Programming the 50 amp and 70 amp Towerpro ESCs

Intro

- The first step is to MAKE SURE you're ESC is either the 50 amp or 70 amp towerpro model. To check this, look at the black sticker on your ESC. It should say on there the manufacturer and amp rating so you can be sure. These instructions will not work on any other type of ESC!
- The ESCs emit sound through the motor, therefore the motor must be attached before programming starts.
- These ESCs are programmed from stick input on the transmitter. Different stick positions will input different commands, and the ESC will make sounds through the motor to confirm actions. You will need to program your ESC before you do anything else UNLESS you have ordered a complete package with the ESC presoldered to the motor, in which case it has already been programmed for you. IF YOU ARE AT ALL UNSURE about any part of the programming procedure, DO NOT ATTEMPT to use the ESC to run your motor for normal flying, it could damage itself or your battery pack. Contact me for help in this case, please see the contact details at the end of this manual.

Programming procedure

- The ESC must be plugged into a motor, battery and receiver for the programming procedure to work, and there must be a transmitter on the same channel as the receiver, with the throttle channel set to normal direction, with end point adjust at 100% both ways.
- Check that everything is working by plugging an ordinary servo into the throttle channel, and the ESC into the aileron channel (ignore the motor beeping) and move the throttle stick to make sure the servo is receiving the correct commands. If it is all working ok, move on to the next step.
- Unplug the battery from the ESC and plug the receiver cable from the ESC into the throttle channel of your receiver.
- Make sure the receiver is connected to a RX battery or UBEC, as this ESC has no BEC and needs a separate RX power supply.
- Turn your transmitter on and put the throttle stick up to the high position (all the way up).
- Plug in the ESC to the battery.

Programming the ESC

- After you have plugged the ESC into the battery (with throttle stick up) you will hear six tones (three tones in quick succession, repeated twice).
- The ESC will then start beeping in a pattern. Every option is repeated three times to give you time to choose your option.
- There are four main "menus" which, when selected, will present you with a set of options. These are listed below.
- **Notation:** "beedeebeep" to mean three ascending tones in quick succession, "BEEP" to

mean a high tone, and "beep" to mean a lower tone. Each option, as well as a detailed description, has this notation after it to allow for quick reference.

- To select a menu, bring the throttle stick down to **half way** while the correct tone is sounding and leave it there.
- To select an option within a menu, push the throttle stick back up to the top again. A short, high tone will sound, then the programming menu will start at the beginning again. Remember, each menu will repeat three times.

1) Cell type and number menu (beedeebeep, BEEP)

- In this menu, you select which battery type you have. THIS IS IMPORTANT, don't skip this step!
- This menu is characterised by three beeps in ascending tones, then one single beep.
- To select this menu, bring the throttle stick to roughly halfway and leave it while the correct beep sequence is sounding.
- You will then enter the options list, the options are as follows. To select one, push the stick up to full throttle again and leave it. Remember, each option will repeat three times.

1. NiMh/NiCd battery (BEEP beep)
2. 14.8v volt lipo (4s) (BEEP beep beep)
3. 18.5v lipo (5s) (BEEP beep beep beep)
4. 22.2v lipo (6s) (BEEP beep beep beep beep)

- A single high pitched tone will sound, and you will return to the beginning of the programming menu.

2) Braking menu

- This menu selects which braking option you want. Braking is when the motor locks while it is not spinning. When the plane is flying, and the throttle is zero, the prop will spin freely and slow the plane down. Braking prevents this, but uses up some battery power. This option is by default set to no brake.
- This menu is characterised by three beeps in ascending tones, then two single beeps.
- To select this menu, bring the throttle stick to roughly halfway and leave it while the correct beep sequence is sounding.
- You will then enter the options list, the options are as follows. To select one, push the stick up to full throttle again and leave it. Remember, each option will repeat three times.

1. No brake (BEEP BEEP beep)
2. Soft brake (BEEP BEEP beep beep)
3. Medium brake (BEEP BEEP beep beep beep)
4. Hard brake (BEEP BEEP beep beep beep beep)

- A single high pitched tone will sound, and you will return to the beginning of the programming menu.

3) Timing mode menu

- This menu selects which timing mode you need. This is a bit complex, it changes the timing advance of your motor. For 2-4 pole motors, you need 2 degrees. 5-9 pole motors need 7 degrees. Anything more needs 15 or 30 degrees. This option barely affects performance, and you can leave it safely alone if you are at all unsure.

- This menu is characterised by three beeps in ascending tones, then three single beeps.
- To select this menu, bring the throttle stick to roughly halfway and leave it while the correct beep sequence is sounding.
- You will then enter the options list, the options are as follows. To select one, push the stick up to full throttle again and leave it. Remember, each option will repeat three times.

1. 3 degrees advance (BEEP BEEP BEEP beep)
2. 8 degrees advance (BEEP BEEP BEEP beep beep)
3. 15 degrees advance (BEEP BEEP BEEP beep beep beep)
4. 30 degrees advance (BEEP BEEP BEEP beep beep beep beep)

- A single high pitched tone will sound, and you will return to the beginning of the programming menu.

4) Pulse frequency

- This menu controls how long the ESC pulses power to the motor for. It is really meant for performance tweaking and can be totally ignored in 99% of cases. For very high speed inrunners, a higher frequency might give better results.
- This menu is characterised by three beeps in ascending tones, then four single beeps.
- To select this menu, bring the throttle stick to roughly halfway and leave it while the correct beep sequence is sounding.
- You will then enter the options list, the options are as follows. To select one, push the stick up to full throttle again and leave it. Remember, each option will repeat three times.

1. 8KHZ (BEEP BEEP BEEP BEEP beep)
2. 16KHZ (BEEP BEEP BEEP BEEP beep beep)
3. 32KHZ (BEEP BEEP BEEP BEEP beep beep beep)
4. There is no fourth option!

- A single high pitched tone will sound, and you will return to the beginning of the programming menu.

Running the motor

- At any time in the programming menu when you have finished programming the ESC, just bring the throttle stick back to no throttle, and all options will save. Now unplug the ESC from the battery.
- To run the motor normally, plug in the ESC to the battery with the throttle stick in the LOW position. The motor will emit three ascending tones twice, then there will be a pause and two high pitched single tones will sound. After this the motor is armed and ready to go. Push that throttle up and watch it scream!

Option repeat

- If you know what you are doing, here are the options in short:
1. CELL Type AND Number SET
   - •—　　　　　　　　NiMh/Nicd　（0.8V/CELL）
   - •——　　　　　　　4LIPO　（7.4V）
   - •———　　　　　　5LIPO　（11.1V）
   - •————　　　　　6LIPO　（14.8V）
2. BRAKE SET

••—	NONE
••— —	SOFT
••— — —	MID
••— — —	HARD

3. TIMING MODE SET

•••—	3º	for 2-4 pole motor
•••— —	8 º	for 6-9 pole motor
•••— — —	15º	for 10-14 pole motor
•••— — — —	30º	for 10-14 pole motor

4. PULSE WIDTH MODULATION

••••—	8KHZ
••••— —	16KHZ
••••— — —	32KHZ