#923601 - 電子變速器 60A 含內建 SBEC	
工作電壓	9 V ~ 25.2 V(最大)
瞬間最大電流	75 A
連續電流	60 A
弱電保護	3.2V~2.6V / 單 cell
溫度過載	120 ℃
SBEC 輸出電壓(5 種選擇)	5.0V / 5.25V / 5.5V / 5.75V / 6.0V

產品特色介紹:

- 四種飛行模式:
  1. 飛機模式。
  2. 滑翔機模式。
  3. 直昇機模式，有定速。(with governor)
  4. 直昇機模式，無定速。(without governor)
- 4 種電池保護程序:
  低放電鋰離子電池/標準鋰離子電池/高放電鋰離子電池/鎳氫電池 保護模式
- 放電電壓保護 :
  - ◆ 低放電鋰離子電池模式：
    單 Cell 3.2V 啟動第一階段斷續收油保護程序(Soft cut)
    單 Cell 2.9V 啟動第二階段直接斷電保護程序(Hard cut)**直昇機模式無此選項**
  - ◆ 標準放電鋰離子電池模式：
    單 Cell 2.9V 啟動第一階段斷續收油保護程序(Soft cut)
    單 Cell 2.6V 啟動第二階段直接斷電保護程序(Hard cut)**直昇機模式無此選項**
  - ◆ 高放電鋰離子電池模式：
    單 Cell 2.6V 啟動第一階段斷續收油保護程序(Soft cut)
    單 Cell 2.3V 啟動第二階段直接斷電保護程序(Hard cut)**直昇機模式無此選項**
  - ◆ 鎳氫電池模式：
    5.0V 直接斷油保護程序 (Cut Off)
- 4 種馬達進角模式:
  自動馬達進角/低馬達進角/標準馬達進角/高馬達進角 設定模式
- 3 種油門速度模式:
  自動馬達進角/低馬達進角/標準馬達進角/高馬達進角 設定模式
- 5 種 SBEC 電壓模式: (只支援內建 SBEC 的電子變速器)
  5.0V/5.25V/5.5V/5.75V/6.0V 電壓輸出模式

啟動飛行模式：

1. 將電子變速器連接到無刷馬達與主電池電源。
2. 聽到無刷馬達發出嗶-嗶-嗶(♪-♪-♪)三個上昇聲響，油門控制桿撥至全收油位置或最低點後無刷馬達會發出嗶-嗶-嗶-嗶(♪-♪-♪-♪) 4 聲單音之應答聲，代表完成油門校正動作。

進入設定模式 :

1. 開啟遙控發射器電源，將油門控制桿推至全速，並且將其保持不動狀態。將電子變速器連接到主電池，聽到無刷馬達發出嗶-嗶-嗶-嗶-嗶-嗶(♪-♪-♪-♪-♪-♪) 6 聲單音之後進入設定模式，接著請將油門控制桿撥至全收油位置或最低點。
2. 油門控制桿撥至全收油位置或最低點後，無刷馬達會發出嗶-嗶-嗶-嗶(♪-♪-♪-♪) 4 聲單音之應答聲完成。
3. 電子變速器會進入模式 1-1(♪-♪)之答詢程序，聽到 1 長音與 1 短音表示為模式 1-1(♪-♪)答詢中。若使用者欲設定模式 1-1 為工作模式，請於此時將油門往加速方向全開即可，電子變速器接獲指令後無刷馬達會發出嗶-嗶-嗶-嗶(♪-♪-♪-♪) 4 聲單音之應答音表示模式 1-1 設定完成。若使用者不欲設定模式 1-1，只需靜待數秒後速控器進入模式 1-2，聽到 1 長音與 2 短音，(♪-♪♪) 答詢程序即可。

4. 以下為操作模式之解釋:

功能 1: 電池保護模式:

1-1 …低放電鋰離子電池模式	♪-♪
1-2 …標準放電鋰離子電池模式(出廠設定值)	♪-♪♪
1-3 …高放電鋰離子電池模式	♪-♪♪♪
1-4 …鎳氫電池模式	♪-♪♪♪

功能 2: 操作模式

2-1 … 飛機模式	♪♪-♪
2-2 … 滑翔機模式	♪♪-♪♪
2-3 … 直昇機模式，有定速(with governor)	♪♪-♪♪♪
2-4 … 直昇機模式，無定速(出廠設定)	♪♪-♪♪♪♪

功能 3: 馬達進角模式

3-1 … 自動馬達進角模式	♪♪♪-♪
3-2 … 低馬達進角模式	♪♪♪-♪♪
3-3 … 標準馬達進角模式(出廠設定)	♪♪♪-♪♪♪
3-4 … 高馬達進角模式	♪♪♪-♪♪♪♪

功能 4: 油門速度模式

4-1 … 柔順油門速度模式	♪♪♪♪-♪
4-2 … 標準油門速度模式(出廠設定)	♪♪♪♪-♪♪
4-3 … 快速油門速度模式	♪♪♪♪-♪♪♪

功能 5: SBEC 電壓輸出模式(只支援內建 SBEC 的電子變速器)

5-1 … SBEC 5.0V 輸出模式	♪♪♪♪♪-♪
5-2 … SBEC 5.25V 輸出模式	♪♪♪♪♪-♪♪
5-3 … SBEC 5.5V 輸出模式(出廠設定)	♪♪♪♪♪-♪♪♪
5-4 … SBEC 5.75V 輸出模式	♪♪♪♪♪-♪♪♪♪
5-5 … SBEC 6.0V 輸出模式	♪♪♪♪♪-♪♪♪♪♪

