

- 開機:
  - 正常開機聲音(油門在最低位置): ♪ 567 (3聲)-電池節數 ♪ 57 ♪ 57 ♪ 57 (例:6 cell就是6聲)
  - 如果開機後沒有偵測到油門訊號輸入, 則會持續重複兩聲beep(嗶嗶)。
  - 如果開機後油門不在最低位置, 則會持續重複三聲beep(嗶嗶嗶)。
  - 若電變正常開機則綠色LED燈恆亮, 不亮代表電壓輸入小於9.0V(支援電壓為3 cell ~ 6 cell)。
  - 若電變開機後溫度異常(超過80oC), 則紅色LED恆亮。
  - 開機時若偵測到電池節數每節電壓小於3.6V, 則會持續重複三聲beep(嗶嗶嗶)。
- 油門校正:
 

打開遙控器, 將油門推至最高點再接電源。

聽到 ♪ 567-♪5~♪6 ~ ♪7 ~ “後兩秒之內將油門收至最低點, 否則會進入設定模式。校正完後需重新接電。
- 電變設定:
 

打開遙控器, 將油門推至最高點再接電源。聽到 “♪ 567 ~♪5~♪6~♪7~ “後再繼續等待, 當再聽到 ♪5~♪6~♪7~♪1~♪2~” 即進入設定模式。

  - 在進入電變設定之前, 需確認已完成油門校正, 且油門曲線為0-50-100。
  - 目前設定包括五項基礎設定和四項進階設定, 基礎設定閃綠色LED燈, 進階設定閃紅色LED燈。
  - 利用按鈕短壓選擇想要設定的項目, 可利用LED燈閃的次數或是馬達beep聲音判斷現在是在哪個選項。
  - 利用油門位置來更改設定值, 當確定好油門位置所對應的選項後, 長壓按鈕, 看到綠色LED燈(基礎設定)或紅色LED燈(進階設定)恆亮後即可放開, 等聽到 ♪ 567 及代表該選項設定完成。
  - 當完成所有設定後, 直接將電源移除即可。
  - 設定時間很充裕, 若不短壓按鈕電變不會自行跳下一項。
  - 任何一個選項設定完成後可立即斷開電源結束設定, 不須跑完全部設定。

Item(項目)	Throttle Position (油門位置)	Low (低)	Low-Medium (中低)	Medium (中)	Medium-High (中高)	High (高)	Default Setting (預設值)
	Basic (基礎)	PWM Driving Frequency (驅動頻率)	8K(Hz)	10K(Hz)	12K(Hz)	14K(Hz)	16K(Hz)
Timing (進角)		5°	10°	15°	20°	25°	5°
Low Voltage Protect (低電壓保護)		None	3.0V	3.2V	3.4V	3.6V	None
Fly Mode (飛行模式)		No soft start - up		Soft startup	Soft start- up with governor		Soft start- up
BEC Output (BEC 輸出)		5.5V	5.9V	6.7V	7.3V	8.3V	5.9V
Advance (進階)	Motor Pole (馬達極數)	6	8	10	12	14	10
	Governor P Gain	1%~100%					15%
	Governor I Gain	1%~100%					15%
	Over Temperature Protect (過溫度保護)	None	100°C	125°C			None

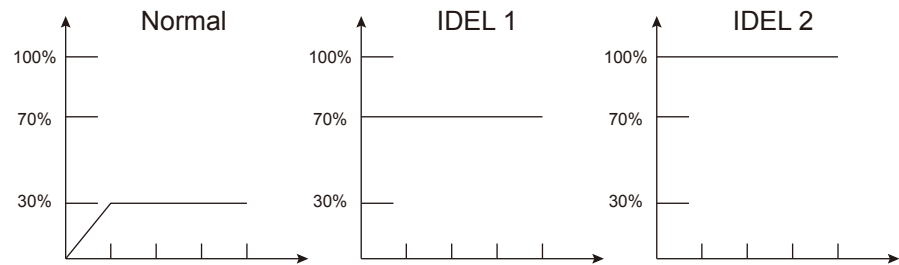
- 記憶最高轉速:
 

