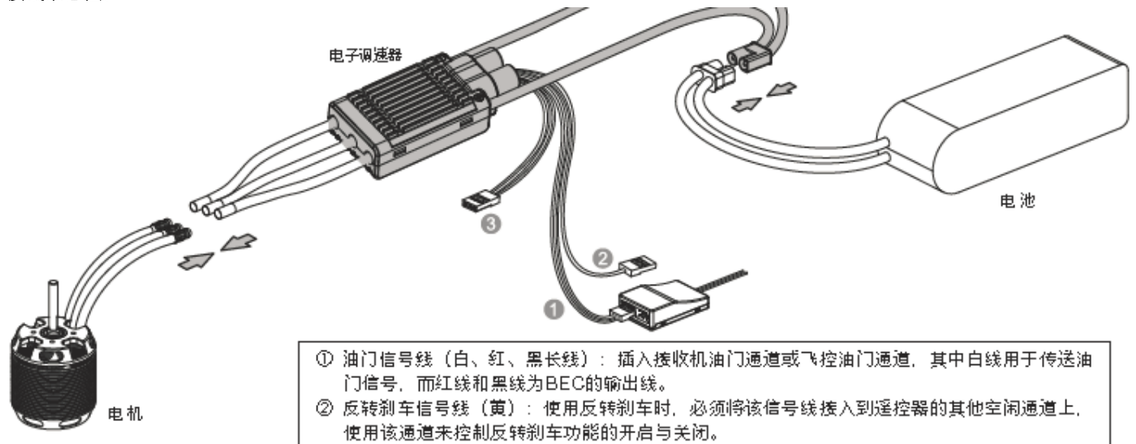
5. Over-current Protection:
The ESC will cut off the power when the current gets close to the short circuit current. This protection may be activated by the burnt motor or some others.

01 产品规格

型号	持续电流	瞬时电流	输入电压	BEC
120A ESC	120A	140A	3-8 节锂电池	开关稳压 BEC，5.2V/6V/7.4V 三挡可调；输出电流持续 8A，瞬间 20A

02 使用向导

一、接线示意图：



① 油门信号线（白、红、黑长线）：插入接收机油门通道或飞控油门通道，其中白线用于传送油门信号，而红线和黑线为BEC的输出线。
② 反转刹车信号线（黄）：使用反转刹车时，必须将该信号线接入到遥控器的其他空闲通道上，使用该通道来控制反转刹车功能的开启与关闭。
③ 编程线（白，红，黑短线）：连接LED编程设置盒进行参数设置。

油门信号线（白、红、黑长线）：插入接收机油门通道或飞控油门通道，其中白线用于传送油门信号，而红线和黑线为 BEC 的输出线。
反转刹车（反推）信号线（黄）：使用反转刹车时，必须将该信号线接入到遥控器的其他空闲通道上，使用该通道来控制反转刹车功能的开启与关闭。
编程线（白，红，黑短线）：连接 LED 编程设置盒进行参数设置。

二、油门行程校准操作方法：

开启遥控器，将油门打到最高点 → 电调接上电池，马达鸣叫“♪123”提示音，表示上电正常 → 随后马达发出“哔-哔-”双短鸣音，表示油门最高点校准成功 → 5 秒钟之内将油门摇杆推到最低，等待 1 秒，油门最低点校准成功 → 马达发出 N 声短鸣音“哔-”，表示锂电节数 → 马达发出一声长鸣音“哔——”，表示系统准备就绪，可随时起飞

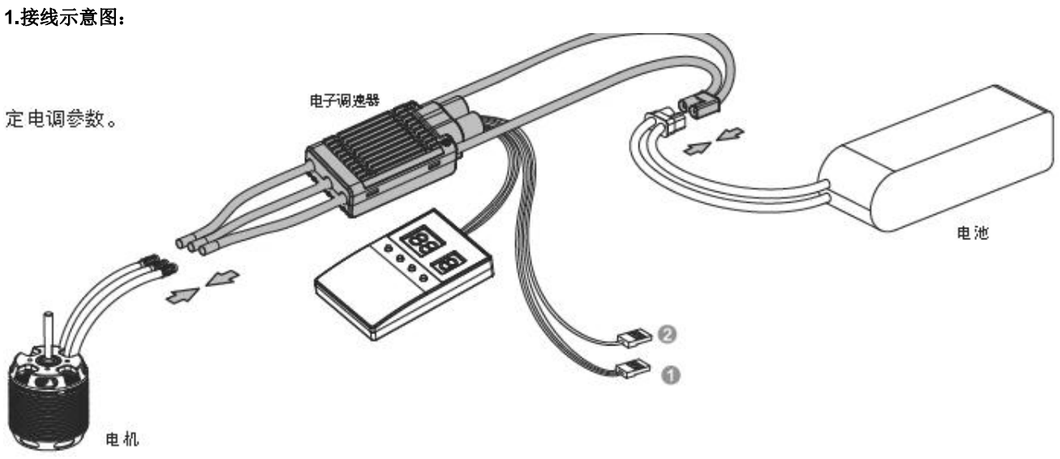
三、正常开机过程：

开启遥控器，将油门摇杆打到最低点 → 电调接上电池，鸣叫“♪123”提示音，表示上电正常 → 马达发出 N 声短鸣音“哔-”，表示锂电节数 → 马达发出一声长鸣音“哔——”，表示系统准备就绪，随时可以起飞

