

感谢您购买本产品！无刷动力系统功率强大，错误的使用可能造成人身伤害和设备损坏。为此我们强烈建议您在使用设备前仔细阅读本说明书，并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。

产品特点

- ◆ 采用超低阻抗 PCB（印刷线路板），具有极强的耐电流能力。
- ◆ 具备输入电压异常/电池低电压保护/过热保护/油门信号丢失保护等多重保护功能，有效延长电调使用寿命。
- ◆ 具有普通启动/柔和启动/超柔和启动三种启动模式，兼容固定翼飞机及直升机。
- ◆ 可设定油门行程，兼容市面上所有遥控器。具备平滑、细腻的调速手感，一流的调速线性。
- ◆ 微处理器采用独立的稳压 IC 供电，而不是从 BEC 输出取电（6A 和 10A 电调例外），具有更好的抗干扰能力，大大降低失控的可能性。
- ◆ 最高转速可以达到 21000 RPM（2 极马达）、70000 RPM（6 极马达）、35000 RPM（12 极马达）。
- ◆ 可配合编程设定卡（注：选配件）使用，编程卡具有简单直观的界面，便于您随时随地修改各项编程参数。（详见设定卡说明书）
- ◆ 配合编程设定卡，您可以从 15 首乐曲中任选一首写入电子调速器，使电调具有开机奏乐功能，炫出您的个性。

模型飞机用无刷电机电子调速器产品规格

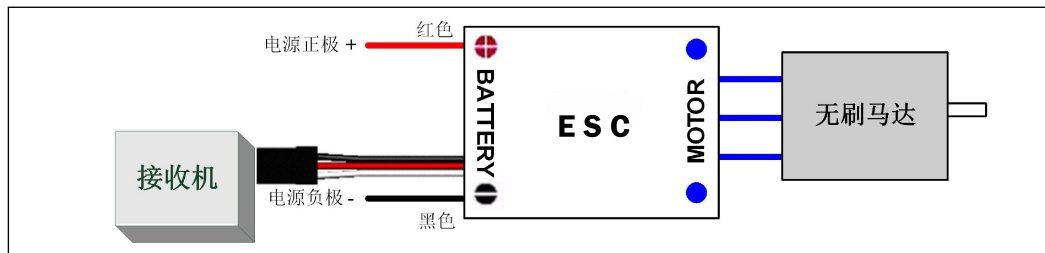
飞腾系列 FLYFUN Series										
电流级别	型号	持续输出电流	瞬时电流 (10秒)	BEC类型	BEC输出	电池节数		参数编程功能	重量	体积
						锂电	镍镉镍氢			
6A	FLYFUN-6A	6A	8A	线性模式	5V/0.8A	2	5-6	有	5.5g	32*12*4.5
10A	FLYFUN-10A	10A	12A	线性模式	5V/1A	2-4	5-12	有	9.5g	38*18*6
12A	FLYFUN-12A	12A	15A	线性模式	5V/2A	2-4	5-12	有	10g	38*18*7
18A	FLYFUN-18A	18A	22A	线性模式	5V/2A	2-4	5-12	有	19g	48*22.5*6
30A	FLYFUN-30A	30A	40A	线性模式	5V/2A	2-4	5-12	有	26g	55*25*9
40A	FLYFUN-40A	40A	55A	开关模式	5V/5A	2-6	5-18	有	39g	60*24*15
	FLYFUN-40A-OPTO	40A	55A	无	无	2-6	5-18	有	35g	60*28*12
60A	FLYFUN-60A	60A	80A	开关模式	5V/3A	2-6	5-18	有	63g	83*31*16
	FLYFUN-60A-OPTO	60A	80A	无	无	2-6	5-18	有	60g	83*31*14
80A	FLYFUN-80A	80A	100A	开关模式	5V/3A	2-6	5-18	有	72g	83*31*16
	FLYFUN-80A-OPTO	80A	100A	无	无	2-6	5-18	有	69g	83*31*14
100A	FLYFUN-100A	100A	120A	开关模式	5V/3A	2-6	5-18	有	76g	83*31*16
	FLYFUN-100A-OPTO	100A	120A	无	无	2-6	5-18	有	73g	83*31*14

