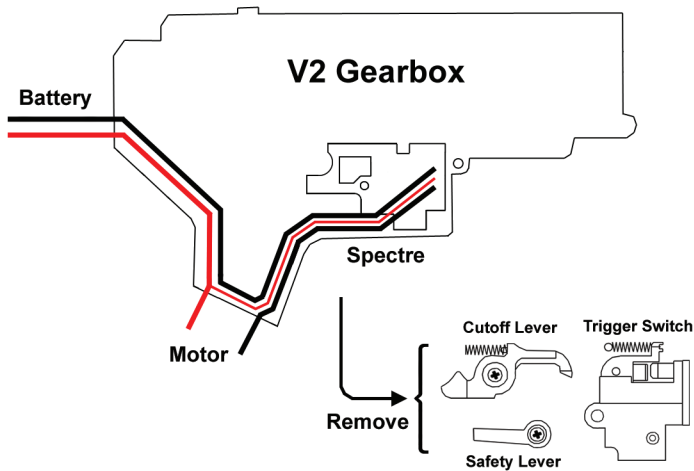
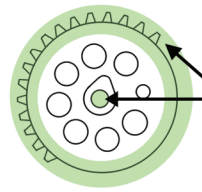


## Spectre Mk.3 Installation

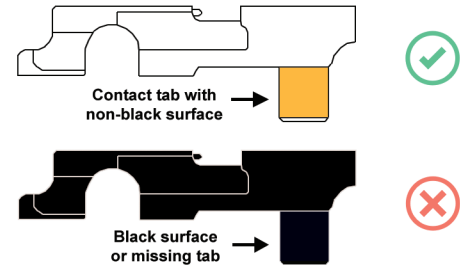


### Sector Gear Optical Requirement



Apply grease to only the teeth and axle so it does not splatter on to the optical sensor. This only applies to the gear side that faces the sensor.

### Selector Plate Optical Requirement



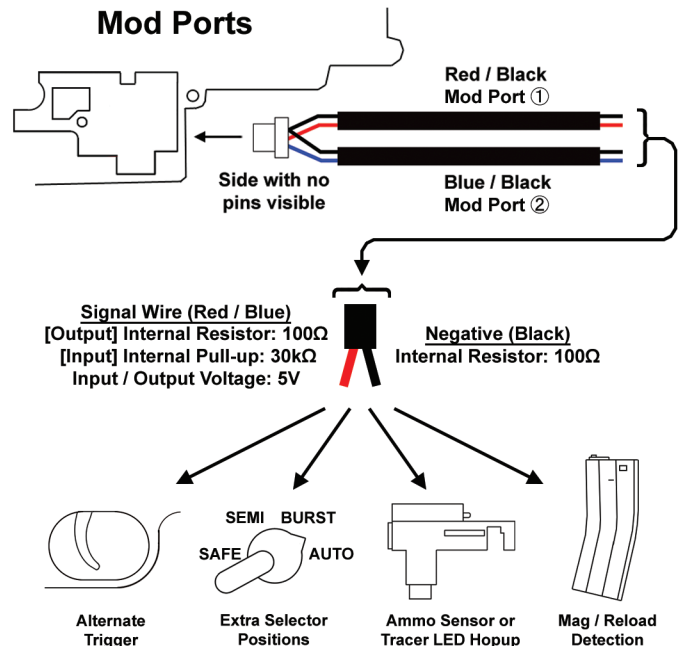
### INSTALLATION:

- Open the gearbox and remove the original wiring, trigger switch, cutoff lever, and safety lever.
- Insert the Spectre FET into the gearbox and secure it tightly with the screw from the original trigger switch.
- For optimal cycle detection properly shim both sides of the sector gear to prevent it from wobbling and limit grease coverage to only the teeth and axle as shown in the sector gear diagram.
- Route the battery and motor wires through the gearbox as shown in the gearbox diagram. Note the motor wires exiting the gearbox are reverse of the stock wiring, so the motor needs to be reversed too.
- A full length selector plate with non-black contact area is required in order to be detectable by the selector optical sensors. White tape or label can also be used as a substitute.
- The gearbox can now be reassembled and closed.

