## ZTW Beatles G2 40A

# ZTW Beatles G2 40A ESC Instruction Manual

Model: Beatles G2 40A | Brand: ZTW



## 1. Overview

The ZTW Beatles G2 40A Electronic Speed Controller (ESC) is designed for RC fixed-wing airplanes, multi-copters, and DIY projects. It features a 32-bit microprocessor for enhanced computing ability and faster running speed, ensuring stable and efficient performance. This ESC includes multiple protection features and offers programmable functions for precise control.

### Key Features:

- 32-bit microprocessor for stronger computing ability and faster running speed.
- Multiple protections: start-up, over-heat, low-voltage cutoff, signal loss, phase loss.
- Stronger BEC output up to 4A/5V, 6V continuous and peak to 8A.
- Super smooth, accurate, and programmable throttle linearity and response.
- Supports high RPM motors and is programmable by LCD card or transmitter.
- Synchronous rectification for energy-saving and high efficiency.

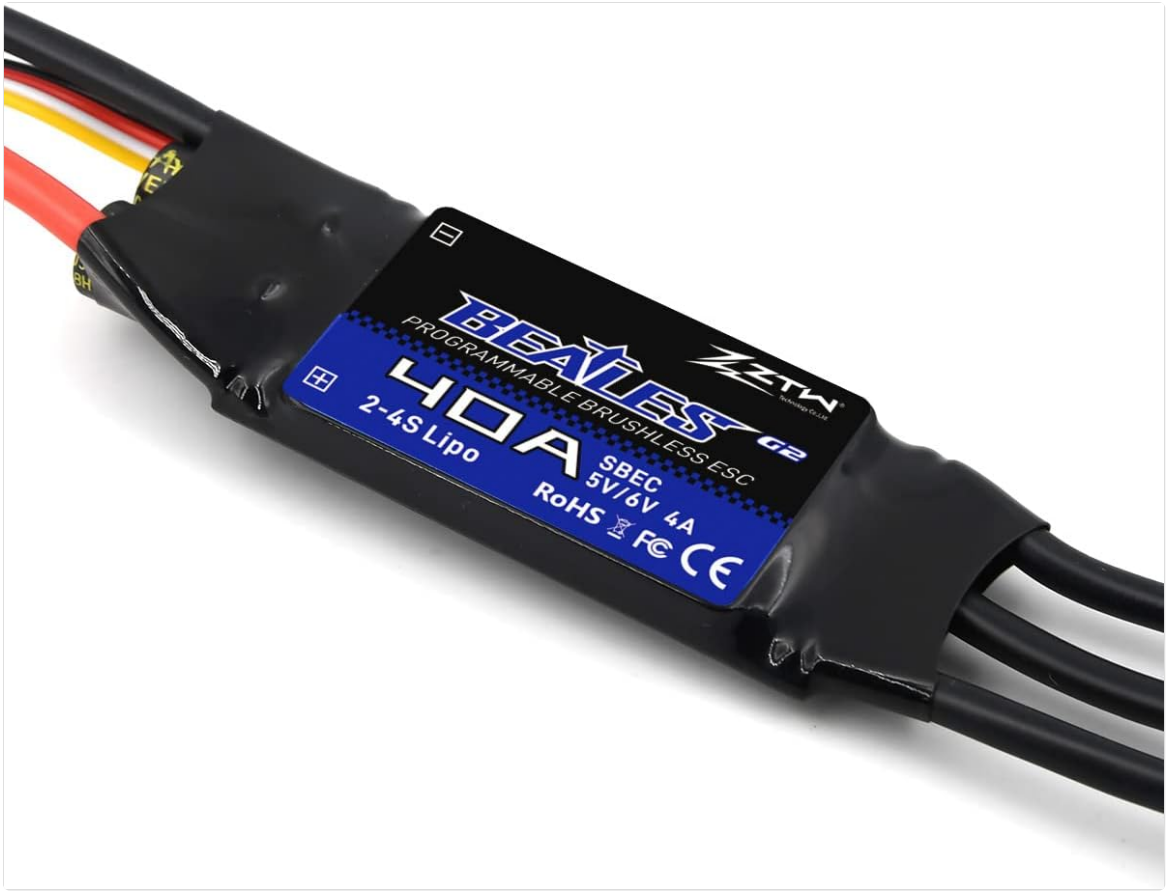


Image: ZTW Beatles G2 40A ESC with XT60 power connector and 3.5mm bullet motor connectors.

## 2. Safety Information

Always exercise caution when operating RC equipment. Improper use can lead to serious injury or damage. Please observe the following safety guidelines:

- Ensure all connections are secure before powering on.
- Never operate the ESC with damaged wiring or connectors.
- Keep hands and loose clothing away from rotating propellers and motors.
- Use appropriate battery types and voltages as specified in the product specifications.
- Avoid operating in wet conditions or extreme temperatures.
- Perform throttle calibration before first use or when changing transmitters.
- Always disconnect the battery after use.