BEC 驱动能力

BEC 驱动能力	线性模式 BEC (5V/2A)				开关模式 BEC (5V/3A)		开关模式 BEC (5V/5A)	
	2节锂电	3节锂电	4节锂电	5节锂电	2-4节锂电	5节锂电	2-3节锂电	4-6节锂电
最多可驱动的舵机数量	5	4	3	2	5	4	8	6

对于后缀为“OPTO”的电调或者说明书上指明无内置 BEC 的电调，在使用时需要为接收机配备单独的电源，或者使用 UBEC 为接收机供电。另外，当使用编程设定卡对这类电调进行参数设置时，也需要使用一个单独的电源为设定卡供电，详见设定卡说明书。

接线示意图



产品功能简要说明

- 刹车设定：**无刹车/有刹车，出厂默认值为无刹车。
- 电池类型：**Li-xx（锂电池）/ Ni-xx（镍镉或镍氢）两大类电池，默认值为 Li-xx（锂电池）。
- 低压保护模式：**逐渐降低功率/立即关闭输出，默认值为逐渐降低功率。
（注：低压保护过程中电压恢复到比低压保护阈值高一定量后可以退出低压保护模式。低压保护关闭油门输出后，归零油门再重新启动可再次驱动马达，但因为仍处于低压状况所以功率输出不会太大）。
- 低压保护阈值：**低/中/高，默认值为中截止电压。
 - 当设定使用的是 Li-xx 电池，则自动判断锂电节数，低/中/高情况下每节电池的截止电压分别为：2.85V/3.15V/3.3V。例如使用 3 节锂电，设定为中截止电压，则低压保护阈值为：3.15*3=9.45V。
 - 当设定使用的是 Ni-xx 电池，低/中/高情况下截止电压为开机时输入电压的 0%/50%/65%。0%意味着不进行低压保护。例如：使用 6 节镍氢电池，充满时电压为 1.44*6=8.64V，当设定为中截止电压时，则截止电压阈值为：8.64*50%=4.3V。
- 启动模式：**普通/柔和/超柔和启动，启动时间分别为 300ms/6s/12s。默认值为普通启动。
普通启动适用于固定翼，柔和启动/超柔和启动适用于直升机。柔和启动和超柔和启动的初始转速都较低，从启动到全速分别需要 6 秒和 12 秒，但启动后若关闭油门，3 秒内再次启动时则均以普通模式启动，以免在做一些特技飞行动作时因反应过慢而导致摔机。

- 进角：**低/中/高，分别为 3.75 度/15 度/26.25 度。默认值为低进角。
一般情况下，低进角可以适应较多的马达。但是因为马达结构差异很大，请试用各个进角以获得满意的驱动效果。为提高转速，可以将进角设为高进角。改变进角后，建议先在地面进行测试，然后再飞行。

首次使用您的无刷电子调速器

在使用全新的无刷电子调速器之前请您仔细检查各个连接是否正确、可靠（此时请勿连接电池）。经检查一切正常后，请按**以下顺序**启动无刷电子调速器。

- 将遥控器油门摇杆推至最低位置，接通遥控器电源；
- 将电池组接上无刷电子调速器，调速器开始自检，电机发出“♪123”上电提示音后，接着发出 n 声短促的“啵”鸣音表示锂电池节数，然后电机发出一声“啵——”长鸣音表示自检正常，系统准备就绪，等待您推动油门启动电机。
 - ◆ 若无任何反应，请检查电池是否完好，电池连线是否可靠。
 - ◆ 若上电后 2 秒电机发出“啵—啵—”的鸣音，5 秒后又发出“567i2”特殊提示音，表示电调进入编程设定模式，这说明您的遥控器未设置好，油门通道反向，请参考遥控器说明书正确设置油门通道的“正/反”向。
 - ◆ 若上电后电机发出“啵-啵-、啵-啵-、啵-啵-”鸣音（间隔 1 秒），表示电池组电压过低或过高，请检查电池组电压。
- ！特别强调！**为了让电调适应您的遥控器油门行程，在首次使用本电调或更换其他遥控器使用时，均应重新设定油门行程，以获得最佳的油门线性。具体操作请参阅第 2 页的说明。

