FLYCOLOR 90A

Instruction Manual

FLYCOLOR 90A Waterproof Brushless ESC Electronic Speed Controller

Model: 90A

1. Introduction

This manual provides comprehensive instructions for the safe and effective use of your FLYCOLOR 90A Waterproof Brushless Electronic Speed Controller (ESC). Designed for model ships and RC boats, this ESC features a powerful MCU, smooth throttle linearity, and multiple protection functions. Please read this manual thoroughly before operation to ensure optimal performance and longevity of your device.

2. Safety Information

- Always disconnect the battery from the ESC when not in use to prevent accidental motor activation.
- Ensure all connections are secure and properly insulated to avoid short circuits.
- Operate the ESC within its specified voltage and current limits.
- Keep the ESC away from extreme temperatures and direct sunlight.
- This product is recommended for users aged 14 years and up. Adult supervision is advised for younger users.
- In case of overheating (above 100°C), the ESC will automatically reduce output power. Allow it to cool down before resuming full operation.

3. Product Features

- Powerful and high-performance MCU for intelligent control.
- User-configurable functions to meet specific demands.
- Unique circuit design with strong anti-interference capabilities.
- Adjustable start mode for fast throttle response and smooth speed control linearity.
- Compatible with various scale boats and racing boats.

- Adjustable low-voltage protection threshold.
- Built-in switch BEC (5.5V/5A) for large power load with servo, ensuring lower power dissipation.
- Waterproof design for reliable operation in marine environments.
- Multiple protection functions: input voltage abnormal protection, low-voltage cutoff protection, over-thermal protection, and throttle signal loss protection.
- High power safety performance: motor will not start immediately regardless of throttle lever position.
- Cycle menu setting for simple operation.
- Supports setting with a program box and transmitter.

