

# DUALSKY® XController Brushless ESC

## Programming Instructions

Thank you for purchasing the DUALSKY Electronic Speed Controller (ESC) for sensorless brushless motor. This is a very high performance power system component for an RC model, please read this manual carefully.

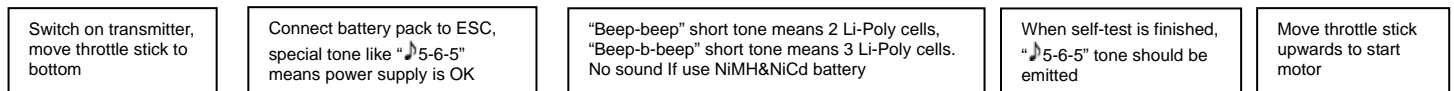
### ESC Settings:

1. **Brake(DLBM *New*) Settings:** Brake Disabled / Brake Enabled, default is Brake Disabled.
2. **Battery Type:** Li-xx(Li-ion or Li-poly) / Ni-xx(NiMh or Nicd), default is Li-xx. (Please ensure correct battery is selected to allow correct operation of low voltage protection mode)
3. **Low Voltage Protection Mode(Cutoff Mode):** Power Reducing / Power Cutoff, default is Power Reducing.
4. **Low Voltage Protection Threshold(Cutoff Threshold):** Low / Medium / High, default is Medium.
  - 1) For Li-xx battery, number of battery cells are sensed automatically, low / medium / high cutoff voltage for each cell are: 3.0V/3.2/3.4V.
  - 2) For Ni-xx battery, low / medium / high cutoff voltages are 0%/50%/60% of the startup voltage.
5. **Startup Mode:** Normal / Super-soft, default is normal startup.

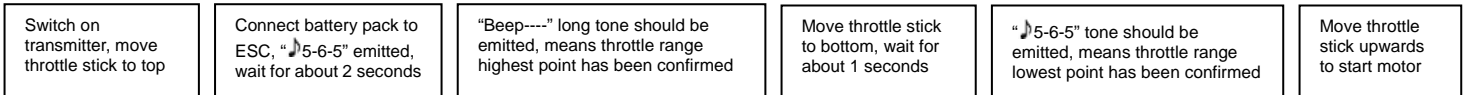
Normal is good for fixed-wing aircraft. Super-soft is good for helicopters, the initial speeds of super-soft mode are quite slow, 6 secs(super-soft startup) from startup to full speed, if throttle is closed and opened again within 3 seconds after the first startup, the startup will be in normal mode to avoid the chances of a crash caused by slow throttle response in aerobatic flight
6. **Timing:** Low(0) / Medium(10) / High(20), default is Medium.

In normal cases, low timing can be used for most motors. But for high efficiency, we recommend the **Low** timing for 2 poles motor and **Medium** timing for 6 poles and above. For higher speed and large outrunner brushless, the **High** timing could be used.
7. **Governor (DGM *New*):** Off – Governor function disabled / On – Enable the Governor Mode. Default is Off. When the Governor mode is On, throttle journey means motor RPM, not power output.

### Normal startup procedure:



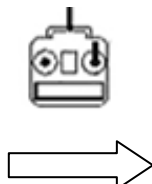
### Throttle range setting: (Throttle range should be set each time when using a new transmitter)



### Programming with transmitter(4 Steps):

1. Enter programming mode
2. Select items
3. Set item value
4. Exit programming

1. **Enter programming mode**
  - 1) Switch on transmitter, move throttle stick to top, connect the battery pack to controller
  - 2) Wait for 2 seconds, the controller should emit long tone like "beep-----"
  - 3) Wait for another 5 seconds, special tone like "♪5-6-5" should be emitted, this means programming mode is entered

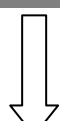
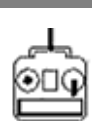
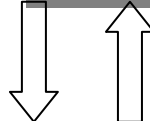
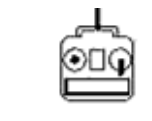


2. **Select items:**

After entering programming mode, you can hear 8 tones in a loop in following sequence. After one tone within 3 seconds, if you move the throttle stick to bottom, then this item is selected.

1. "beep"	brake	(1 short tone)
2. "beep-beep"	battery type	(2 short tone)
3. "beep-b-beep"	cutoff mode	(3 short tone)
4. "beep-b-b-beep"	cutoff threshold	(4 short tone)
5. "beep-b-b-b-beep"	startup mode	(5 short tone)
6. "beep-b-b-b-b-beep"	timing	(6 short tone)
7. "beep-b-b-b-b-b-beep"	<b>Governor</b>	(7 short tone)
8. "beep-b-b-b-b-b-b-beep"	exit	(8 short tone)

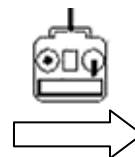
\* Some small ESCs haven't this function.



3. **Set item value:**

You will now hear tones in loop. Set the value matching to a tone by moving the throttle stick to the top, when this has been confirmed you can hear the special tone "♪5-6-5" this means the value has been set and saved. (Keeping the stick at top, you will go back to step 2 and you can select the other items; Moving the stick to bottom within 2 seconds, you will exit the programming mode). The bolded texts are the default value.

Tones	"beep-" 1 short tone	"beep-beep-" 2 short tones	"beep-beep-beep" 3 short tones
Brake	Off	On	
Battery type	Li-ion / Li-poly	NiMh / Nicd	
Cutoff mode	Reduce power	Shut down	
Cutoff threshold	Low	Medium	High
Startup mode	Normal	Super soft	
Timing	Low	Medium	High
Governor <i>New</i>	Off	On	



### 4.Exit programming

There are 2 ways to exit programming:

1. In step 3, after special tone "♪5-6-5", move throttle stick to bottom within 2 seconds.
2. In step 2, after "8 short tone", move throttle stick to bottom within 3 seconds.