警示音说明

- 电压不正常警示音：电调开机时，会对电源电压进行检测，当电源电压不在正常范围内时，电调会作如下警示：“啵-啵-、啵-啵-、啵-啵-”（每两声之间的间隔时间为 1 秒），直到电源电压正常为止；
- 油门信号丢失警示音：当电调未检测到油门信号时，电调会作如下警示：“啵-、啵-、啵-”（每声之间的间隔为 2 秒）；
- 油门未归零（油门摇杆未置于最低位置）警示音：当油门未打到最低时，电调会作如下警示：“啵-啵-啵-啵-啵-”（很急促的单音鸣叫）；
- 油门行程过小警示音：当所设定油门行程过窄时，电调会做警示，表明本次行程设定无效，需重新设定。警示方式为：“啵-啵-啵-啵-啵-”（很急促的单音鸣叫）；

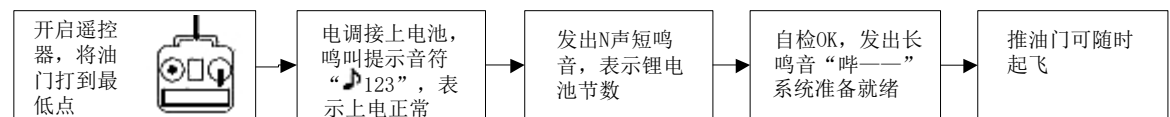
其他保护功能说明

- 启动保护：当推油门启动后，如在两秒内未能正常启动电机，电调将会关闭电机，油门需再次置于最低点后，才可以重新启动。（出现这种情况的原因可能有：电调和电机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）
- 温度保护：当电调内部温度超过 110 摄氏度时，电调会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 40%，以保证电机仍有动力，避免摔机。温度下降后，电调会逐渐恢复最大动力。
- 油门信号丢失保护：当检测到油门遥控信号丢失 1 秒后，电调开始降低输出功率，如果信号始终无法恢复，则一直降到零输出（降功率过程为 2 秒）。如果在降功率的过程中油门遥控信号重新恢复，则立即恢复油门控制，这样做的好处是：在油门信号瞬间丢失的情况下（小于 1 秒），电调并不会进行断电保护；如果遥控信号确实长时间丢失，则进行保护，但不是立即关闭输出，而是有一个逐步降低输出功率的过程，给玩家留有一定的时间救机，兼顾安全性和实用性。
- 过负荷保护：当负载突然变得很大时，电调会切断动力，或自动重启。出现负载急剧增大的原因通常是马达堵转。

