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 funtion disabled / On – Enable the Governor Mode. Default is Off. When the Governor mode is On, throttle journey means motor RPM, not power ouput.

Normal startup procedure:

Switch on transmitter, move throttle stick to bottom	Connect battery pack to ESC, special tone like "♪5-6-5" means power supply is OK	"Beep-beep" short tone means 2 Li-Poly cells, "Beep-b-beep" short tone means 3 Li-Poly cells. No sound If use NiMH&NiCd battery	When self-test is finished, "♪5-6-5" tone should be emitted	Move throttle stick upwards to start motor

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

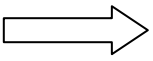
Switch on transmitter, move throttle stick to top	Connect battery pack to ESC, "♪5-6-5" emitted, wait for about 2 seconds	"Beep----" long tone should be emitted, means throttle range highest point has been confirmed	Move throttle stick to bottom, wait for about 1 seconds	"♪5-6-5" tone should be emitted, means throttle range lowest point has been confirmed	Move throttle stick upwards to start motor

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

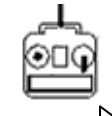


2. Select items:
After entering programming mode, you can hear 8 tones in a loop in following sequence. After one tone within 3 seconds, if you move the throttle stick to bottom, then this item is selected.

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"	**Governor**	(7 short tone)
		* Some small ESCs haven't this function.	
8.	"beep-b-b-b-b-b-b-beep"	exit	(8 short tone)

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 / Items	"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 New	**Off**	On	



4.Exit prgramming

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.

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