目前電變裡的馬達預設最高轉速為40000(RPM), 為達到較好的定速性能, 當使用者若改變了齒比、馬達KV值或極數、電池電壓。建議進入電變設定更改成正確的選項, 並且重新記憶在該配置下馬達的最高轉速。

  - 在記憶最高轉速之前, 需確認已完成油門校正, 且油門曲線為 0 - 50 - 100。
  - 當電變開機完成後(綠色LED燈恆亮), 當油門位置在最低點時短壓按鈕, 此時紅色LED燈會亮起, 代表進入記憶馬達最高轉速模式, 若要取消此模式則再短壓一次按鈕, 此時紅色LED燈會熄滅。
  - 將主旋翼與尾旋翼拆下, 將油門搖桿直接推至100%並等待15秒然後將油門搖桿推回0%, 等待紅綠色LED燈都熄滅, 代表以記憶完成, 請重新開機。(這個旋轉過程請注意安全) 若紅綠色LED燈沒有熄滅, 代表油門沒有校正或是油門在100%等待的時間不夠久, 請再重新記憶。
- 定速模式:
 

進入定速模式前, 須確定馬達極數是否設定正確, 且已完成最高轉記憶。

  - 將電變基礎設定的第四個選項” Fly Mode”選擇至” Soft start-up with governor” 下次開機後即進入定速模式。
  - 利用油門位置來改變主旋翼的目標轉速。通常定速模式下的油門曲線如下:



Governor mode throttle curve setting example

- 可利用電變進階設定, 根據油門位置來改變定速的感度。
- 熄火降落功能:
 

只需將遙控器 Throttle Hold 功能打開, 並將其設定成高於最低點 5% ~ 10%, 即可讓馬達停止運轉且不會進入緩起動。

    - 在飛行過程中若不小心將油門收至最低點, 不會立刻進入緩起動。若油門位置持續在最低點約5秒後, 才會再度進入緩啟動。
  - 注意事項:
    - 低電壓保護選項啟動後, 若飛行中電池電壓低於所設定的範圍, 動力會只輸出一半, 提醒使用者電池電壓過低。
    - 過溫度保護選項啟動後, 若飛行中電變溫度高於所設定的範圍, 動力會只輸出一半, 提醒使用者電變溫度過高。
  - 部位示意圖



- 1.Startup
  - a.Normal startup sound (Throttle at lowest position): ♪ 567 (3 acoustics) – number of Battery cells ♪ 57 ♪ 57 ♪ 57 (example: 6 cells is 6 acoustics).
  - b.If at startup, no throttle signal is detected, repeated Beep-Beep acoustic will sound.
  - c.If at startup, the throttle is not at lowest position, repeated Beep-Beep-Beep will sound.
  - d.If ESC startup is normal, GREEN LED will stay ON, no LED means the voltage is lower than 9.0V (supported voltage is 3 cell ~ 6 cell).
  - e.If after ESC startup the temperature is abnormal (over 80° C), LED will light constant RED.
  - f.If at start up, detection of battery cells, each cell is lower than 3.6V, repeated Beep-Beep-Beep sound.
- 2.Throttle correction:
  - Turn on Radio Control, push throttle stick to maximum position then connect battery power. Within 2 seconds of hearing acoustic ♪ 567 ♪ 5 ♪ 6 ♪ 7 , move throttle stick to lowest position or it will go into SETUP MODE. Reconnect power after throttle correction.
- 3.ESC setup:
  - Turn on Radio Control power, push throttle stick to maximum position then connect battery power. After hearing acoustic “ ♪ 567 ♪ 5 ♪ 6 ♪ 7 ” continue waiting for this acoustic “ ♪ 5 ♪ 6 ♪ 7 ♪ 1 ♪ 2 ”, then you are in SETUP MODE.
  - a.Before going into SETUP MODE, confirm throttle correction is already done and throttle curve is set as 0-50-100.
  - b.Setup includes 5 basic setup and 4 advanced setups, basic setups – GREEN LED flashes, advance setups – RED LED flashes.
  - c.Use short press on setup button to select the option you want, use number of LED flashes or motor BEEP sound to determine the current setup option.
  - d.Use throttle position to change the setting, when throttle position corresponds to the setup option, press the setup button longer, when you see CONSTANT GREEN LED light (basic setup) or CONSTANT RED LED light (advanced setup), release the setup button. When you hear acoustic ♪ 567 it indicates the option is set.
  - e.When all the options are set, just disconnect battery power to finish setup.
  - f.There is plenty of setup time, if you do not short press setup button, it does not move to next setup option.
  - g.When a setup option is set, one can disconnect power, there is no need to finish all the settings.