## 3. Package Contents

The package includes the following items:

- 1 x ZTW Beatles G2 40A ESC
- 1 x User Manual

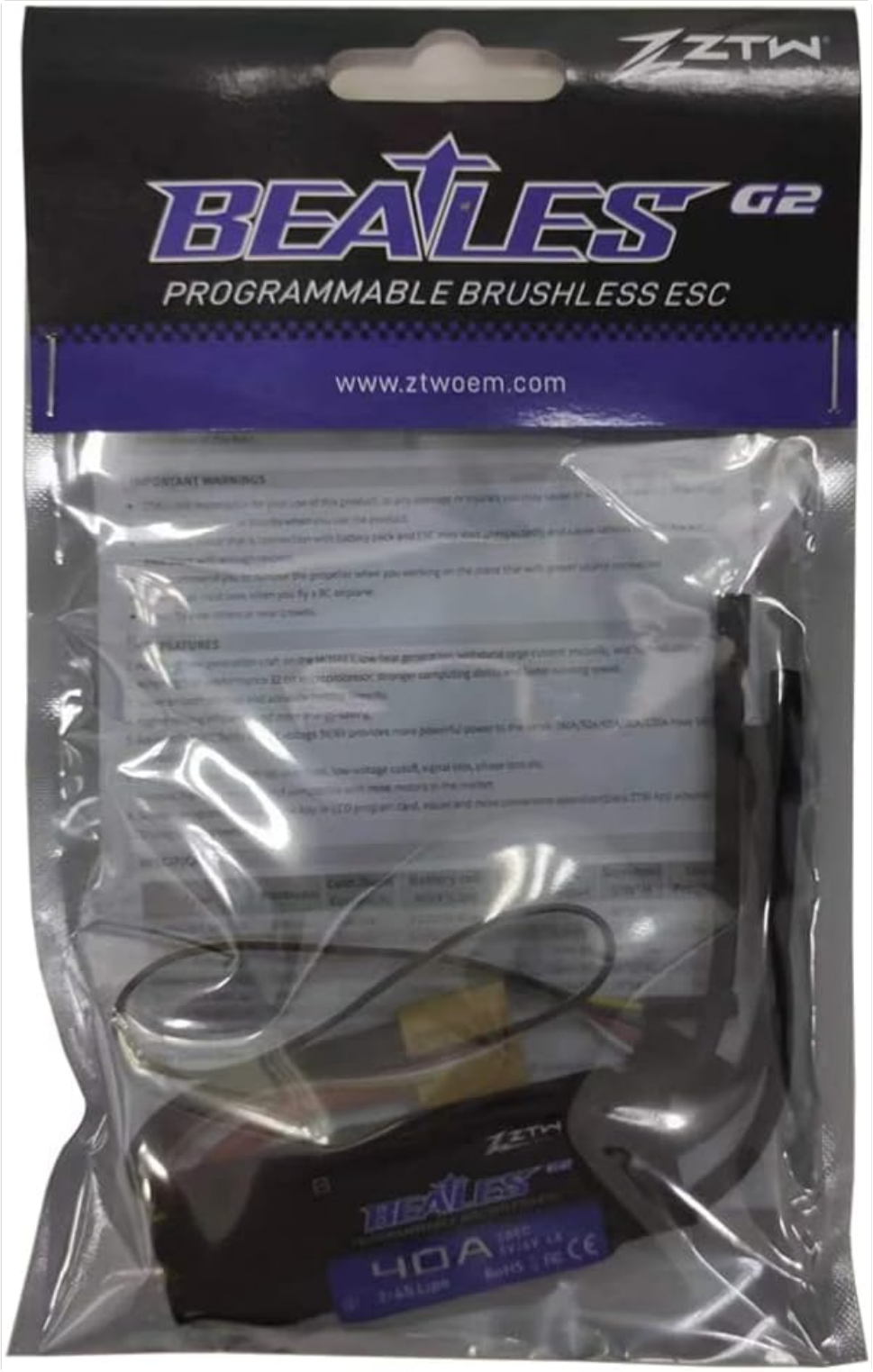


Image: ZTW Beatles G2 40A ESC in its retail packaging, showing the ESC and user manual.