5. 於模式設定完成後，請關閉電子變速器電源開關後再重新開啟電源開關即用。

#923601 - ESC 60A with built-in SBEC	
Working Voltages(Maximum)	**9 V ~ 25.2 V(Maximum)**
Maximum Current(Instantaneous)	**75 A**
Continual Current	**60 A**
Low Battery Protect	**3.2V~2.6V / cell**
Temperature Overload	**120 ℃**
SBEC Output voltages(5 Options)	**5.0V / 5.25V / 5.5V / 5.75V / 6.0V**

Product Functions

- **Battery Management**
  There is a built-in Battery Management function in the speed controller. The power cut off timing is based on the cell number and continuous current drains of the battery. There are two options defined in the battery management, one is for Li-Polymer batteries and another for using with NiMH battery. The battery management allows you to protect your batteries from over discharge and moreover to extend the lifetime of your batteries.
- **Flying Mode**
  The flying mode function offers you four options for different aircrafts. You could choose from Aircraft, Glider, Helicopter with governor and Helicopter without governor.
- **Motor Timing**
  The Motor Timing offers you four options in this function that allows you to maximize the performance of your motor output. You could choose from **auto/soft/standard/hard** to fit with different brushless motors. Higher timing offers more power output at the expense of efficiency. Please check the current draw after changing the timing option in order to prevent overloading of battery.
- **Throttle Speed**
  The throttle speed function offers you different throttle response time for different set up in different occasions. It could be an ideal function while driving different cars in different courses. The faster throttle response time will offer you quick and sensitive throttle feedback.
- **Switching BEC Voltage (Built-in SBEC ESC Only)**
  The SBEC voltage offers you different BEC voltage output. You could choose from 5.0V, 5.25V, 5.5V, 5.75V and 6.0V output for your servo.

Set Up Procedure

1. **To enter set up mode and throttle calibration**
   Due to the signal differentiation amount different remote control brands, it is strongly recommended to run the throttle curve initiation process whenever set up a new aircraft.
   I. Shifting the throttle position to the full throttle/full speed.
   II. Power on the transmitter
   III. Power on the speed controller, the motor will come up with acknowledge tones ♪-♪-♪-♪-♪-♪
   IV. Moving the throttle position to the minimum/stop position, the motor will come up with acknowledge tones ♪-♪-♪-♪

   The speed controller recognized the exactly throttle range then optimizes the throttle curve after this progress. When finish the calibrating process, you could simply shutdown the power to leave the other settings unchanged. If not, simply waiting for 1 second. The speed controller will enter the set up mode.

2. **Battery Management**
   The first section of setup is **battery management**. This section offers 4 options for using with either NiMH or Li-Polymer battery. The motor will come up the corresponding tones as indicator. The following is the indication with graphic reference.

   - o Light discharge protection for Li-Polymer ♪-♪
   - o Standard discharge protection for Li-Polymer (Factory Default) ♪-♪♪
   - o Light discharge protection for Li-Polymer ♪-♪♪♪
   - o +5V cut-off protection for Ni-MH ♪-♪♪♪♪

   When intending to choose one of above options, simply push throttle stick from minimum/stop to maximum/full throttle after the indication tone, then pull throttle stick back to the minimum/stop position to confirm after the acknowledge tone. You could simply shut down the power if you don't need any further settings. If you want to skip this section and leave current setting unchanged, just keep throttle stick in minimum position and wait the speed controller to enter next section.

3. **Flying Mode**
   The following section is **flying mode** setting. This section offers 4 options. They are Aircraft, Glider and Helicopter with Governor/without Governor. The motor will come up the corresponding tones as indicator. The following is the indication with graphic reference.

   - o Aircraft ♪♪-♪
   - o Glider ♪♪-♪♪
   - o Helicopter with Governor ♪♪-♪♪♪
   - o Helicopter without Governor (Factory Default) ♪♪-♪♪♪♪

   When intending to choose one of above options, simply push throttle stick from minimum/stop to maximum/full throttle after the indication tone, then pull throttle stick back to the minimum/stop position to confirm after the acknowledge tone. You could simply shut down the power if you don't need any further settings. If you want to skip this section and leave current setting unchanged, just keep throttle stick in minimum position and wait the speed controller to enter next section.

4. **Motor timing**
   Following by **flying mode**, the system enters fuzzy motor timing set up section. In this section the system offers 4 options -- auto timing, soft timing, standard timing and hard timing. The motor will come up the corresponding tones as indicator. The following is the indication with graphic reference.

   - o Auto timing ♪♪♪-♪
   - o Soft timing ♪♪♪-♪♪
   - o Standard timing(Factory Default) ♪♪♪-♪♪♪
   - o Hard timing ♪♪♪-♪♪♪♪

   When intending to choose one of above options, simply push throttle stick from minimum/stop to maximum/full throttle after the indication tone, then pull throttle stick back to the minimum/stop position to confirm after the acknowledge tone. You could simply shut down the power if you don't need any further settings. If you want to skip this section and leave current setting unchanged, just keep throttle stick in minimum position and wait the speed controller to enter next section.

5. **Throttle Speed**
   Following by the **motor timing**, the system will enter throttle speed setting. This section offers 3 options -- soft, standard and fast throttle speed. The motor will come up the corresponding tones as indicator. The following is the indication with graphic reference.

   - o Soft throttle response ♪♪♪♪-♪