03 参数设定方法

电调参数设定方法有两种：
1）通过 LED 参数设定盒进行参数设定；2）通过遥控器进行参数设定。
一、通过 LED 参数设定盒进行参数设定：
1.接线示意图：

定电调参数。



三、选择参数值：

马达会循环鸣叫，在鸣叫某个提示音后将油门摇杆打到最高点，则选择该提示音所对应的参数值，接着鸣叫特殊提示音“ı5ı5”，表示该参数值已被保存。退回第二步选择参数项目，再选择其它参数项目。

参数项目 \ 参数值（提示音）		1 “哔”	2 “哔-哔-”	3 “哔-哔-哔-”	4 “哔-哔-哔-哔-”	5 “哔——”	6 “哔——哔-”	7 “哔——哔-哔-”	8 “哔——哔-哔-哔-”
1	**刹车类型**	无刹车	普通刹车	比例刹车	反转刹车				
2	**刹车力度**	关闭	1 级	2 级	3 级	4 级	5 级	6 级	7 级
3	**低压保护模式**	软关断	硬关断						
4	**锂电节数**	自动计算	3 节	4 节	5 节	6 节	8 节		
5	**低压保护阀值**	关闭	2.8V	3.0V	3.2V	3.4V	3.6V	3.8V	
6	**BEC 输出电压**	5.2V	6.0V	7.4V					
7	**启动模式**	普通	柔和	超柔和					
8	**进角**	0°	5°	8°	12°	15°	20°	25°	30 °
9	**电机转向**	正转	反转						
10	**同步整流开关**	开	关						

四、退出设定

当电机鸣叫出 12.“哔——哔——哔-哔-”（即第 12 个设定项）两长音后，3 秒内将油门打到最低点，则退出设定。马达发出 N 声短鸣音“哔-”，表示锂电节数，随后马达发出一声长鸣音“哔——”，表示系统准备就绪。

04 可编程参数

参数项目 \ 参数值		1	2	3	4	5	6	7	8
1	**刹车类型**	无刹车	普通刹车	比例刹车	反推				
2	**刹车力度**	关闭	1 级	2 级	3 级	4 级	5 级	6 级	7 级
3	**低压保护模式**	软关断	硬关断						
4	**锂电节数**	自动计算	3 节	4 节	5 节	6 节	8 节		
5	**低压保护阀值**	关闭	2.8V	3.0V	3.2V	3.4V	3.6V	3.8V	
6	**BEC 输出电压**	5.2V	6.0V	7.4V					
7	**启动模式**	普通	柔和	超柔和					
8	**进角**	0°	5°	8°	12°	15°	20°	25°	30 °
9	**电机转向**	正转	反转						
10	**同步整流开关**	开	关						

可编程参数说明：

1. **刹车类型：**
   1）普通刹车：油门归零以后，触发刹车，刹车力度为设定的刹车力度；
   2）比例刹车：遥控器上的油门行程 20% - 100%对应电调油门输出 0%-100%，遥控器上的油门行程 20%-0%对应刹车力度 0-100%；
   3）反推：开启次功能后，须将反推信号线（信号范围和油门行程一致）插入到接收机的一个空闲通道上，通过该通道控制电机正反转，通道行程 0-50%为电机默认设置转向，通道行程 50%-100%触发电机反转。初次上电该通道摇杆所处位置必须在该通道行程 0-50%范围内（最好为 0）。触发反转时，电机先刹停，再反转加速至油门摇杆输出的油门量。若开启此功能后，不接反推信号线，则此功能将不启用。
2. **刹车力度：**
   1-7 级,等级越高刹车力度越大（即螺旋桨由旋转到停止的时间越短）；该功能仅在普通刹车模式下有效。
3. **低压保护模式：**
   软关断：触发低压保护后 3 秒内输出功率将逐渐降低为总功率的 50%；
   硬关断：立即断开输出。
4. **锂电节数：**

