Thanks for purchasing our Electronic Speed Controller (ESC). High power system for RC model can be very dangerous, so please 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 compensate for damages or costs resulting from the use of the product is limited to the invoice amount of the affected product.

[Features]

- High performance microprocessor brings out the best compatibility with all kinds of motors and the highest driving efficiency.
- Soft Cut-off: no liability shall be assumed nor accepted for any damages, loss or consequential damages resulting from our product or our workmanship. As far as is legally permitted, the obligation to compensate for damages or costs resulting from the use of the product is limited to the invoice amount of the affected product.
- Throttle range can be configured to be compatible with all transmitters currently available on market.
- Separate voltage regulator IC for microprocessor to get a better anti-jamming capability.
- Multiple protection features: Low-voltage cut-off protection / over-heat protection / throttle signal loss protection.
- The output of the built-in BEC is switchable by user programming (5.25V or 6.0V).
- With governor mode for helicopters.
- USB supported. The firmware of the ESC can be updated by the USB adapter.
- Several kinds of Program card are supported. Very easy to program the ESC at home or at the field.

[Specifications]

<table>
<thead>
<tr>
<th>Platinum Pro Series</th>
<th>Voltage ESC (supports 2 to 6 Cells Lipo)</th>
<th>BEC Current</th>
<th>Burst Current</th>
<th>BEC Mode</th>
<th>BEC Output</th>
<th>User Programmable</th>
<th>Battery Cells</th>
<th>Weight</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>30A Platinum-30A-OPTO</td>
<td>0A</td>
<td>40A</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>2-6</td>
<td>15-18</td>
<td>31g</td>
<td>55<em>25</em>12</td>
</tr>
<tr>
<td>40A Platinum-40A</td>
<td>40A</td>
<td>60A</td>
<td>Switch</td>
<td>5.25V or 6V, 3A</td>
<td>Yes</td>
<td>2-6</td>
<td>15-18</td>
<td>31g</td>
<td>55<em>25</em>12</td>
</tr>
<tr>
<td>50A Platinum-50A</td>
<td>60A</td>
<td>90A</td>
<td>Switch</td>
<td>5.25V or 6V, 4A</td>
<td>Yes</td>
<td>2-6</td>
<td>15-18</td>
<td>68g</td>
<td>70<em>34</em>16</td>
</tr>
<tr>
<td>60A Platinum-60A</td>
<td>80A</td>
<td>120A</td>
<td>Switch</td>
<td>5.25V or 6V, 4A</td>
<td>Yes</td>
<td>2-6</td>
<td>15-18</td>
<td>77g</td>
<td>70<em>34</em>16</td>
</tr>
<tr>
<td>80A Platinum-80A</td>
<td>100A</td>
<td>150A</td>
<td>Switch</td>
<td>5.25V or 6V, 4A</td>
<td>Yes</td>
<td>2-6</td>
<td>15-18</td>
<td>82g</td>
<td>70<em>34</em>16</td>
</tr>
<tr>
<td>100A Platinum-100A-OPTO</td>
<td>220A</td>
<td>300A</td>
<td>Switch</td>
<td>5.25V or 6V, 4A</td>
<td>Yes</td>
<td>2-6</td>
<td>15-18</td>
<td>125g</td>
<td>88<em>55</em>16</td>
</tr>
<tr>
<td>High Voltage ESC (supports 5 to 12 Cells Lipo)</td>
<td>70A</td>
<td>105A</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>5-12</td>
<td>15-36</td>
<td>82g</td>
<td>70<em>34</em>16</td>
</tr>
<tr>
<td>120A Platinum-120A-OPTO</td>
<td>125A</td>
<td>180A</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>5-12</td>
<td>15-36</td>
<td>125g</td>
<td>88<em>55</em>16</td>
</tr>
</tbody>
</table>

Note 1: 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 built-in BEC of an ESC, the receiver needn’t to be supplied with an additional battery pack.

Note 2: The ESC named “xxx-OPTO” or “xxx-HV” hasn’t a built-in BEC, an UBEC (Ultimate-BEC) or an individual battery pack should be used to power the device. And an individual battery pack is needed to power the program card when setting the programmable values of such ESCs, please read the user manual of program card for reference.

[Programmable Items]


2. Battery Type, “Lithium (Lipo or Li-ion) / NiMH, default is “Lithium.”

3. Low Voltage Protection Mode (CutOff Mode), “Soft Cut (Gradually reduce the output power) / Hard Cut (Immediately stop the output power)”

4. Low Voltage Protection Threshold (CutOff Threshold), Low / Middle / High / Custom, default is “Middle.”

   a. For lithium batteries, the cutoff threshold of the whole battery pack is calculated according to the cells number.

   b. For high voltage ESC (supports 5-12 cells Lipo), the Low / Middle / High value for each cell is: 2.75V / 3.0V / 3.25V.

   c. When the cutoff threshold is set to “Middle,” then the threshold for a 3 cells Lipo battery pack is 3.15V*3=9.45V.

   d. For NiMH and NiCd batteries, the cutoff threshold of the whole battery pack is calculated as follows:

   - Low: 50% of the battery’s full charged voltage
   - Middle: 62.5% of the battery’s full charged voltage
   - High: 75% of the battery’s full charged voltage

5. Programmable item is set to “Custom”, that means you can set the cutoff threshold for the whole battery pack very accurately separately for each cell.