### MOD PORTS:

- The included data cable can be connected to allow interfacing with up to two external mods. Use the app to view all the supported functions and additional details (by tapping the blue texts).
- For output functions, the colored wire is the output (5V) and the black wire is negative. Use both wires when powering an LED or only the output wire if sending signals to an external circuit.
- For input functions, attach both wires to a microswitch of your choice and positioned relevant to its task. For example a switch can be positioned in the magwell for detecting when a mag is inserted.

### Mod Ports



## Programming & Stats App

### WITH BLUETOOTH APP:

- Requires a smartphone or tablet which meets the following specs:
  - iPhone : Models **4S or later** and running at least **iOS 9.0**
  - Android : Models with **Bluetooth 4.0 or later** and running at least **Android 4.3**
- Download the official app by scanning the QR code on the right or searching for "AEG Stats" on the iOS or Android app stores.
- Pull the trigger (preferably on SAFE) or reconnect the battery to wake up the FET's Bluetooth. Bluetooth will enter sleep state when idle for 10 minutes and will not appear on scans until awoken.
- Hold the smartphone or tablet next to the AEG's grip or trigger to scan for and connect to the FET.
- Once connected you can view the stats of the AEG and program the FET wirelessly. Any blue text in the app can be tapped to display additional info about it.



Scan to show  
download links

### WITH TRIGGER INPUTS:

- If the bluetooth app is unavailable the FET can be programmed via trigger inputs instead. The guide for this programming method is available at the BTC website or by scanning the QR code on the right.

