

# User Manual of Henge 4A UBEC

## 1. Specifications:

- 1.1 Output: 5V/4A or 6V/4A (Changeable with a jumper)
- 1.2 Input: 7-25.5V (2 to 6 cells Lipo battery pack, 6 to 16 cells NIMH battery pack)
- 1.3 Continuous output current: 4A
- 1.4 Burst output current: 6A ( $\leq 15$  Sec)
- 1.5 Ripple:  $< 45\text{mVp-p}(@2\text{A}/12\text{V})$
- 1.6 Size: 35mm\*20mm\*5.8mm (L\*W\*H)
- 1.7 Weight: 14g(Including the cable and the ferrite ring)

## 2. Features:

- 2.1 Designed with an advanced switch mode DC-DC regulator IC, the max efficiency of the chip is up to 93% ;
- 2.2 The small size and the light weight make it very convenient to use;
- 2.3 The output current is very large, the continuous output current is up to 4A, and the burst output current is 6A.;
- 2.4 A shield covers almost all the electronic components on PCB, and a special made filter(ferrite ring) is attached with the output wires to significantly reduce the electromagnetic interference;
- 2.5 With ultra-wide input voltage from 7V—25.5V;
- 2.6 Safe power on with the polarity protection function. If the input polarity is not correct ,the UBEC can't work, but it will not be damaged. What you need to do is just swapping the battery pack's polarity ;
- 2.7 Shows the working status with an indicator(LED), lights when the output is in normal range;

## 3. The advantages compared with the linear BEC:

The comparison of linear BEC and switch-mode BEC: When using a lithium battery pack more than 3S, a switch-mode BEC has much higher efficiency than linear BEC.

- For a traditional linear BEC, For example, a 4S lithium battery pack has a typical voltage of 14.8V, in order to let BEC output 5V/1A, the current flow into the BEC is at least 1A, so the power on BEC is  $14.8\text{V} * 1\text{A} = 14.8\text{W}$ . But the useful output power is only  $5\text{V} * 1\text{A} = 5\text{W}$ , so the efficiency of the linear mode BEC is just  $5\text{W} / 14.8\text{W} = 33.8\%$ , the redundant power  $14.8\text{W} - 5\text{W} = 9.8\text{W}$  changes to heat, which makes the BEC very hot.

- For a switch-mode BEC in the above case, in order to let BEC output 5V/1A, the current flow into BEC is only 0.37A (actual test data), so the power on BEC is  $14.8\text{V} * 0.37\text{A} = 5.476\text{W}$ , and the efficiency of BEC is  $5\text{W} / 5.476\text{W} = 91.3\%$ .

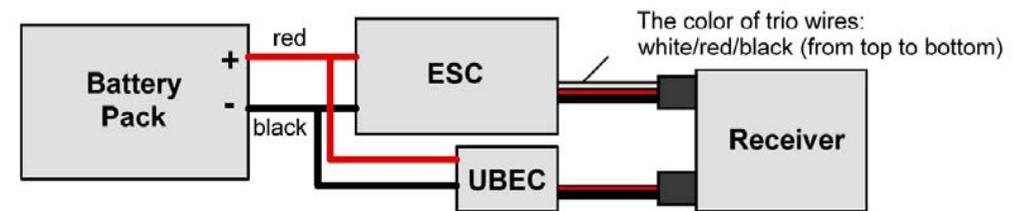
## 4. Special Explanation:

Although we have tried our best to reduce the electromagnetic interference caused by switch model UBEC, it may still cause some interference to the receiver. So please install the filter (ferrite ring) far away from the UBEC's main board, and DON'T stack the filter on the main board. Please put the whole UBEC as far as possible away from the receiver

## 5. How to use the UBEC?:

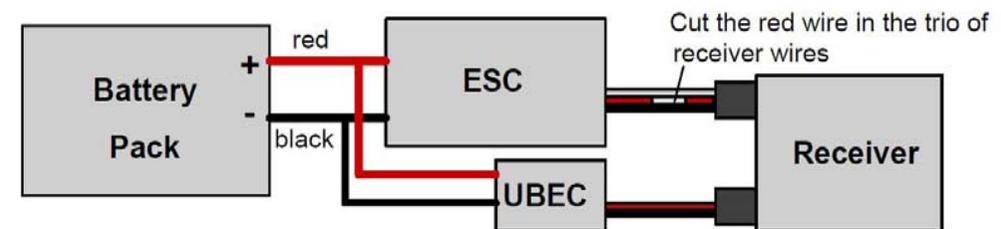
### 5.1 When ESC HAS NOT built-in BEC function

No change is needed for the ESC, just connect the input cables of UBEC with the battery, and plug the output cable (connector) of the UBEC into one spare channel of the receiver. .



### 5.2 When ESC HAS built-in BEC function

You must disable the built-in BEC function of the ESC, i.e. you need to cut the red wire in the trio of receiver wires. Simply use a pair of wire cutters to remove a short section of the red wire near the receiver connector, and insulate the cut wire with a bit of electrical tape.



**Suggestion:** You can use a sharp screwdriver to take the pin (with red wire) out from the BEC connector of the ESC, and then insulate it with a bit of electrical tape for further use, so you needn't cut the red wire by this method.



Take the pin with red wire out