4. Product Overview and Dimensions

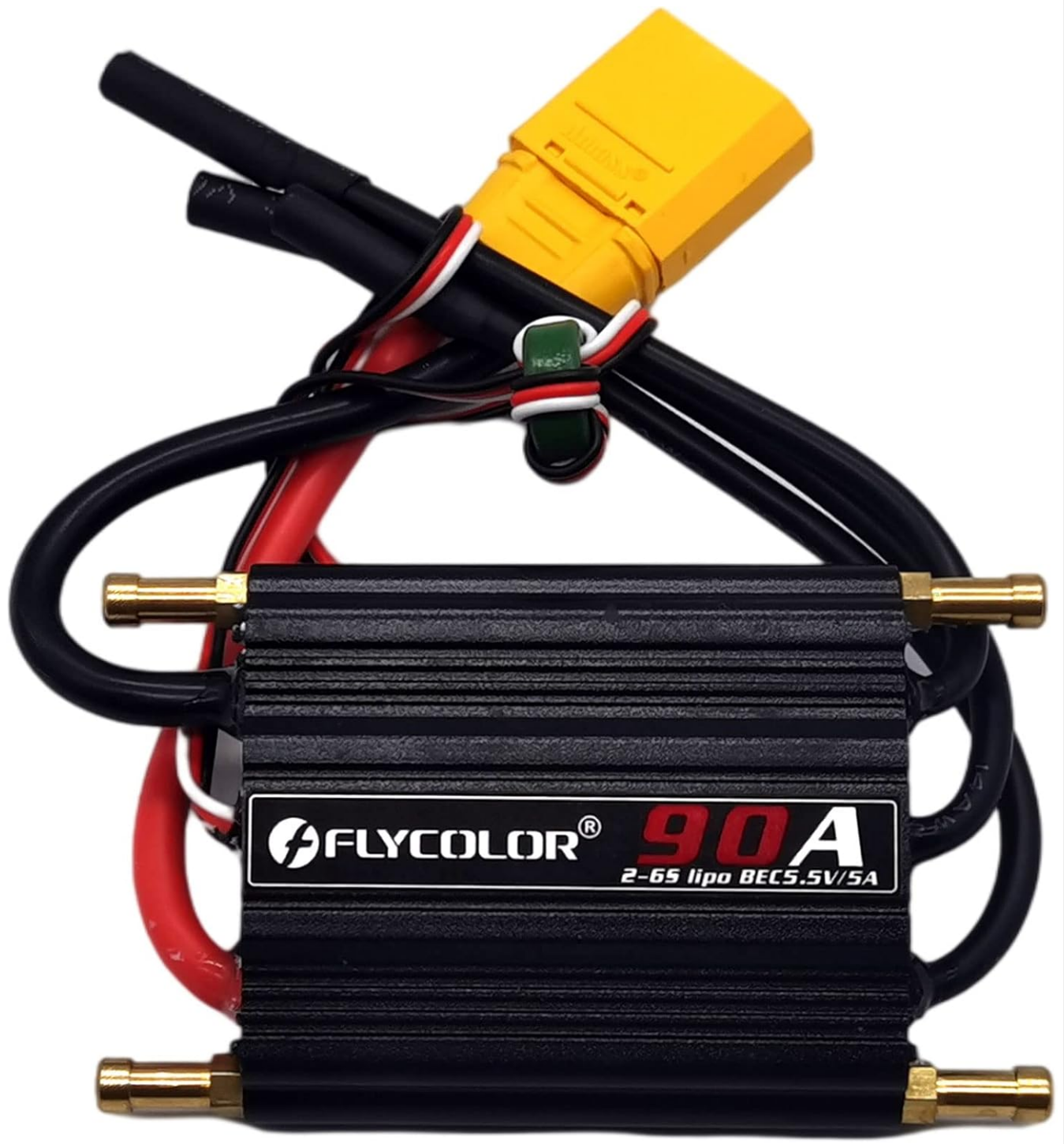

Figure 4.1: Front view of the FLYCOLOR 90A Waterproof Brushless ESC, showing the main unit with attached power and motor wires, and an XT90 battery connector.