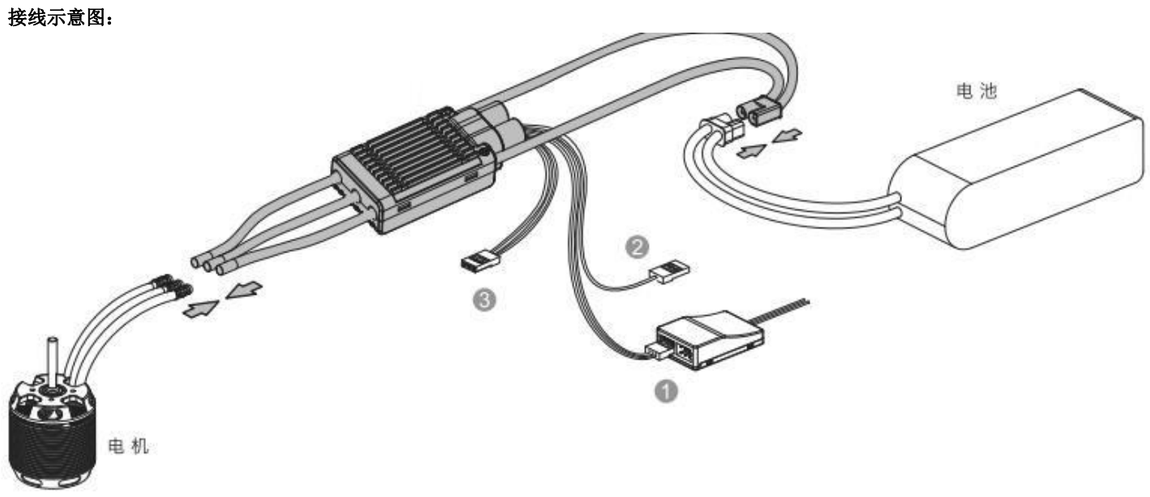
1）将电调编程线连接至 LED 参数设定盒编程线接入口。
2）电调上电（已通电的需断开电源重新上电），电调进入参数设置模式，读取、设定电调参数。

2.参数设定方法：
1）电调和 LED 参数设置盒连接后，给电调接上电源，数秒后该电调的各项参数即可显示出来。
2）选择 LED 参数设置盒上的“ITEM”键可选择编程项目；
3）选择“VALUE”按键设置该编程项目下的参数值；
4）按“OK”键保存新参数到电调内部。

注意：更改任意参数设定值后，电调均需重新上电，新的参数设定值才可生效。

二、通过遥控器进行参数设定：

1，接线示意图：



2.参数设定方法：

使用遥控器油门摇杆设定参数分为四个步骤：

进入编程→选择参数项目→选择该参数项目下的参数值→退出

一、 进入编程模式：

开启遥控器，将油门打到最高，电调接上电池，等待2秒，鸣叫“哔-哔-”提示音，再等待5秒，会鸣叫“ 56712 ”特殊提示音,表示已经进入编程模式。

二、选择参数项目：

进入编程设定后，会听到12种鸣叫音，按如下顺序循环鸣叫，在鸣叫某个提示音后，3秒内将油门打到最低，则进入该设定项。

1.“哔”	刹车类型	（1短音）	7. “哔——哔-哔-”	启动模式	（1长2短音）
2.“哔-哔-”	刹车力度	（2短音）	8. “哔——哔-哔-哔-”	进角	（1长3短音）
3.“哔-哔-哔-”	低压保护模式	（3短音）	9. “哔——哔-哔-哔-哔-”	电机转向	（1长4短音）
4.“哔-哔-哔-哔-”	锂电池节数	（4短音）	10.“哔——哔——”	同步整流开关	（2长音）
5.“哔——”	低压保护阈值	（1长音）	11.“哔——哔——哔-”	恢复出厂默认值	（2长1短音）
6.“哔——哔-”	BEC输出电压	（1长1短音）	12.“哔——哔——哔-哔-”	退出	（2长2短音）

注：一长音“哔——”相当于5声短音“哔-”，所以在第二步“选择设定项”中，一长一短“哔——哔-”表示第6选项。

三、选择参数值：

马达会循环鸣叫，在鸣叫某个提示音后将油门摇杆打到最高点，则选择该提示音所对应的参数值，接着鸣叫特殊提示音“ı5ı5”，表示该参数值已被保存。退回第二步选择参数项目，再选择其它参数项目。

