Thank you for choosing Yeah Racing Products. Welcome to the power and convenience of Brushless RC. By purchasing the HackTronic G2 Competition Brushless Electronic Speed Control (ESC) you have chosen one of the most advanced speed controls in RC Racing. The G2 allows customization for multiple programmable parameters (using the ESC’s Program Card which can be purchased separately). Please read this manual thoroughly to familiarize yourself with the installation, setup, and operation. By operating this product, you accept the Yeah Racing Warranty Terms.

### Specifcations

- 32-bit processor
- Low resistance FET
- Continuous current: Brushless
- Forward/Brake/Reverse: Yes (Factory preset at Forward/Brake)
- Dimensions: 33.3 x 41 x 19.5 mm
- Weight: 43 g (w/ leads)
- Voltage Input: 4.8 - 9.9V DC
- Cells: 6 NiCd/NiMH, 2-Cell LiPo / 2.3 Cell LiFe
- Peak Current: 570A
- Motor Limit: Over 5.5 Tuns
- Motor Type: Sensored 540 sized brushless motors
- Multi Protection System: YES

### Installation & Connectors

- Connect ESC where it is protected in the event of a crash. Use the supplied brake wire.
- Connect the receiver plug to the CH2/throttle pin of the receiver.
- Improper wiring may damage the ESC and void the warranty.

### Radios & ESC set-up

- Thrust THR: Maximum / 100%
- Brake BRAKE: Maximum / 100%
- Turbo THR: With 0%
- Neutral Thrust: Center / 0
- Servo Reverse: Reverse (Futaba, KO, Sanwa)

**Initial set-up of the throttle end-points of the ESC:**
- Connect the power wires of the ESC to a fully charged battery set, making sure the polarity is correct.
- Send your receiver and transmitter first if your radio requires you to do so.
- Turn on the transmitter and hold the throttle at full brake position.
- Turn on ESC and listen for 2 beeps.
- After you hear the 2 beeps, apply full throttle and listen for another 2 beeps.
- Once you hear the 2 beeps, release the throttle to neutral position.
- A beep will then sound, signifying that the ESC endpoints have been successfully set.

**Note:** If you do not hear the beeping sound as described above, try reversing the throttle reverse setting in the transmitter.

### Customizing the ESC

Due to the different requirements of each style and class of racing, it is important to customize your ESC for each use case. Customization of the ESC is done using the Program Card (Sold Separately).

### Radio & ESC Setting Menu

**1. Program**

**BLINKY MODE:**

- Use "SELECT" button to find [BLINKY MODE], [MODIFY MODE], [OPEN STOCK MODE] or [OFF ROAD MODE].

**2. Update**

Upgrading ESC Firmware:

- Scroll to the “Update” menu and press “Enter”. This will show the current ESC FW version. Press “Enter” again to access the SD cards firmware folder. Select the FW version that you would like to use to update the Program Card. Press “Enter” again and the update will commence (it will take around 1 minute to complete the update).

### Operating Tips

**Motor Lock Protection:**
- The ESC is protected against damage when the motor is stuck and does not turn at all. Power will not be applied in this situation.
- CAUTION: Since the ESC relies on the feed back of the 3 motor wires to deploy this protection, it ONLY works if the motor does not turn AT ALL. If the motor has any rotation, the ESC will consider the motor to be operational and the power to the motor will not be cut off.

### Fall Signal Protection:

**NO ROLL**

- In case the radio signal to the ESC is interrupted for over 1 second during a run, the ESC will cut out until the signal resumes.

**ROAR Stock Spec Racing:**

- ROAR has announced the new class of Stock Spec Racing using a zero degree timing ESC with Spec Motors known commonly as ‘Blinkey’ classes. The G2 ESC satisfies the ROAR requirement showing a blinking LED when set at 0 timing and 0 turbo timing.

**Misc. Tips:**

- Connect the ESC to the battery pack only when you are ready to run. This will avoid draining the battery pack. Always disconnect the battery after your run.
- A small spark may occur when the battery is initially connected to the ESC. This is normal and is due to the charging of the capacitors.

### Detailed Explanation of each ESC Menu items

**Quick Setup:**

1. **Throttle Level:** Throttle response more soft (1) More Aggressive(5) Tuning for: 8000 for (1-2) buggy for (4-5).
2. **Punch:** Adjust to change the punch of the ESC (Level 1 to Level 15)
   - Level 1 has the least punch and Level 15 has the highest punch.
   - Adjust punch level to maximize acceleration speed with minimum wheel spin.
3. **Timing:** (Except “Blinky Mode”)
   - Allows you to adjust the timing of the motor (0-100% Mode 1 increments)
   - Generally speaking, in Brushless systems, an increase in timing will result in an increase in the RPM of the motor. However, increase in timing can also decrease the efficiency of the system, thus generating heat on the ESC and motor.
   - Lower timing has the most torque and the lowest RPM; Higher timing has the least torque and the highest RPM.
4. **Turbo Timing:** (Except “Blinky Mode”)
   - Turbo Timing is unique to brushless systems because the ESC can simulate motor timing advance. While mechanical timing advance in a brushed motor system is limited by the physical phasing of the motor, the brushless ESC timing advance can push beyond that physical limit. As a result, motors can run at a super-high RPM in the Turbo Timing mode, reaching a revolution of beyond a 2nd gear/Turbo for top speed. This menu allows you to adjust the amount of Turbo Timing in your ESC in 1º increments. (The “Turbo Timing” should never be greater in value than Timing)
### Quick Setup