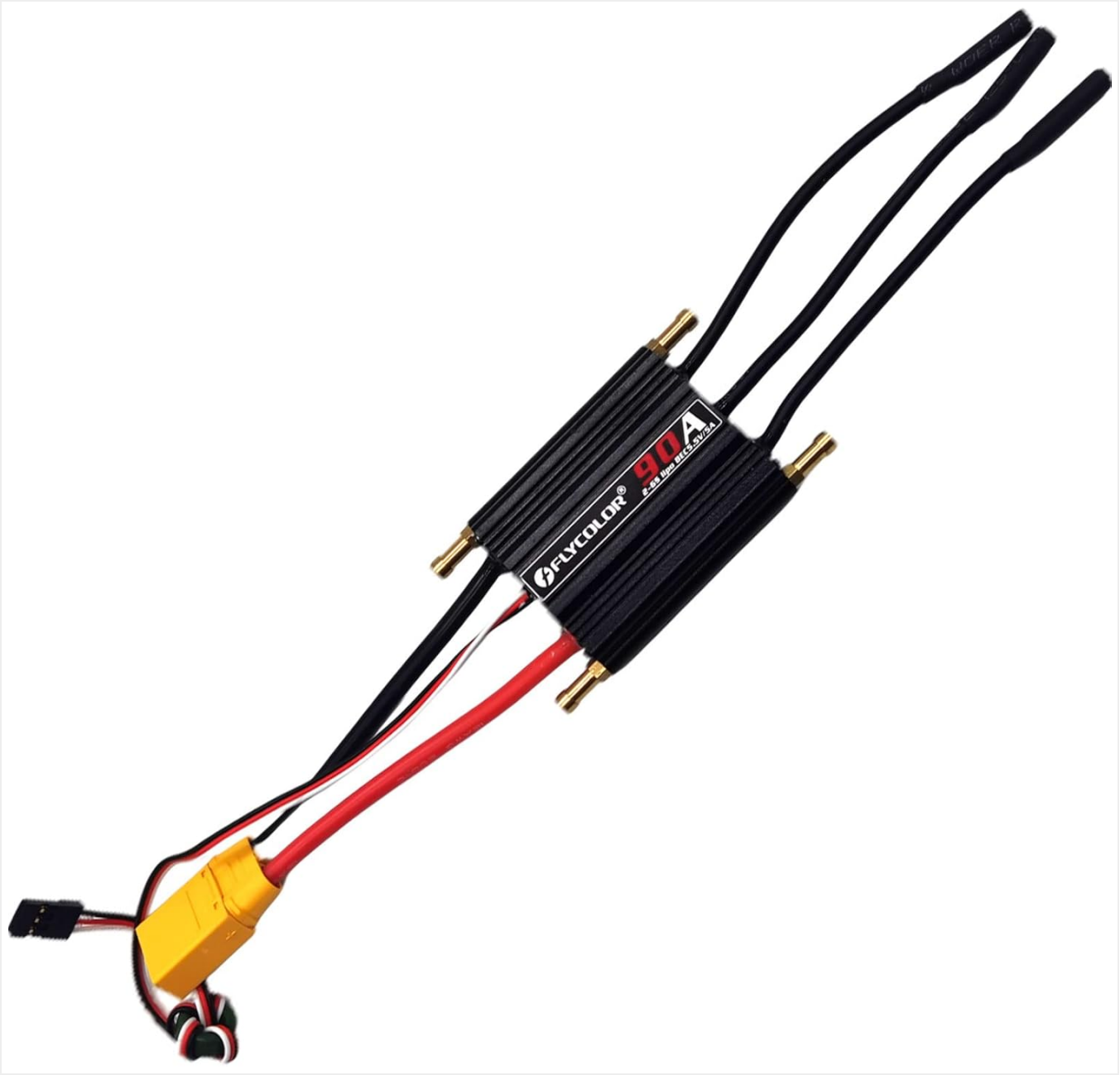

Figure 4.2: Top-down view of the ESC, illustrating the full length of the wires including the signal cable and motor phase wires.