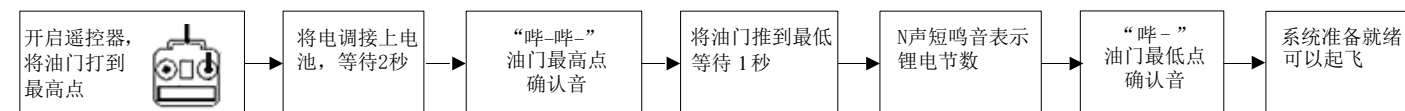
故障快速处理

故障现象	可能原因	解决方法
上电后电机无法启动，无任何声音	电源接头接触不良	重新插好接头或更换接头
上电后电机无法启动，发出“啵-啵-、啵-啵-、啵-啵-”警示音（每两声之间的间隔时间为 1 秒）	电池组电压不正常	检查电池组电压
上电后电机无法启动，发出“啵-、啵-、啵-”警示音（每声之间的间隔时间为 2 秒）	接收机油门通道无油门信号输出	检查发射机和接收机的配合是否正常，油门控制通道接线是否插紧
上电后电机无法启动，发出“啵、啵、啵、啵、啵”急促单音	油门未归零或油门行程设置过小	将油门摇杆置于最低位置；重新设置油门行程
上电后电机无法启动，发出“啵-啵-”提示音，然后发出“567i2”特殊提示音	油门通道“正/反”向错误	参考遥控器说明书，调整油门通道的“正/反”向设置
电机反转	电调输出线和电机线连接的线序错误	将三根输出线中的任意两根对调
电机转动中途停转	油门信号丢失保护	检查遥控器和接收机的配合是否正常，检查油门通道接线是否接触良好
	电池电压不足，进入低压保护状态	重新给电池充满电
	接线接触不良	检查电池组插头是否正常、电调输出线和电机线连接是否稳固可靠

正常使用开机过程说明



油门行程设定说明（注意！当第一次使用或电调搭配其他遥控器使用时，均应重新设定油门行程，其他时候则不用）



使用遥控器编程设定说明

使用遥控器油门摇杆设定参数分为四个步骤：

- 一. 进入编程
- 二. 选择设定项
- 三. 选择设定项下的参数值
- 四. 退出

一、进入编程模式：

1. 开启遥控器，将油门打到最高，电调接上电池
2. 等待2秒，鸣叫“哔-哔-”提示音
3. 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、选择设定项：

进入编程设定后，会听到8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	(1短音)
2. “哔-哔-”	电池类型	(2短音)
3. “哔-哔-哔-”	低压保护方式	(3短音)
4. “哔-哔-哔-哔-”	低压保护阈值	(4短音)
5. “哔——”	启动模式	(1长音)
6. “哔——哔-”	进角	(1长1短)
7. “哔——哔-哔-”	恢复出厂默认值	(1长2短)
8. “哔——哔——”	退出	(2长音)

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设定值，接着鸣叫特殊提示音“isis”，表示该参数值已被保存。（此时如果不想再设定其它选项，则在2秒内将油门打到最低，即可快速退出编程设定模式；如果还要设定其它选项，则继续等待，退回第二步骤，再选择其它设定项）

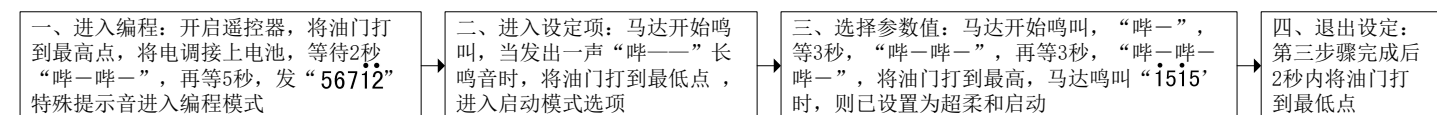
提示音	“哔-” 1声	“哔-哔-” 2声	“哔-哔-哔-” 3声
刹车	无刹车	有刹车	
电池类型	锂电池	镍镉/镍氢电池	
低压保护方式	逐渐降低功率	立即关闭动力	
低压保护阈值	低	中	高
启动模式	普通启动	柔和启动	超柔和启动
进角	低	中	高

四、退出设定

有如下两种方式退出设定。

1. 在第三步骤，选择设定值时，鸣叫特殊提示音“isis”后，2秒内将油门打到最低点，则退出设定。
2. 在第二步骤，选择设定项时，当电机鸣叫出“哔——哔——”（即第8个设定项）两长音后，3秒内将油门打到最低点，则退出设定。

