Class	Model	Cont. Current	Burst Current (>10s)	BEC Type	BEC Output	Battery Cell Li-ion Li-poly	Battery Cell NiMH NiCd	User Weight Programmable	Weight	Size L*W*H
20A	Skynet 20	20A	25A	Linear	5V/2A	2-4	5-12	Available	19g	45*24*11
25A	Skynet -25A	25A	35A	Linear	5V/2A	2-4	5-12	Available	22g	45*24*11
30A	Skynet -30A	30A	40A	Linear	5V/2A	2-4	5-12	Available	25g	45*24*11
45A	Skynet -45A	45A	60 A	Switch	5V/3A	2-6	5-18	Available	60g	70*31*16
60A	Skynet -60A	60A	80A	Switch	5V/3A	2-6	5-18	Available	64g	70*31*16
80A	Skynet -80A	80A	100A	Switch	5V/3A	2-6	5-18	Available	67g	70*31*16
100A	Skynet -100A	100A	120A	N/Switch	N/3A	2-6	5-18	Available	80g	70*31*16

Programmable Items:

1. **Battery Type**：Li-xx(Li-ion or Li-poly) / Ni-xx(NiMH or NiCd)，default is Li-xx.
2. **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.
3. **Low Voltage Protection Threshold(Cut-Off Threshold)**：Low / Medium / High, default is Medium.

1) For lithium batteries, the number of battery cells is calculated automatically. Low / medium / high cutoff voltage for each cell is: 2.6V/2.85V/3.1V. For example: For a 3 cells lithium pack, when “Medium” cutoff threshold is set, the cut-off voltage will be: 2.85*3=8.55V.

2) For nickel batteries, low / medium / high cutoff voltages are 0%/45%/60% of the startup voltage (i.e. the initial voltage of 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 set, the cut-off voltage will be:14.4*45%=6.5V。

4. **Startup Mode**：Normal /Soft /Super-Soft, default is Normal.

Normal is preferred for fixed-wing aircraft. Soft or Super-soft are preferred for helicopters. The initial acceleration of the Soft and Super-Soft modes are slower in comparison, usually taking 1 second for Soft startup or 2 seconds for Super-Soft startup from initial throttle advance to full throttle. If the throttle is closed (throttle stick moved to bottom) and opened again (throttle stick moved to top) within 3 seconds of 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 very suitable for aerobatic flight when quick throttle response is needed.

5. **Timing**：Low / Medium / High, default is Low.

Usually, low timing value can be used for most motors. We recommend the **Low** timing value for 2 poles motor and **Medium** timing value for motors with more than 6 poles to get a high efficiency. For higher speed, **High** timing value can be chosen.

Begin To Use Your New ESC:

1. Move the throttle stick to the bottom position and then switch on the transmitter.
2. Connect the battery pack to the ESC, the ESC begins the self-test process, a special tone “ 123” is emitted, which means the voltage of the battery pack is in normal range, and then N “beep” tones will be emitted, means the number of lithium battery cells. Finally a long “beep------” tone will be emitted, which means self-test is OK, the aircraft/helicopter is ready to go flying.

1) If nothing is happened, please check the battery pack and all the connections;
   If a special tone “ ” is emitted after 2 beep tones (“beep-beep-”), means the ESC has entered the program mode, it is
2) because the throttle channel of your transmitter is reversed, please set it correctly;
3) If the very rapid “beep-beep-, beep-beep-” tones is emitted, means the input voltage is too low or too high, please check your battery’s voltage.

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.)