6. Timing, “0, 1/3, 1/2, 1, 2, 3, 5, 7, 10, 15, 20, 25, 30, 45, 60, 90, 120, 240, 360, 720, 1440, 86400,” default is “15s”.

Note 2: Usually, low voltage protection is suitable for most motors. But there are many differences among structures and parameters of different motors so please try and select the most suitable timing value according to the motor you are just using. The correct timing value makes the motor run smoothly. And generally, higher timing value brings out higher output power and higher speed.

7. Governor Mode, “Off / Governor Low / Governor High,” default is “Off.”

   a. If the governor mode is activated, the ESC will try its best to hold the motor speed at a fixed value. (Usually the throttle curve is a horizontal line, you can change the preset motor speed by changing the height of this line).

   b. The speed range of “Governor Low” mode is 10000PPR to 45000PPR for 2 poles brushless motor, “Governor High” mode is 46000PPR to 200000PPR for 2 poles brushless motor. In order to calculate the speed of the main rotor blades of your helicopter, you need to know the motor poles number and the gear rate of main drive gear vs. the pinion. For example, if you are using a 6 poles motor (that is: 3 pair poles), and the main drive gear is 150T, the pinion is 13T, so you can calculate as follows:

   For high voltage ESC (supports 5-12 cells Lipo), the values are *Auto / 5S / 6S / 8S / 10S / 12S, the default is *Auto.*

   a. For high voltage ESC (supports 5-12 cells Lipo), when the motor emits the "beep" tones to represent 5S lipo, and 6 short "beep-beep-beep-beep-beep-beep" tones will be emitted, means the number of lipo battery cells.


   Note 4: If you choose “Auto”, the ESC may mistakenly judge the battery cells when the voltage is less than 3.7V/Cell, so we strongly suggest setting the "Lipo Cells" manually.


[Programmable Items]

1. Switch Current
2. Current Limit
3. Governor Timing
4. Governor Low (Volt)
5. Governor High (Volt)
6. Governor Low (Value)
7. Governor High (Value)
8. Governor Low (Color)
9. Governor High (Color)
10. Governor Low (Blink)
11. Governor High (Blink)
12. Governor Low (Duration)
13. Governor High (Duration)
14. Governor Low (Mode)
15. Governor High (Mode)
16. Governor Low (Frequency)
17. Governor High (Frequency)
18. Governor Low (Phase)
19. Governor High (Phase)
20. Governor Low (Duty Cycle)
21. Governor High (Duty Cycle)
22. Governor Low (Pulse Width)
23. Governor High (Pulse Width)
24. Governor Low (Offset)
25. Governor High (Offset)
26. Governor Low (Governor Type)
27. Governor High (Governor Type)
28. Governor Low (Governor Mode)
29. Governor High (Governor Mode)
30. Governor Low (Governor Frequency)
31. Governor High (Governor Frequency)
32. Governor Low (Governor Phase)
33. Governor High (Governor Phase)
34. Governor Low (Governor Duty Cycle)
35. Governor High (Governor Duty Cycle)
36. Governor Low (Governor Pulse Width)
37. Governor High (Governor Pulse Width)
38. Governor Low (Governor Offset)
39. Governor High (Governor Offset)
1. Enter program mode
2. Select programmable items
3. Set item value (Programmable value)
4. Exit program mode

**Trouble Shooting**

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<td>The connection between battery pack and ESC is not correct</td>
<td>Check the power connection. Replace the connector with new one</td>
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**Normal Startup Procedure**

Move the throttle stick to bottom position and then switch on your transmitter. The motor will stop if the ESC, a special tone “1213” emits, that means the battery supply is OK.

Several “Beep-” tones emits to represent the number of lipo battery cells. As soon as the self-test process is finished, a long “Beep-” tone will be emitted. Move the throttle stick upwards to go flying now.

**Throttle Range Setting**

Switch on the transmitter and then move the throttle stick to top position. Connect battery pack to the ESC, a special tone “1213” emits, that means the battery supply is OK, then wait for 2 seconds.

“Beep-Beep-” tone emits, that means the highest point of throttle range has been correctly confirmed. Move throttle stick to the bottom position, several “Beep-” tone emits to represent the number of Lipo battery cells. A long “Beep-” tone emits, the lowest position of throttle range has been confirmed.

**Protection Function**

1. Abnormal startup protection: If the motor fails to start within 2 seconds of throttle application, the ESC will cut-off the output power. In this case, the throttle stick MUST be moved to the bottom position again to restart the motor. (This happens in the following cases: The connection between ESC and motor is not reliable, the propeller or the motor is blocked, the gear box is damaged, etc.)
2. Over-heat protection: When the temperature of the ESC is over a factory-preset degree (39°C), and at the same time, the red LED also flashes.
3. Throttle signal loss protection: The ESC will cut-off the output power if the throttle signal is lost for more than 0.25 second, the output power will be resumed as soon as the throttle stick is normal again.

**Program The ESC With The Transmitter** (4 Steps)

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

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