编程设定示例（例如将启动模式设成“超柔和启动”，即第5设定项的第3个参数值）



Thanks for purchasing our Electronic Speed Controller (ESC). High power system for RC model can be very dangerous, so we strongly suggest you 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 or malfunctioning etc. will be denied. We assume no liability for personal injury, property damage or 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

- ◆ Extreme low output resistance, super current endurance.
- ◆ Multiple protection features: Low voltage cut-off protection / over-heat protection / throttle signal loss protection.
- ◆ 3 start modes: Normal / Soft / Super-Soft, compatible with fixed-wing aircraft and helicopter.
- ◆ Throttle range can be configured to be compatible with all transmitters.
- ◆ Smooth, linear and precise throttle response.
- ◆ Separate voltage regulator IC for microprocessor (except FLYFUN-6A and FLYFUN-10A) with good anti-jamming capability.
- ◆ Maximum speed: 210000 RPM (2 poles motor), 70000 RPM (6 poles motor), 35000 RPM (12 poles motor).
- ◆ The pocket-sized **Program Card** can be purchased separately for easily programming the ESC at flying field.
- ◆ With a program card, user can activate the music playing function of the ESC, and totally there are 15 rhythms can be selected.

Specifications

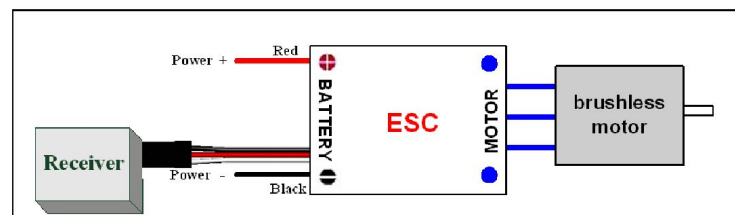
Fentium Series										
Class	Model	Cont. Current	Burst Current (>10s)	BEC Mode (Note1)	BEC Output	Battery Cell		User Programm-able	Weight	Size
						Lipo	NiMH NiCd			L*W*H
6A	FLYFUN-6A	6A	8A	Linear	5V/0.8A	2	5-6	Available	5.5g	32*12*4.5
10A	FLYFUN-10A	10A	12A	Linear	5V/1A	2-4	5-12	Available	9.5g	38*18*6
12A	FLYFUN-12A	12A	15A	Linear	5V/2A	2-4	5-12	Available	10g	38*18*7
18A	FLYFUN-18A	18A	22A	Linear	5V/2A	2-4	5-12	Available	19g	48*22.5*6
25A	FLYFUN-25A	25A	35A	Linear	5V/2A	2-4	5-12	Available	24g	55*25*9
30A	FLYFUN-30A	30A	40A	Linear	5V/2A	2-4	5-12	Available	26g	55*25*9
40A	FLYFUN-40A	40A	55A	Switch	5V/5A	2-6	5-18	Available	39g	60*24*15
	FLYFUN-40A-OPTO	40A	55A	N/A	N/A	2-6	5-18	Available	35g	60*28*12
60A	FLYFUN-60A	60A	80A	Switch	5V/3A	2-6	5-18	Available	63g	83*31*16
	FLYFUN-60A-OPTO	60A	80A	N/A	N/A	2-6	5-18	Available	60g	83*31*14
80A	FLYFUN-80A	80A	100A	Switch	5V/3A	2-6	5-18	Available	72g	83*31*16
	FLYFUN-80A-OPTO	80A	100A	N/A	N/A	2-6	5-18	Available	69g	83*31*14
100A	FLYFUN-100A	100A	120A	Switch	5V/3A	2-6	5-18	Available	76g	83*31*16
	FLYFUN-100A-OPTO	100A	120A	N/A	N/A	2-6	5-18	Available	73g	83*31*14

BEC Output Capability	Linear Mode BEC(5V/2A)				Switch Mode BEC(5V/3A)		Switch Mode BEC(5V/5A)	
	2S Lipo	3S Lipo	4S Lipo	5S Lipo	2S - 4S Lipo	5S-6S Lipo	2S - 3S Lipo	4S-6S Lipo
Standard micro servos(Max.)	5	4	3	2	5	4	8	6

Note1: BEC means the "Battery Elimination Circuit". It is a DC-DC voltage regulator to supply the receiver and other equipments from the main battery pack. With the build-in BEC, the receiver needn't to be supplied with an additional battery pack.