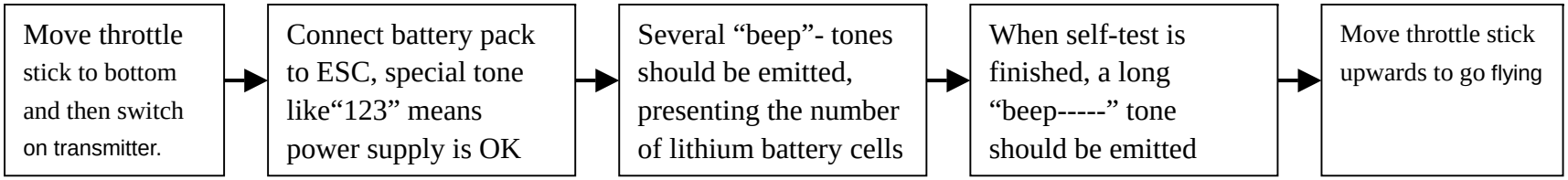
Protection Function:

1. Abnormal start up protection: If the motor fails to start within 2 seconds of applying throttle, the ESC will cut-off the output power. In this case, the throttle stick **MUST** be moved to the bottom 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, the gearbox is damaged, 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 its output to be cut-off completely.

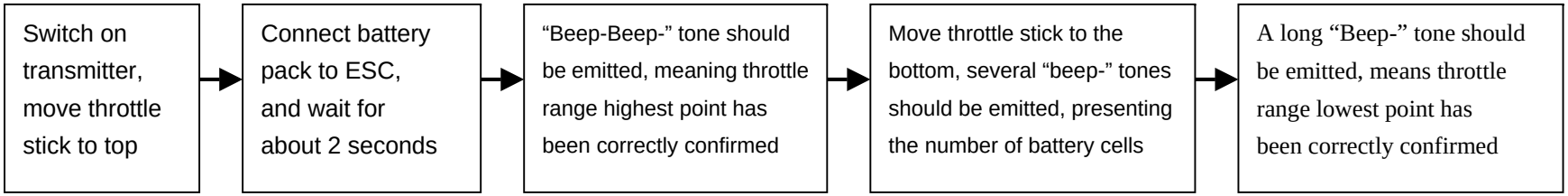
Trouble Shooting:

Trouble	Possible Reason	Action
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 connector.
After power on, motor does not work, such an alert tone is emitted: “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. The balance charge connector is not located properly in BDMP adapter.	Check the voltage of battery pack Check the connection of the balance charge connector and the BDMP adapter
After power on, motor does not work, such an alert tone is emitted: “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 is emitted: “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
After power on, motor does not work, a special tone “ ” is emitted 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 Protection mode	Land RC model as soon as possible, and then replace the battery pack
	Some connections are not reliable	Check all the connections: battery pack connection, throttle signal cable, motor connections, etc.
Random stop or restart or irregular working state	There is strong electro-magnetic interference in flying field.	Reset the ESC to resume normal operation. If the function could not resume, you might need to move to another area to fly.

Normal startup procedure:



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



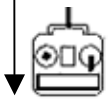
Program the ESC with your transmitter (4 Steps):

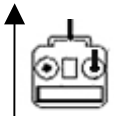
1. Enter program mode
2. Select programmable items
3. Set item's value (Programmable value)
4. Exit program mode

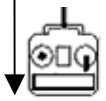
1. Enter program mode
1) Switch on transmitter, move throttle stick to top , connect the battery pack to ESC
2) Wait for 2 seconds, the motor should emit special tone like "beep-beep-"
3) Wait for another 5 seconds, special tone like " " should be emitted, which means program mode is entered

2. Select programmable items:
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 tone)
2. "beep-beep-" battery type (2 short tone)
3. "beep-beep-beep-" cutoff mode (3 short tone)
4. "beep-beep-beep-beep-" cutoff threshold (4 short tone)
5. "beep-----" startup mode (1 long tone)
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 tone)

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







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

Tones / Items	"beep-" 1 short tone	"beep-beep-" 2 short tones	beep-beep-beep 3 short tones
Brake	Off	On	
Battery type	Li-ion / Li-poly	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 " ", please move throttle stick to the bottom position within 2 seconds.
2. In step 2, after tone "beep-----beep-----"(ie. The item #8), move throttle stick to bottom within 3 seconds.