## 4. Specifications

| Feature | Detail |
|---|---|
| Dimensions (LxWxH) | 68mm x 25mm x 10mm (2.4 x 0.98 x 0.39 inches) |
| Weight | 37g (2.08 ounces) |
| Battery Support | 2-4S Lipo / 5-12NC |

| | |
|---|---|
| Voltage Range | 7.6V - 15.8V |
| Continuous Current | 40A |
| Peak Current | 55A (for 10 seconds) |
| BEC Output | 4A/5V or 6V (peak 8A) |
| Motor Type | Brushless |
| RPM Support | 200,000 for 2-Pole, 82,000 for 6-Pole, 42,000 for 12-Pole |
| Power Connectors | XT60 |
| Motor Connectors | 3.5mm bullet female |

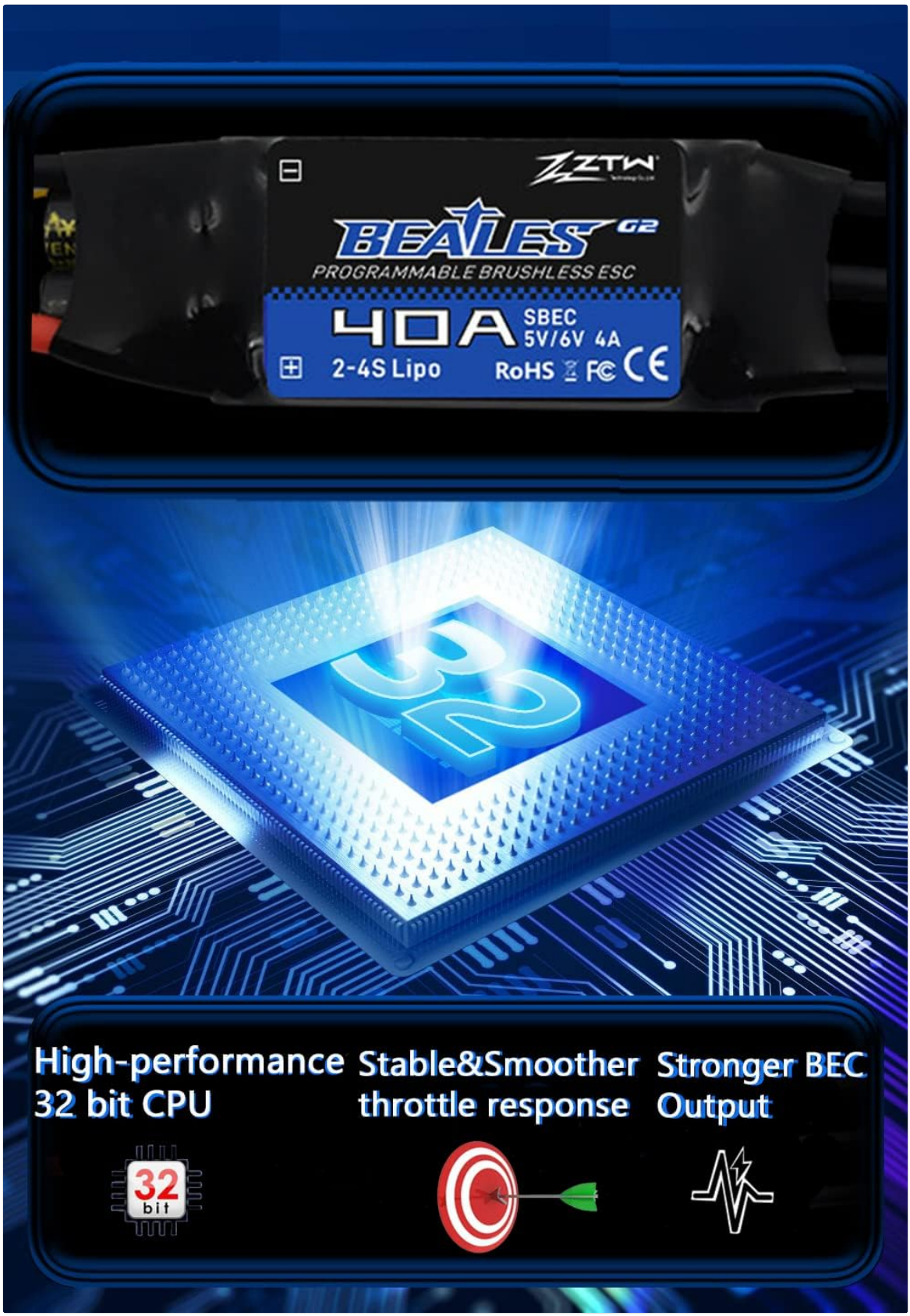


Image: Internal diagram illustrating the 32-bit CPU, stable performance, and strong BEC output.

## 5. Setup & Installation

Proper installation of the ESC is crucial for safe and optimal performance. Follow these steps for connecting your ZTW Beatles G2 40A ESC:

1. **Connect Motor Wires:** Connect the three black motor wires from the ESC to your brushless motor's connectors. The order of connection determines the motor's rotation direction. This can be adjusted later during commissioning.
2. **Connect Receiver Signal Wire:** Connect the ESC's black-red-white 3-pin signal wire to your receiver's throttle channel.
3. **Secure ESC:** Secure the ESC and its XT60 power connector to the arm of your RC model using zip ties or other appropriate fasteners. Ensure they are firmly secured to prevent movement during operation.
4. **Power Supply:** Connect the XT60 plug from the ESC to your battery.