Throttle Position		Low	Low-Medium	Medium	Medium-High	High	Default Setting
		Item					
Basic	PWM Driving Frequency	8K(Hz)	10K(Hz)	12K(Hz)	14K(Hz)	16K(Hz)	8K(Hz)
	Timing	5°	10°	15°	20°	25°	5°
	Low Voltage Protect	None	3.0V	3.2V	3.4V	3.6V	None
	Fly Mode	No soft start - up		Soft startup	Soft start - up with governor		Soft startup
	BEC Output	5.5V	5.9V	6.7V	7.3V	8.3V	5.9V
Advance	Motor Pole	6	8	10	12	14	10
	Governor P Gain	1%~100%					15%
	Governor I Gain	1%~100%					15%
	Over Temperature Protect	None	100°C	125°C		None	

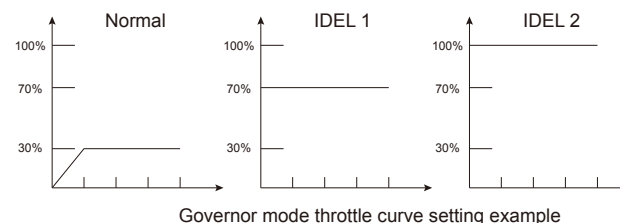
- 4.Memorize maximum RPM:
 

By default ESC's motor maximum is 40000 RPM, in order to achieve best Governor Performance, if user changed gear ratios, motor KV or poles number, battery Voltage. It is recommended to reset the ESC setting, rememorize under the new installations the maximum RPM of the motor.

  - a.Before memorizing the maximum RPM, confirm throttle correction is already done and throttle curve is set as 0-50-100.
  - b.When ESC startup is completed (CONSTANT GREEN LED), and throttle position is set at the lowest position and short press setup button. At this time the RED LED will turn CONSTANT ON indicating entering memorize maximum RPM mode, short press again will cancel this mode (RED LED will be turned OFF).
  - c.\*\*\*Caution, safety required\*\*\* Remove Main blades and tail blades from Helicopter, push the throttle up to 100% and wait for 15 seconds then pull it down all the way back to 0%, Wait for RED & GREEN LED to turn OFF, this indicates memorization complete. If RED / GREEN LED did not turn OFF, it indicates Throttle was not corrected or the waiting time at Throttle 100% was not long enough, restart memorization process.
- 5.Governor mode:
 

Before entering Governor mode, please confirm motor poles quantity are setup correctly and Maximum RPM setting is memorized.

  - a.Set the ESC basic setup #4: Fly Mode set to “Soft start-up with Governor”, next time when the ESC starts it will be in Governor Mode.
  - b.Use Throttle position to change the main rotor target RPM. Usually under Governor Mode, the throttle curves are as shown below:



- c.Use the ESC's advanced setup, change sensitivity according to throttle position.
- 6.Autorotation function:
 

Turn on Radio Control's Throttle Hold function, set it to 5%~10% higher than lowest point, this will make the motor stop and not enter in Soft Start-up.

  - a.During flight if the throttle is accidently pull down to lowest point, Soft Start-Up won't be entered immediately. If the throttle position is maintained at the lowest point for 5 seconds, it will then enter the Soft Start-up.
- 7.Precautions:
  - a.Low voltage protection entered, if during flight the battery voltage is lower than the set range, power output will only be half, to remind the user the battery voltage is too low.
  - b.Over-heating protection entered, if during flight the ESC temperature is higher than the set range, power output will only be half, to remind the user the ESC temperature is too high.
- 8.Schematic view