IMPORTANT! The ESC named "xxx-xxx-OPTO" hasn't a built-in BEC, an UBEC (Ultimate-BEC) or an individual battery pack should be used to supply the receiver. And an individual battery pack is needed to power the program card when programming such ESCs, please read the user manual of the Program Card for detail information.

Wiring Diagram



Programmable Items

- 1. Brake Setting:** Enabled / Disabled, default is Disabled
- 2. Battery Type:** Li-xx(Li-ion or Lipo) / Ni-xx(NiMH or NiCd), default is Li-xx.
- 3. Low Voltage Protection Mode(Cut-Off Mode):** Soft Cut-Off (Gradually reduce the output power) or Cut-Off (Immediately stop the output power). Default is Soft Cut-Off.
- 4. Low Voltage Protection Threshold(Cut-Off Threshold):** Low / Medium / High, default is Medium.
 - 1) For lithium batteries, the cells quantity of a battery pack is calculated automatically. Low / medium / high cutoff voltage for each cell is: 2.85V / 3.15V / 3.3V. For example: For a 3 cells lithium pack, when "Medium" cutoff threshold is set, the cut-off voltage of this battery pack will be: 3.15*3=9.45V.
 - 2) For nickel batteries, low / medium / high cutoff voltages are 0%/50%/65% of the startup voltage (it means the initial voltage of a charged battery pack), and 0% means the low voltage cut-off function is disabled. For example: For a 10 cells NiMH battery, fully charged voltage is 1.44*10=14.4V, when "Medium" cut-off threshold is chosen, the cut-off voltage will be: 14.4*50%=7.2V.

- 5. Startup Mode:** Normal /Soft /Super-Soft ,(300ms / 6s /12s),default is Normal. Normal is preferred for fixed-wing aircraft. Soft or Super-soft are preferred for helicopters. The acceleration of the Soft and Super-Soft modes are slower in comparison, usually taking 6 seconds for Soft startup or 12 seconds for Super-Soft startup from zero throttle advance to full throttle. If the throttle is closed (throttle stick moved to the bottom position, zero throttle) and opened again (throttle stick moved upward) within 3 seconds after the initial startup, the restart-up will be temporarily changed to normal mode to get rid of the chances of a crash caused by slow throttle response. This special design is suitable for aerobatic flight when quick throttle response is needed.
- 6. Timing:** Low / Medium / High,(3.75° /15° /26.25°),default is Low. *Note2* Usually, low timing or medium timing is suitable for most motors. In order to get higher speed and bigger output power, please choose High timing. **Note2:** After changing the timing setting, please test your RC model on ground before taking off!

Begin To Use Your New ESC

Note3: In the following instructions, we use the words of "Top position" and "Bottom position" to indicate the location of the throttle stick.

Top Position: The throttle value is 100% at this position.

Bottom Position: The throttle value is 0% at this position.

Please start the ESC in the following sequences:

1. Move throttle stick to the bottom position (zero throttle) and then switch on the transmitter.
2. Connect battery pack to the ESC, the ESC begins the self-test process, a special tone "♪ 123" emits, means the voltage of the battery pack is in normal range, and then N "beep" tones emits, means the cells quantity of a lithium battery pack. Finally a long "beep-----" tone emits, means the self-test is OK, and the aircraft/helicopter is ready to take off.
 - ◆ If nothing is happened, please check the battery pack and all the connections;
 - ◆ If a special tone "♪ 56712" emits after 2 beep tones ("beep-beep-"), means the ESC has entered the program mode, it is because the throttle channel of your transmitter is reversed, please set it correctly;
 - ◆ If the very rapid "beep-beep-, beep-beep-" tones emits, means the input voltage is too low or too high, please check your battery's voltage.
3. **"VERY IMPORTANT!"** Because different transmitter has different throttle range, please calibrate throttle range before flying. Please read the instruction on page 2-----"Throttle Range Setting".