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Video: This video demonstrates the installation process of a Brushless ESC for a drone or RC plane, including connecting motor wires and securing the ESC.

## 6. Operation

### 6.1. Throttle Calibration

Throttle calibration is essential for the ESC to correctly recognize the throttle range of your transmitter. This procedure should be performed before the first use or if you change your transmitter.

1. Turn on your transmitter and move the throttle stick to the highest position.
2. Connect the ESC's power wires to the battery.
3. Listen for two beeps from the ESC.
4. Immediately move the transmitter's throttle stick to the lowest position.
5. Listen for a confirmation tone from the ESC. This indicates successful calibration.
6. Disconnect the battery and then reconnect it. If the throttle responds normally, calibration is complete.

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Video: This video demonstrates the throttle calibration procedure for the Mantis Slim G2 ESC series.

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Video: A general guide on how to calibrate an ESC, applicable to the ZTW Beatles G2 40A ESC.

### 6.2. Programming the ESC

The ZTW Beatles G2 40A ESC offers several programmable functions such as brake type, cut-off voltage, soft start, and motor direction. Programming can be done using your transmitter or an optional LCD Program Card G2.

#### Programming via Transmitter:

1. Turn on the transmitter and move the throttle stick to the top position.
2. Connect a battery to the ESC.
3. Listen for a series of beeps indicating entry into programming mode. Each beep sequence corresponds to a specific parameter.
4. Move the throttle stick to the bottom position to enter the corresponding parameter item.

5. Move the throttle stick to the top position to save the selected parameter value. Programming is completed.
6. Disconnect the battery to exit programming mode.

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Video: This video demonstrates how to program your ESC using the transmitter.

### Programming via LCD Program Card G2:

1. Unplug the ESC throttle cable from the receiver.
2. Insert the LCD Program Card G2 into the ESC's throttle cable.
3. Connect the ESC to the battery.
4. Wait for the LCD screen to display the power-on interface.
5. Press the "ITEM" or "OK" button to select parameters and program.
6. Upon completion of programming, press the "OK" button to save the parameters.

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Video: This video shows how to set parameters for the Mantis Slim G2 ESC using an LCD Program Card.

## 6.3. SMR (Switch Motor Rotation) Function

The SMR function allows you to change the motor rotation direction. This is particularly useful for aircraft landing, as it can effectively shorten the landing distance.

1. Ensure the SMR function is set to "ON" in the ESC programming.
2. With the throttle below 50%, flip the 2-stage switch on your transmitter to change the motor rotation.

**Note: The SMR function is only effective when the throttle is below 50% and is primarily intended for use during aircraft landing to shorten the landing distance.**

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Video: This video demonstrates how to set and use the SMR (Switch Motor Rotation) function of your ESC.

# 7. Maintenance

To ensure the longevity and optimal performance of your ZTW Beatles G2 40A ESC, follow these maintenance tips:

- Keep the ESC clean and free from dust, dirt, and moisture.
- Regularly inspect all wires and connectors for signs of wear, fraying, or damage. Replace any damaged components immediately.
- Ensure adequate airflow around the ESC during operation to prevent overheating.
- Store the ESC in a dry, cool place away from direct sunlight and extreme temperatures.

# 8. Troubleshooting

If you encounter issues with your ZTW Beatles G2 40A ESC, consider the following common troubleshooting steps:

- **Motor not spinning:**
  - Check all power connections (battery to ESC, ESC to motor).
  - Ensure the throttle is calibrated correctly.
  - Verify that the receiver is properly bound to the transmitter.
  - Inspect motor wires for loose connections or damage.
- **Motor stutters or runs irregularly:**
  - Check motor timing settings (can be adjusted via programming).
  - Ensure motor phase wires are correctly connected.
  - Verify battery voltage is within the specified range.
- **ESC overheating:**
  - Ensure adequate ventilation around the ESC.
  - Check for excessive current draw (e.g., oversized propeller, motor issues).
  - Verify motor timing is not set too aggressively.
- **No response from ESC after power-on:**
  - Check battery connection and voltage.
  - Ensure the ESC's signal wire is correctly plugged into the receiver.
  - Re-perform throttle calibration.

## 9. Warranty & Support

ZTW and HAWK HOBBY offer a 100% free warranty for this ESC. For warranty claims or technical support, please contact your retailer or the manufacturer directly with your proof of purchase.
For further assistance, refer to the official ZTW website or contact their customer service.