<table>
<thead>
<tr>
<th>Setting</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PunchFineTune</td>
<td>Normal, +1, +2, +3, +4, +5</td>
</tr>
<tr>
<td>2. TurboDownRake</td>
<td>Fastest, (-1)+(-30), -10</td>
</tr>
<tr>
<td>3. TurboDelay</td>
<td>OFF, 0.01s, 0.02s</td>
</tr>
<tr>
<td>4. TurboStart</td>
<td>0%-100%</td>
</tr>
<tr>
<td>5. TurboPunch</td>
<td>+1, +2, +3, +4, +5</td>
</tr>
<tr>
<td>6. BrakeFreq</td>
<td>800-5000Hz, 1300Hz</td>
</tr>
<tr>
<td>7. Initial Brake Range</td>
<td>0-100%, 30%</td>
</tr>
<tr>
<td>8. MaxBrakeForce</td>
<td>0-100%, 74%</td>
</tr>
<tr>
<td>9. Battery Poly</td>
<td>LiFe, LiPolymer</td>
</tr>
<tr>
<td>10. CutOffVoltage</td>
<td>LOW 2.3v, MIDDLE 3.2v, HIGH 3.4v</td>
</tr>
<tr>
<td>11. Initial Brake Range</td>
<td>0-100%, 50%</td>
</tr>
<tr>
<td>12. MaxBrakeForce</td>
<td>0-100%, 89%</td>
</tr>
<tr>
<td>14. Battery</td>
<td>LiFe, LiPolymer</td>
</tr>
<tr>
<td>15. CutOffVoltage</td>
<td>LOW 2.3v, MIDDLE 3.2v, HIGH 3.4v</td>
</tr>
<tr>
<td>16. Initial Brake Range</td>
<td>0-100%, 50%</td>
</tr>
<tr>
<td>17. Fan Mode</td>
<td>Auto, 40%, 60%, 80%</td>
</tr>
<tr>
<td>18. BEC Voltage</td>
<td>6V, 7V</td>
</tr>
<tr>
<td>19. MotorAction</td>
<td>CCW, CW</td>
</tr>
</tbody>
</table>

### Advance Setup

- **Battery**: LiFe, LiPolymer
- **CutOffVoltage**: LOW 2.3v, MIDDLE 3.2v, HIGH 3.4v
- **EcoOverHeat**: 95°, 105°, 120°
- **MotorOverHeat**: 95°, 105°, 120°
- **NeutralRange**: 2%-15%, 6%
- **Fan Mode**: Auto, 40%, 60%, 80%
- **BEC Voltage**: 6V, 7V
- **MotorAction**: CCW, CW

**Advance Setup**:
1. **Punch fine tune** - Allows you fine tune your Punch setting more detail, if you set (+1) your punch will down to 6% when the punch setup is 7. Experiment with different settings to find the setting that fits your driving style.
2. **Turbo Power Modulation (PWM)** - Allows you to change the forward power frequency of the ESC (2k to 3k step by 500Hz).
3. **Compress** - Allows you to adjust the top speed power band of turbo, turbo punch can get more aggressive and turbo punch – get more smooth of top end power.
4. **Turbo Punch** - Allows you to adjust the top speed power band of turbo, turbo punch can get more aggressive and turbo punch – get more smooth of top end power.
5. **Blink mode** - Allows you to select the Blink mode for turbo, Turbo punch can get more aggressive and turbo punch – get more smooth of top end power.
6. **NeutralRange**: 2%-15%, 6%
7. **Fan Mode**: Auto, 40%, 60%, 80%
8. **BEC Voltage**: 6V, 7V
9. **MotorAction**: CCW, CW

### Off Road Mode brake default setup

- **Battery**: LiFe, LiPolymer
- **CutOffVoltage**: LOW 2.3v, MIDDLE 3.2v, HIGH 3.4v
- **EcoOverHeat**: 95°, 105°, 120°
- **MotorOverHeat**: 95°, 105°, 120°
- **NeutralRange**: 2%-15%, 6%
- **Fan Mode**: Auto, 40%, 60%, 80%
- **BEC Voltage**: 6V, 7V
- **MotorAction**: CCW, CW

**Limited Warranties / Repair Procedures**

All YR products are manufactured in accordance with the highest quality standards. YR guarantees this product to be free from defects in materials or workmanship for 60 days from the original date of purchase verified by sales receipt. This limited warranty does not cover damages resulting from abnormal wear, misuse or improper maintenance of the product. To avoid unnecessary service and mailing charges, always eliminate all other possibilities and check all components for malfunctions before sending in your unit for repair. Products sent in for repair that operate perfectly will be charged a service fee.

When sending in the product, always pack carefully and include the original sales receipt, a description of the problem encountered, your return address and contact information. Since we do not have control over the installation and use of this product, we cannot accept any liability for any damages resulting from the usage of this product. Therefore, using this product is at your own risk, and the user accepts all resulting liability from installing and using of the product.