Follow these steps to change settings on your Axial AE-3 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 (Voltage 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. **Brake / Reverse Type**
   Sets whether reverse is enabled or not, and exactly how it can be accessed.
   - **Setting 1:** Reverse Lockout (Default)
   - **Setting 2:** Forward/Brake Only
   - **Setting 3:** Forward/Brake/Reverse

2. **Brake Amount**
   Sets what percentage of available braking power is applied with full brake.
   - **Setting 1:** 25% Power
   - **Setting 2:** 50% Power (Default)
   - **Setting 3:** 75% Power
   - **Setting 4:** 100% Power

3. **Reverse Amount**
   Sets how much power will be applied in the reverse direction, if reverse is enabled.
   - **Setting 1:** 25% Power
   - **Setting 2:** 50% Power (Default)
   - **Setting 3:** 75% Power
   - **Setting 4:** 100% Power

4. **Punch / Traction Control**
   This setting controls how fast the throttle position within the ESC can be changed over time. This smooths high power starts and limits punch somewhat. As explained previously, acceleration is a matter of battery capability, but you may not want 100% of what the battery can deliver in every situation.

   This setting is crucial to drag racing as it can be used as a "traction control" to match traction conditions.
   - **Setting 1:** High
   - **Setting 2:** Medium
   - **Setting 3:** Low
   - **Setting 4:** Lowest

5. **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 (Default)
   - **Setting 2:** Drag Brake 10%
   - **Setting 3:** Drag Brake 20%
   - **Setting 4:** Drag Brake 30%
   - **Setting 5:** Drag Brake 40%

(continued on next page)
MANUALLY PROGRAMMING AE-3 ESC

6. Dead Band
You may adjust the neutral throttle “width” of the controller with this setting. Smaller values make the controller enter forward or brake/reverse with a smaller movement of your throttle trigger for finer control. Be careful, some transmitters offer better resolution than others, if your ESC will not respond to “Neutral” throttle, make this setting larger.

- Setting 1: None
- Setting 2: Low - 0.1500 ms
- Setting 3: Small - 0.0750 ms
- Setting 4: Very Small - 0.0500 ms
- Setting 5: Smallest - 0.0250 ms

7. Cutoff Voltage
Sets the voltage at which the ESC lowers or removes power to the motor to either keep the battery at a safe minimum voltage (Lithium Polymer cells) or the radio system working reliably (NiCad/NiMh packs).

- Setting 1: None
- Setting 2: Low - 5 volts
- Setting 3: Medium - 6 volts
- Setting 4: High - 9 volts
- Setting 5: Highest - 12 volts

8. Motor Timing
Advancing the timing on an electric motor can have varying effects. Lowering the timing advance will reduce the amp draw, increase runtime, reduce motor/battery temperature, and may slightly reduce top speed and punch. Raising the timing advance will increase amp draw, decrease runtime, increase motor/battery temperature, and may slightly increase top speed and punch.

- Setting 1: None
- Setting 2: Low - 10% (Default)
- Setting 3: Medium - 20%
- Setting 4: High - 30%
- Setting 5: Highest - 40%

9. Motor Type
This setting sets which type of motor you will be using with the Castle ESC. The ESC may be damaged if this setting does not match the motor type/hook-up method in the car, and this damage is not covered under warranty.

- Setting 1: None
- Setting 2: Low - Forward/Brake Only
- Setting 3: Medium - Forward/Brake/Reverse
- Setting 4: High - Reverse Lockout (D)*
- Setting 5: Highest - Reverse Lockout (D)*

Axial ESC Programming Reference:
1: Brake/Reverse Type
- Option 1: Brake/Reverse Lockout (D)*
- Option 2: Forward/Brake Only
- Option 3: Forward/Brake/Reverse

2: Brake Amount
- Option 1: Low - 25%
- Option 2: Medium - 50%
- Option 3: High - 75%
- Option 4: Normal (D)*

3: Reverse Amount
- Option 1: Low - 25%
- Option 2: Medium - 50%
- Option 3: High - 75%
- Option 4: Normal (D)*

4: Punch Control
- Option 1: High
- Option 2: Medium
- Option 3: Low
- Option 4: Lowest
- Option 5: Disabled (D)*

5: Drag Brake
- Option 1: Low
- Option 2: Medium
- Option 3: High
- Option 4: Disabled (D)*

6: Throttle Dead Band
- Option 1: Large - 0.1500 ms
- Option 2: Normal - 0.1000 ms
- Option 3: Small - 0.0750 ms
- Option 4: Very Small - 0.0500 ms
- Option 5: Smallest - 0.0250 ms

7: Voltage Cutoff
- Option 1: None
- Option 2: Auto-Lipo (D)*
- Option 3: Forward/Brake/Reverse
- Option 4: 6
- Option 5: 9
- Option 6: 12

*Denotes Default Setting