参数项目 \ 参数值（提示音）		1 “哔”	2 “哔-哔-”	3 “哔-哔-哔-”	4 “哔-哔-哔-哔-”	5 “哔——”	6 “哔——哔-”	7 “哔——哔-哔-”	8 “哔——哔-哔-哔-”
1	**刹车类型**	无刹车	普通刹车	比例刹车	反转刹车				
2	**刹车力度**	关闭	1 级	2 级	3 级	4 级	5 级	6 级	7 级
3	**低压保护模式**	软关断	硬关断						
4	**锂电节数**	自动计算	3 节	4 节	5 节	6 节	8 节		
5	**低压保护阀值**	关闭	2.8V	3.0V	3.2V	3.4V	3.6V	3.8V	
6	**BEC 输出电压**	5.2V	6.0V	7.4V					
7	**启动模式**	普通	柔和	超柔和					
8	**进角**	0°	5°	8°	12°	15°	20°	25°	30 °
9	**电机转向**	正转	反转						
10	**同步整流开关**	开	关						

四、退出设定

当电机鸣叫出 12.“哔——哔——哔-哔-”（即第 12 个设定项）两长音后，3 秒内将油门打到最低点，则退出设定。马达发出 N 声短鸣音“哔-”，表示锂电节数，随后马达发出一声长鸣音“哔——”，表示系统准备就绪。

选择自动计算，将按单节电池 3.7V 计算电池节数，也可手动设置电池节数。

5. **低压保护阈值：**
   设置关闭则低电压保护关闭，其他 6 级为低压保护模式的保护电压值，该值为单节电池的电压。
6. **BEC 输出电压：**
   5.2V，6.0V，7.4V 三档可调。
7. **启动模式：**
   普通：推动油门摇杆以后电机会立即启动并快速达到相应的油门值；
   柔和：推动油门摇杆以后电机会先缓慢启动然后再快速达到相应的油门值；
   超柔和：推动油门摇杆以后电机将会以比柔和模式更慢的速度启动，然后再快速达到相应的油门值；

   使用较大尺寸的电机或者涵道电机时建议使用柔和或者超柔和启动模式。
8. **进角：**
   可以调节驱动电机的进角值，8 级可调。
9. **电机转向：**
   正转\反转，连接设定盒更改该项参数可改变电机转向。
10. **同步整流：**
    固定为开启，开启同步整流将带来更好的油门线性。

05 故障及保护功能说明

一、故障处理：

故障描述	提示音	说明	解决办法
电调通电以后不工作，鸣叫报警	“哔哔，哔哔，哔哔，哔哔，……”	输入的电压不在电调的工作电压之内。	调节通电电压至电调的工作电压范围内
电调通电以后不工作，鸣叫报警	“哔，-，哔，-，哔，-，哔，……”	油门信号丢失。	接入油门信号
电调通电以后不工作，鸣叫报警	“哔，哔，哔，哔，……”	油门摇杆没有归零。	油门摇杆归零，进行油门行程校准
进行油门行程校准后，电调不工作，鸣叫报警	“哔，哔，哔，哔，……”	所设定油门总行程过窄（电调设计时，要求油门总行程不得小于三格油门）,本次行程设定无效。	重新进行油门行程校准
飞行过程中电调输出功率突然下降至 50%，停止飞行后不断电情况下，鸣叫报警	“哔哔，哔哔，哔哔，哔哔，……”或“哔哔哔哔，哔哔哔哔，……”	触发电调温度保护。	改善散热（添加散热风扇），降低电调负载
飞行过程中电调输出功率突然下降至 50%，停止飞行后不断电情况下，鸣叫报警	“哔哔哔，哔哔哔，哔哔哔，……”	触发电调低压保护。	更换电池 降低低压保护阈值或关闭低压保护（不推荐）

二、保护功能说明：

1. **启动保护：**
   启动过程中，电调会检测电机转速，当转速出现停止上升或者转速提升不稳定的情况，则判断启动失败，若此时油门小于 15%，电调会自动尝试重新启动；若此时油门大于 20%，需将油门归零后重新启动。（出现这种情况的原因可能有：电调和马达连线接触不良或有个别输出线断开、螺旋桨被其他物体阻挡、减速齿卡死等）
2. **温度保护：**
   当电调工作温度超过 110 摄氏度时，电调会逐渐降低输出功率进行保护，但不会将输出功率全部关闭，最多只降到全功率的 50%，以保证马达仍有动力，避免因动力不足而摔机。温度下降后，电调会逐渐恢复最大动力；上电时电调温度不可超过 70 度，否则无法启动。
3. **油门信号丢失保护：**
   当电调检测到油门遥控信号丢失 0.25 秒以上即立即关闭输出，以免因螺旋桨继续高速转动而造成更大的损失。信号恢复后，电调也随即恢复相应的功率输出。
4. **过负荷保护：**
   当负载突然变得极大时，电调会切断动力，或自动重启动。（出现负载急剧增大的原因通常是螺旋桨堵转）
5. **电流保护：**
   瞬间电流超过规定值以后，电调会立即切断输出。（出现这种情况的原因可能有：马达连线短路或负载过重。）