

USER MANUAL OF PROGRAM CARD

Thank you for purchasing program card for the brushless motor electronic speed controller (ESC). With this device, you can easily set the programmable value of the ESC. Now you can just forget the complex and boring program method with the throttle stick of your transmitter. This program card has a friendly user interface. It is as small as a business card, so you can put it in your pocket when you are on the field.

SPECIFICATION:

1. SIZE: 92mm * 52mm * 6mm
2. WEIGHT: 26g

FRONT PANEL:

1. Use “up/down” button to select the programmable item, use “left/right” button to select each item value;
2. Brake: When “Brake” is ON, the motor will be stopped immediately when throttle stick is moved to bottom;
3. Low Voltage Protection Mode (Cut-off Type) : When “Soft-Cut” is selected, the ESC will gradually reduce the output power. When “Cut-Off” is selected, the ESC will immediately shut off the output power to the motor.
4. Low Voltage Protection Threshold (Cut-off Voltage) :
 - ◆ For Li-xx battery (Li-ion or Li-poly), the number of battery cells are calculated automatically, Low / Medium / High cut-off voltage of each cell is: 2.6V/2.85V/3.1V. For example: 3S Li-Poly, when “Medium” cutoff voltage is set, the cut-off voltage is: $2.85 \times 3 = 8.55V$.
 - ◆ For Ni-xx battery (NiCd or NiMH), Low / Medium / High cut-off voltages is 0%/45%/60% of the initial voltage when the model is power on. (0% means the cut-off function is disabled)
For example: 10 cell NiMH battery, fully charged voltage is $1.44 \times 10 = 14.4V$, when “Medium” value is selected, the cut-off voltage is : $14.4 \times 45\% = 6.5V$.
5. Music/Li-Po Cells:

The 4 LEDs have different meanings for ESC with or without a postfix letter of “HV”.

 - ◆ For ESC without a postfix letter of “HV”, for example, “Pentium-60A”, 4 LEDs have 16 possible states, representing 16 rhythms for ESC. (Please read Table 1)
 - ◆ For ESC with a postfix letter of “HV”, for example, “Pentium-90A-HV”, 4 LEDs represent the number of lithium battery cells (Please read Table 2)



WIRING SEQUENCE:

A) When you are using an ESC with a built-in BEC (Battery Elimination Circuit)

1. Disconnect the power pack from the ESC
2. Disconnect the BEC cable of the ESC (trio wires) from your receiver, then connect it to the program card at the top right corner position marked with “BEC”
3. Connect the main power pack to the ESC
4. The LEDs on the program card will light, showing the current programmable value of the ESC

Note: THE SEQUENCE OF STEP 2 AND STEP 3 CANNOT BE REVERSED! Otherwise the program card cannot work properly.

B) When you are using an ESC without a built-in BEC

If the ESC is marked with “BEC OPTO”, that means this ESC hasn’t a built-in BEC, so you must use an additional battery pack (4.8-6V) to power the program card, and usually a receiver battery pack is a good choice.

1. Disconnect the power pack from the ESC
2. Disconnect the BEC cable of the ESC (trio wires) from your receiver, then connect it to the program card at the top right corner position marked with “BEC”
3. Connect the receiver battery pack (4.8-6V) to the program card at the top right corner position marked with “Batt.”
4. Connect the main power pack to the ESC
5. The LEDs on the program card will light, showing the current programmable value of the ESC

NOTE: * THE SEQUENCE OF STEP 2 , STEP 3 AND STEP 4 CANNOT BE REVERSED! Otherwise the program card cannot work properly.

NOTE: ** Don’t use a battery pack more than 6V to supply the program card!



OPERATION:

Press the “up/down” button, you can select the programmable item, the corresponding LED will flash. Then press the “left/right” button to select the item value, the flashing LED shows the value you are just selecting. Finally, press the “OK” button, the blue LED will flash, which means the programmable value is being transmitted to the ESC. When the data transmission is finished, the blue LED will stop flashing, it means the new settings are accepted and stored in the ESC.

MUSIC LIST:

Table 1: Music list

= LED is lighting

No.	LED				MUSIC
	D	C	B	A	
1					Disable the music playing function
2					Susanna (USA)
3					To Alice (Germany)
4					Ode to joy (Germany)
5					Take off your hood (China)
6					Jasmine (China)
7					Red river valley (Canada)
8					Auld Lang Syne (Scotland)
9					Jingle Bells (USA)
10					Song of matador (Spain)
11					The end of the world (USA)
12					Rhythm of triumph (Germany)
13					Love is blue (USA)
14					Beautiful Spanish lady (Italy)
15					Post carriage (Japan)
16					Love bird (China)

LI-PO BATTERY CELLS NUMBER LIST

Table 2: Li-Poly cells number list

= LED is lighting

No.	LED				Li-Poly Cells Number
	D	C	B	A	
1					Auto detect
2					2 CELLS (7.4V)
3					3 CELLS (11.1V)
4					4 CELLS (14.8V)
5					5 CELLS (18.5V)
6					6 CELLS (22.2V)
7					7 CELLS (25.9V)
8					8 CELLS (29.6V)
9					9 CELLS (33.3V)
10					10 CELLS (37.0V)
11					11 CELLS (40.7V)
12					12 CELLS (44.4V)
13					Auto detect
14					Auto detect
15					Auto detect
16					Auto detect

We strongly suggest you using manually setting method to set the cells number of your lithium battery pack. Please be careful to use “Auto detect” method.

DECLARATION

This program card is ONLY suitable for the ESC of the same manufacturer. Please ask your retailer for detail product information.