TECH ARTICLE

MANUALLY PROGRAMMING AE-2 ESC   09-2012

Here are a few tips for programming Axial's AE-2 ESC, without a computer or "Castle Link". You can manually adjust three of the most important settings in the AE-2 ESC:

1. LiPo Cut-off
2. Drag Brake
3. Reverse

Manual programming: Follow these steps to change settings on your Axial AE-2 ESC without a computer.

CAUTION: *Remove your pinion gear before calibration and manual programming as a safety precaution!*

STEP 1: Start with the transmitter ON and the ESC switched OFF and not connected to the battery.

STEP 2: Plug a battery into the ESC. Hold full throttle on the transmitter and turn the ESC switch ON. After a few seconds you will get the four rings in a row signaling full throttle calibration. Keep on holding full throttle. After a few more seconds, you will hear another four rings in a row. After the second group of four rings, relax the throttle to neutral. If you have successfully entered programming mode, the ESC will beep twice, pause, and repeat the two beeps.

STEP 3: The programming sequence is always presented in sequential order and always starts with the first setting (None) within the first section (LiPo Cutoff). The first beep(s) signifies which section of the programming you are in and the second beep(s) signifies which setting is waiting for a "yes" or "no" answer. As you go sequentially through the options, you will need to answer "yes" by holding full throttle, or answer "no" by holding full brake until the ESC accepts your answer by beeping rapidly. Once an answer has been accepted, relax the throttle back to neutral for the next question. After a "no" answer is accepted, the ESC will then present you with the next option in that section. After a "yes" answer is accepted, the ESC knows you aren't interested in any other option in that section, so it skips to the first option in the next section.

Settings and explanations:

The following section explains all the settings available to you via manual programming and what each one does to change the reactions of the ESC in order to tune it to your specific preferences. More settings are available via "Castle Link".

1. LiPo Cutoff:
Sets the voltage at which the ESC lowers or removes power to the motor in order to either keep the battery at a safe minimum voltage (Lithium Polymer cells) or the radio system working reliably (NiCad/NiMH cells).

Setting 1: None
Does not cut off or limit the motor due to low voltage. Do not use with any Lithium Polymer packs or you will irreversibly damage them! Use this setting ONLY with NiCad or NiMH packs. With continued driving the radio system may eventually cease to deliver a signal to the servo and ESC resulting in loss of control.

Setting 2: Auto-LiPo (Default)
This setting allows you to go back and forth between 2 and 3 cell LiPo packs without having to change the cutoff voltage for each one. The ESC automatically sets the cutoff voltage correctly for a 2 or 3 cell packs.

2. Drag Brake: Sets the amount of drag brake applied at neutral throttle to simulate the slight braking effect of a neutral brushed motor while coasting.

Setting 1: Drag Brake OFF
Vehicle will coast with almost no resistance from the motor at neutral throttle.

Setting 2: Drag Brake 15%
Very Low amount of braking effect from the motor at neutral throttle

Setting 3: Drag brake 25%
Low amount of braking effect from the motor at neutral throttle

Setting 4: Drag Brake 40%
More braking effect from the motor at neutral throttle.

Setting 5: Drag Brake 50%
Fairly high braking effect from the motor at neutral throttle.

Setting 6: Drag Brake 100% (Default)
Full braking effect from the motor at neutral throttle.

3. Brake / Reverse Type: Sets whether reverse is enabled or not, and exactly how it can be accessed.

Setting 1: Reverse Lockout
This setting allows the use of reverse only after the ESC senses two seconds of neutral throttle. Use it for race practice sessions and bashing, but check with your race director to see if this setting is allowed for actual racing.

Setting 2: Forward/Brake Only
Use this setting for actual sanctioned racing events. Reverse cannot be accessed under any circumstances with this setting.

Setting 3: Forward/Brake/Reverse (Default)
Reverse or forward is accessible at any time after the ESC brakes to zero motor RPM.

Axial ESC Programming Reference:

1: LiPo Cutoff
    Option 1 : None
    Option 2 : Auto-LiPo (D)*

2: Drag Brake
    Option 1 : Disabled
    Option 2 : 15%
    Option 3 : 25%
    Option 4 : 40%
    Option 5 : 50%
    Option 6: 100% (D)*

3: Brake/Reverse Type
    Option 1 : Reverse Lockout
    Option 2 : Forward/Brake Only
    Option 3 : Forward/Brake/Reverse (D)*
    (D)* = Default setting from the factory