Alert Tone

1. Input voltage is abnormal: The ESC begins to check the voltage when the battery pack is connected, if the voltage is not in the acceptable range, such an alert tone will be emitted: "beep-beep-, beep-beep-,beep-beep-" (Every "beep-beep-" has a time interval of about 1 second.)
2. Throttle signal is abnormal: When the ESC can't detect the normal throttle signal, such an alert tone will be emitted: "beep-, beep-, beep-". (Every "beep-" has a time interval of about 2 seconds)
3. Throttle stick is not in the bottom position: When the throttle stick is not in bottom (lowest) position, a very rapid alert tone will be emitted: "beep-, beep-, beep-". (Every "beep-" has a time interval of about 0.25 second.)

Protection Function

1. Start up failure protection: If the motor fails to start within 2 seconds, then the ESC will cut-off the output power. In this case, the throttle stick **MUST** be moved to the bottom position (zero throttle) again to restart the motor. (Such a situation happens in the following cases: The connection between ESC and motor is not reliable, the propeller or the motor is blocked, etc.)
2. Over-heat protection: When the temperature of the ESC is over 110 Celsius degrees, the ESC will reduce the output power.
3. Throttle signal loss protection: The ESC will reduce the output power if throttle signal is lost for 1 second, further loss for 2 seconds will cause the output to be cut-off completely.

Program Example

Setting "Start Mode" to "Super-Soft", i.e. option #3 of the programmable item #5

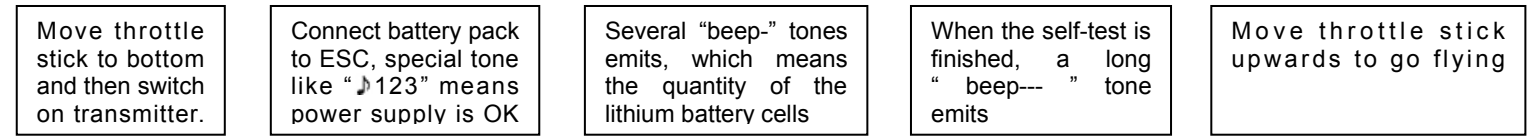
1. Enter Program Mode Switch on transmitter, move throttle stick to top position, connect battery pack to ESC, wait for 2 seconds, "beep-beep" tone should be emitted. Then wait for another 5 seconds, special tone "♪ 56712" emits, which means program mode is entered.
2. Select Programmable Items Now you'll hear 8 tones in a loop. When a long "beep-----" tone emits, move throttle stick to bottom to enter the "Start Mode"
3. Set Item Value (Programmable Options) "Beep-", wait for 3 seconds; "Beep-beep-", wait for another 3 seconds; then you'll hear "beep-beep-beep", move throttle stick to the top position, then a special tone "♪ 1515" emits, that means you have set the "Start Mode" item to the value of "Super-Soft"
4. Exit Program Mode After the special tone "♪ 1515", move throttle stick to bottom within 2 seconds.

