

PROGRAM CARD FOR BRUSHLESS ESC

FUNCTIONS AND FEATURES

Thank you for purchasing the program card for the brushless ESC (Electronic Speed Controller). The program card has a friendly user interface, so you can easily set the programmable parameters of the ESC with this device. It is pocket-sized, so you can bring it to the racing or flying field conveniently.

SPECIFICATION

1. Size: 88mm*58mm*14mm
2. Wight: 40g

PROGRAMMABLE ITEMS

A) The programmable items for the CAR ESC are:

1. Running Mode
2. Drag Brake Force
3. Low Voltage Cut-Off Threshold
4. Start Mode
5. Maximum Brake Force
6. Maximum Reverse Force
7. Initial Brake Force
8. Throttle Neutral Range
9. Timing
10. Over-Heat Protection
11. Motor Rotation
12. Lipo Cells

Programmable Items	Programmable Value								
	1	2	3	4	5	6	7	8	9
Basic Items									
1. Running Mode	Forward Only with Brake	Forward/Reverse with Brake	Forward and Reverse						
2. Drag Brake Force	0%	5%	10%	20%	40%	60%	80%	100%	
3. Low Voltage Cut-Off Threshold	Non-Protection	2.6V /Cell	2.8V /Cell	3.0V /Cell	3.2V /Cell	3.4V /Cell			
4. Start Mode(Punch)	Level1	Level2	Level3	Level4	Level5	Level6	Level7	Level8	Level9
Advanced Items									
5. Max Brake Force	25%	50%	75%	100%					
6. Max Reverse Force	25%	50%	75%	100%					
7. Initial Brake Force	= Drag Brake Force	0%	20%	40%					
8. Neutral Range	6% (Narrow)	9% (Normal)	12% (Wide)						
9. Timing (Only for sensorless motor)	0.00 °	3.75 °	7.50 °	11.25 °	15.00 °	18.75 °	22.50 °	26.25 °	
10. Over-heat Protection	Enable	Disable							
11. Motor Rotation	Counter Clockwise	Clockwise							
12. Lipo Cells	Auto Calculate	2 Cells	3 Cells	4 Cells	5 Cells	6 Cells			

B) The programmable items for the AIRCRAFT AND HELICOPTER ESC are:

1. Brake Setting
2. Battery Type
3. Low Voltage Protection Mode (Cutoff Mode)
4. Low Voltage Protection Threshold (Cutoff Threshold)
5. Start Mode
6. Timing
7. Governor Mode
8. Motor Type
9. PWM Frequency
10. Built-In BEC Output
11. Motor Load
12. Lipo Cells

Programmable Items	Programmable Value							
	1	2	3	4	5	6	7	8
1. Brake	Off	Soft	Hard	Very Hard				
2. Battery Type	LiPo	NiMH						
3. Cutoff Mode	Soft Cut	Hard Cut						
4. Cutoff Threshold	Low	Middle	High	Custom				
5. Start Mode	Normal	Soft	Very Soft					
6. Timing	0°	3.75°	7.5°	11.25°	15°	18.75°	22.5°	26.25°
7. Governor Mode	Off	Governor Low	Governor High					
8. Motor Type	Normal Motor	Special Motor 1	Special Motor 2					
9. PWM Frequency	12KHz	24KHz						
10. Built-in BEC Output	5.25V	6V						
11. Motor Load	Normal	Heavy	Very Heavy	Auto				
12. Lipo Cells	Auto Calculate	2S	3S	4S	5S	6S	← For normal ESC (2 to 6 Cells Lipo)	
	Auto Calculate	5S	6S	8S	10S	12S	← For high voltage ESC (5 to 12 Cells Lipo)	

C) The programmable items for the BOAT ESC are:

1. Running Mode
2. Lipo Cells
3. Low Voltage Cutoff Threshold
4. Timing

(The form is on the next page)

Programmable Items	Programmable Value							
	1	2	3	4	5	6	7	8
1. Running Mode	Forward Only	Forward and Backward						
2. Lipo Cells	Auto Calculate	2 cells	3 cells	4 cells	5 cells	6 cells	← For normal ESC (2 to 6 Cells Lipo)	
	Auto Calculate	5 cells	6 cells	8 cells	10 cells	12 cells	← For high voltage ESC (5 to 12 Cells Lipo)	
3. Low Voltage Cutoff Threshold	No Protection	2.8V/Cell	3.0V/Cell	3.2V/Cell	3.4V/Cell			
4. Timing	0.00°	3.75°	7.50°	11.25°	15.00°	18.75°	22.50°	26.25°

Note1: Please refer to the user manual of the ESC for the detail information about each programmable item.

WIRING SEQUENCE

1. When you are using an ESC with a built-in BEC (Battery Elimination Circuit)
 - a) Disconnect the power pack from the ESC.
 - b) 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 $\ominus \oplus \updownarrow$
 - c) Connect the main power pack to the ESC.
 - d) After several seconds, the digit LEDs on the program card light to show the current programmable value of the ESC.

Note2: The sequence of step b) and step c) cannot be reversed! Otherwise the program card cannot work properly.

2. When you are using an ESC without a built-in BEC

If the ESC hasn't a built-in BEC, you must use an additional battery pack (4.8V-6V) to power the program card. Please connect the battery to the program card at the top right corner position marked with $\ominus \oplus$. Usually, a receiver battery pack is a good choice.

 - a) Disconnect the power pack from the ESC.
 - b) Disconnect the BEC cable of the ESC (trio wires) from your receiver, then connect the BEC cable or the individual data cable (Please refer to the following [Note4](#)) to the program card at the top right corner position marked with $\ominus \oplus \updownarrow$
 - c) Connect the additional battery pack to the program card at the top right corner.
 - d) Connect the main power pack to the ESC.
 - e) After several seconds, the digit LEDs on the program card light to show the current programmable value of the ESC.

Note3: The sequence of step b), c) and step d) cannot be reversed! Otherwise the program card cannot work properly.

Note4: For ESC with an individual data cable (that is a short trio wire just nearby the BEC cable of the ESC), you need to connect the program card with this individual data cable, while not the BEC cable.

Warning: Do not use a battery pack more than 6V to supply the program card!

OPERATION

Press the "ITEM" button to select the programmable items in a loop. The serial number of the

programmable items will be shown by 2 digit LEDs marked with "ITEM", and the current value corresponding to the selected programmable item will be shown by another digit LED marked with "VALUE". Press the "VALUE" button to choose the parameter value you need. After that, press the "OK" button, a bright "—" symbol appears in the middle position of the digit LED marked with "VALUE" for about 1-2 seconds, that means the new setting is accepted and stored in the ESC.

The "RESET" button is used for restoring all the items of the ESC to the default values.

DECLARATION

The program card is ONLY suitable for the ESC made by the same manufacturer.