## Troubleshooting

Problem	Checklist & Solutions
No response on trigger pull and the motor is not emitting any buzzes.	<p><b>Battery may be completely drained.</b></p> <ul style="list-style-type: none"> <li>Recharge or swap the battery for another. Note that if a LiPo battery is completely drained it will result in permanent reduction of its capacity and a replacement is recommended.</li> </ul> <p><b>Selector plate not detected by the optical sensors.</b></p> <ul style="list-style-type: none"> <li>Adjust the sensor sensitivity in the device settings. The smartphone app includes a calibration tool to help determine the optimal sensitivity values.</li> </ul> <p><b>Short circuit in the wiring or bad motor connection.</b></p> <ul style="list-style-type: none"> <li>Check for any tears in the wiring and the motor connectors for any broken or loose connections. The smartphone app includes an error log to help determine if the motor was disconnected.</li> </ul>
Wrong firing mode on one or more selector positions.	<p><b>Selector plate sensor sensitivity is set too low or high.</b></p> <ul style="list-style-type: none"> <li>Adjust the sensor sensitivity in the device settings. The smartphone app includes a calibration tool to help determine the optimal sensitivity values.</li> </ul> <p><b>Wrong fire modes selected during programming.</b></p> <ul style="list-style-type: none"> <li>Using the smartphone app is the quickest method of verifying if the programmed fire modes are correct.</li> </ul>
Semi fire is firing multiple shots.	<p><b>If precocking is ENABLED: The precock timing is set too high.</b></p> <ul style="list-style-type: none"> <li>Gradually lower the precock timing until semi fires normally again.</li> </ul> <p><b>If precocking is DISABLED: The motor is taking too long to fully stop.</b></p> <ul style="list-style-type: none"> <li>Re-tune the gearbox (recommended) or enable/increase the active braking setting.</li> </ul> <p><b>If braking is already MAXED: The motor is in need of maintenance or replacement.</b></p> <ul style="list-style-type: none"> <li>Clean the motor internals and replace the motor brushes if they appear worn down. Replacing the motor with a higher torque motor will also improve the braking performance.</li> </ul>
Stops firing and/or motor begins to buzz repeatedly.	<p><b>1 buzz per second: low voltage/gearbox jam/wiring short/bad connector</b></p> <ul style="list-style-type: none"> <li>Recharge or swap the battery and ensure the battery monitoring setting is not set too high.</li> <li>Clear gearbox jam if one has occurred and ensure the motor has sufficient torque to cycle the gearbox.</li> <li>Inspect wires for torn insulation that may be shorting with the gearbox and re-insulate.</li> <li>Check the battery and motor connectors for any broken or loose connections.</li> </ul> <p>① Cleared by reconnecting the battery or after waiting 60s.</p> <p><b>2 quick buzzes: digital fuse tripped by high current draw (not short circuit)</b></p> <ul style="list-style-type: none"> <li>Ensure the gears are not shimmed too tightly and the motor height is not set too high.</li> <li>Increase digital fuse setting or use higher torque gears/motor to reduce current draw.</li> </ul> <p>① Cleared by reconnecting the battery or after waiting 60s.</p> <p><b>3 quick buzzes: over-temperature sensor tripped</b></p> <ul style="list-style-type: none"> <li>Try disabling or decreasing the motor braking setting in programming mode.</li> </ul> <p>① Cleared when temperature returns to a safe threshold.</p> <p><b>4 quick buzzes: cycle-related error detected</b></p> <ul style="list-style-type: none"> <li>If the AEG is double-firing when precocking is enabled, reduce the precocking time.</li> <li>If the AEG is only firing full auto and continues firing for 1s after trigger is released then the sector gear is not being detected by the optical sensor. Clean the sensor and/or adjust the sensor sensitivity in the device settings. The smartphone app includes a calibration tool to help determine the optimal sensitivity value.</li> </ul> <p>① Does not need to be cleared, can still fire on next trigger pull.</p>
Unable to connect with Bluetooth	<p><b>The device is outside of scanning range</b></p> <ul style="list-style-type: none"> <li>Bring the smartphone closer to the AEG grip/trigger for a better signal.</li> </ul> <p><b>Bluetooth has entered sleep mode to conserve power</b></p> <ul style="list-style-type: none"> <li>Pull the trigger (preferably on SAFE) or reconnect the battery to wake up the Bluetooth.</li> </ul> <p><b>(Android) Location permission was denied for the app</b></p> <ul style="list-style-type: none"> <li>Bluetooth on Android 6.0 and above requires location permission to be enabled. If this permission was accidentally denied during the app's first run then it needs to be manually enabled in the smartphone settings OR uninstall and reinstall the app to get the prompt again.</li> </ul> <p><b>Previous connection failed to close properly and needs to be restarted</b></p> <ul style="list-style-type: none"> <li>Fully close the app by tapping the (x) in the top-right corner and then reopen the app.</li> <li>Unplug the AEG battery for 1 second to restart the Bluetooth radio.</li> <li>Try another smartphone to check if it might be a device compatibility issue.</li> </ul>
Performing a factory reset (also clears app password)	<ol style="list-style-type: none"> <li>Begin by disconnecting the battery from the AEG.</li> <li>While holding down the trigger, reconnect the battery. If performed correctly the motor will emit 4 quick buzzes indicating the FET has entered trigger programming mode.</li> <li>Do NOT release the trigger yet, continue holding the trigger for another 5 seconds until the motor emits a single long buzz indicating a successful factory reset. The trigger may then be released.</li> <li>Exit programming mode by disconnecting the battery for at least 1 second.</li> </ol> <p>⚠ <b>Further trigger inputs without disconnecting the battery may result in accidental changes to the settings.</b></p>

## Limited Lifetime Warranty

**COVERAGE:** BlackTalon Concepts warrants for the lifetime of the product to be free from defects in material and workmanship. If the product fails due to a manufacturing defect during normal usage then it will be repaired without charge, or replaced, at our discretion. Our obligation to repair or replace shall be the purchaser's sole and exclusive remedy under this warranty.

**NOT COVERED:** (a) Any alteration or modification of the product that directly or indirectly resulted in the damage. (b) Any abuse, improper use, negligent use, or use exceeding the permitted limits of the product. (c) Torn or damaged wiring due to improper closure of the gearbox or by contact with the motor shaft or pinion. Any damage not covered by the warranty may be repaired at our discretion for a reasonable rate and charged a fee for return shipping.

**TRANSFER:** The warranty provided is transferable without limitation to any subsequent purchaser or third parties for use of the full duration. No proof of purchase nor documentations are required for the warranty procedure.