Trouble Shooting

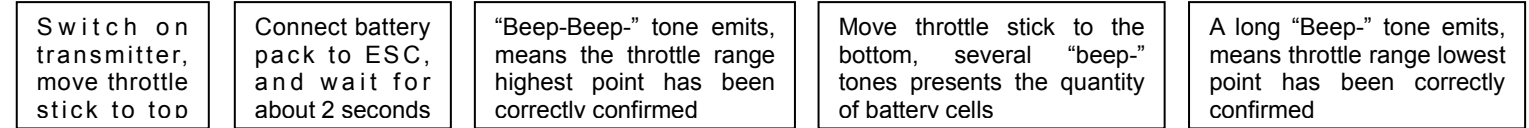
Trouble	Possible Reason	Solution
After power on, motor does not work, no sound is emitted	The connection between battery pack and ESC is not correct	Check the power connection. Replace the connectors.
After power on, motor does not work, such an alert tone emits: "beep-beep-, beep-beep-,beep-beep-" (Every "beep-beep-" has a time interval of about 1 second)	Input voltage is abnormal, too high or too low.	Check the voltage of battery pack
After power on, motor does not work, such an alert tone is emits: "beep-, beep-, beep-"(Every "beep-" has a time interval of about 2 seconds)	Throttle signal is irregular	Check the receiver and transmitter Check the cable of throttle channel

After power on, motor does not work, such an alert tone emits: "beep-, beep-, beep-" (Every "beep-" has a time interval of about 0.25 second)	The throttle stick is not in the bottom (lowest) position	Move the throttle stick to bottom position, and make sure it is Zero throttle at this position.
After power on, motor does not work, a special tone "♪ 567i2" emits after 2 beep tone (beep-beep-)	Direction of the throttle channel is reversed, so the ESC has entered the program mode	Set the direction of throttle channel correctly
The motor runs in the opposite direction	The connection between ESC and the motor need to be changed.	Swap any two wire connections between ESC and motor
The motor stop running while in working state	Throttle signal is lost	Check the receiver and transmitter Check the cable of throttle channel
	ESC has entered Low Voltage Cut-off Protection mode	Land RC model as soon as possible, and then replace the battery pack

Normal startup procedure



Throttle range setting (Throttle range should be reset whenever a new transmitter is being used)



Program the ESC with your transmitter (4 Steps)

1. Enter program mode
2. Select programmable item
3. Set item's value (Programmable option)
4. Exit program mode

1. Enter program mode

- 1) Switch on transmitter, move throttle stick to top, connect the battery pack to ESC
- 2) Wait for 2 seconds, the motor should emit special tone like "beep-beep-"
- 3) Wait for another 5 seconds, special tone like "♪ 567i2" emits, which means program mode is entered

2. Select programmable item

After entering program mode, you will hear 8 tones in a loop with the following sequence. If you move the throttle stick to bottom within 3 seconds after one kind of tones, this item will be selected.

1. "beep" brake (1 short beep)
2. "beep-beep-" battery type (2 short beeps)
3. "beep-beep-beep-" cutoff mode (3 short beeps)
4. "beep-beep-beep-beep-" cutoff threshold (4 short beeps)
5. "beep----" startup mode (1 long beep)
6. "beep----beep-" timing (1 long 1 short)
7. "beep----beep-beep-" set all to default (1 long 2 short)
8. "beep----beep----" exit (2 long beeps)

Note: 1 long "beep----" = 5 short "beep-"

3. Set item value (Programmable option)

You will hear several tones in loop. Set the value matching to a tone by moving throttle stick to the top position when you hear the tone, then a special tone "♪ i5i5" emits, means the value is set and saved. (Keeping the throttle stick at the top position, you will go back to step 2 and you can select other items; Moving the stick to the bottom position within 2 seconds will exit the program mode directly)

Items	Tones		
	"beep-" 1 short tone	"beep-beep-" 2 short tones	"beep-beep-beep-" 3 short tones
Brake	Off	On	
Battery type	Li-ion / Lipo	NiMH / NiCd	
Cutoff mode	Soft-Cut	Cut-Off	
Cutoff threshold	Low	Medium	High
Start mode	Normal	Soft	Super soft
Timing	Low	Medium	High

4. Exit program mode

There are 2 ways to exit program mode:

1. In step 3, after special tone "♪ i5i5", please move the throttle stick to the bottom position within 2 seconds.
2. In step 2, after hearing "beep----beep----" tone (that means the item #8), move the throttle stick to the bottom within 3 seconds.