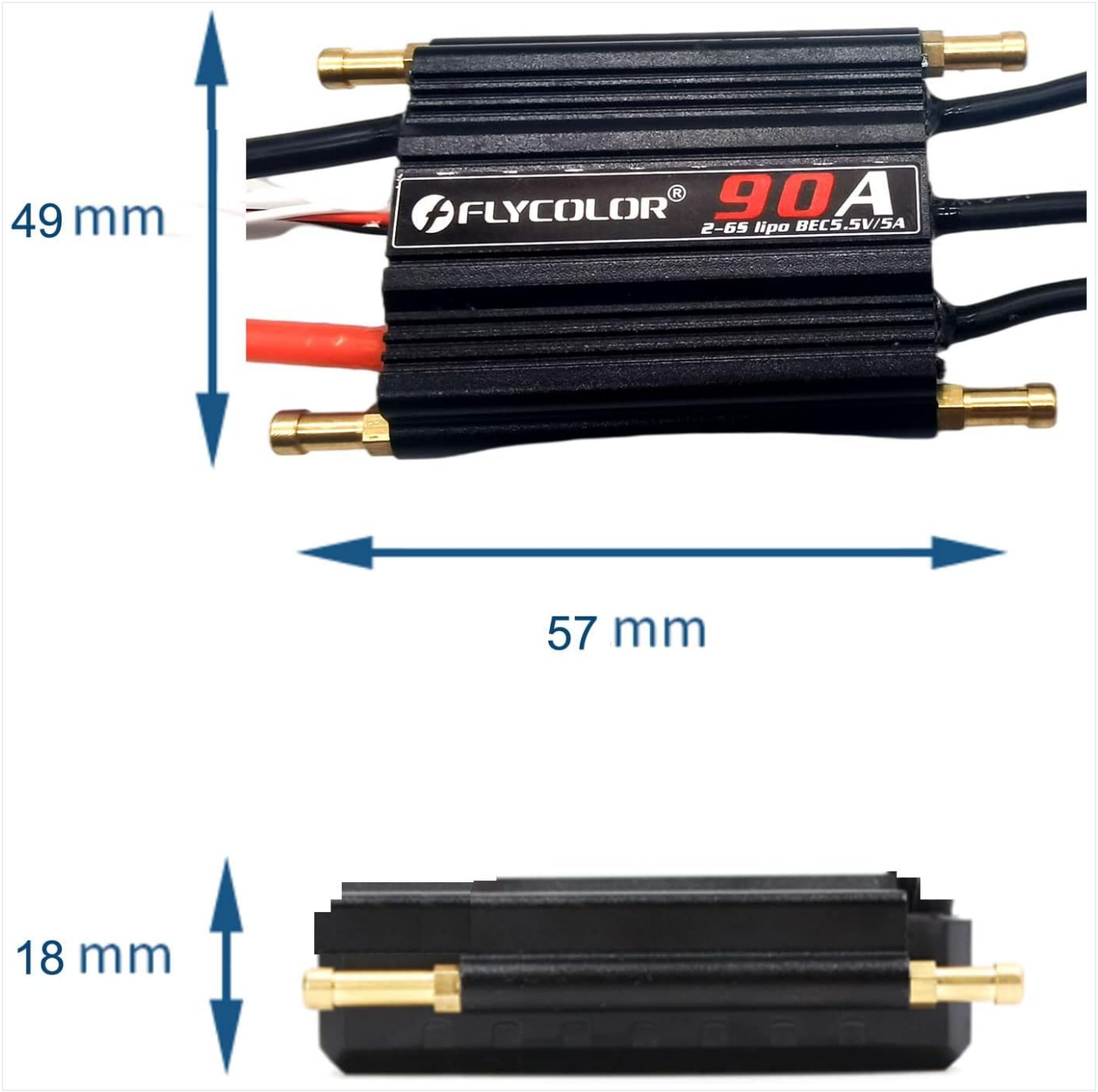

Figure 4.3: Diagram illustrating the physical dimensions of the ESC: 57mm length, 49mm width, and 18mm height.

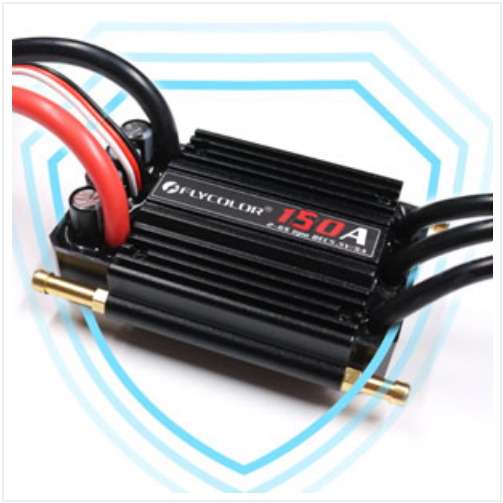

Figure 4.4: Close-up of the internal circuitry highlighting the 5.5V SBEC, capable of providing a continuous current of up to 5A for high-power steering gear and other electrical equipment.

5. Setup and Installation

Proper installation is crucial for the performance and safety of your ESC. Follow these steps carefully:

1. **Mounting:** Securely mount the ESC in a well-ventilated area within your model ship or RC boat. Ensure it is protected from physical impact.
2. **Motor Connection:** Connect the three motor phase wires from the ESC to your brushless motor. The order of connection may affect motor rotation direction. If the motor spins in the wrong direction, swap any two of the three motor wires.
3. **Battery Connection:** Connect the XT90 battery connector of the ESC to your compatible LiPo battery (2-6S). Ensure correct polarity: red to positive (+), black to negative (-).
4. **Receiver Connection:** Plug the small signal cable from the ESC into the throttle channel of your RC receiver (usually channel 2).
5. **Water Cooling (if applicable):** If your model utilizes a water cooling system, ensure the water inlet and outlet tubes are properly connected to the ESC's cooling ports.

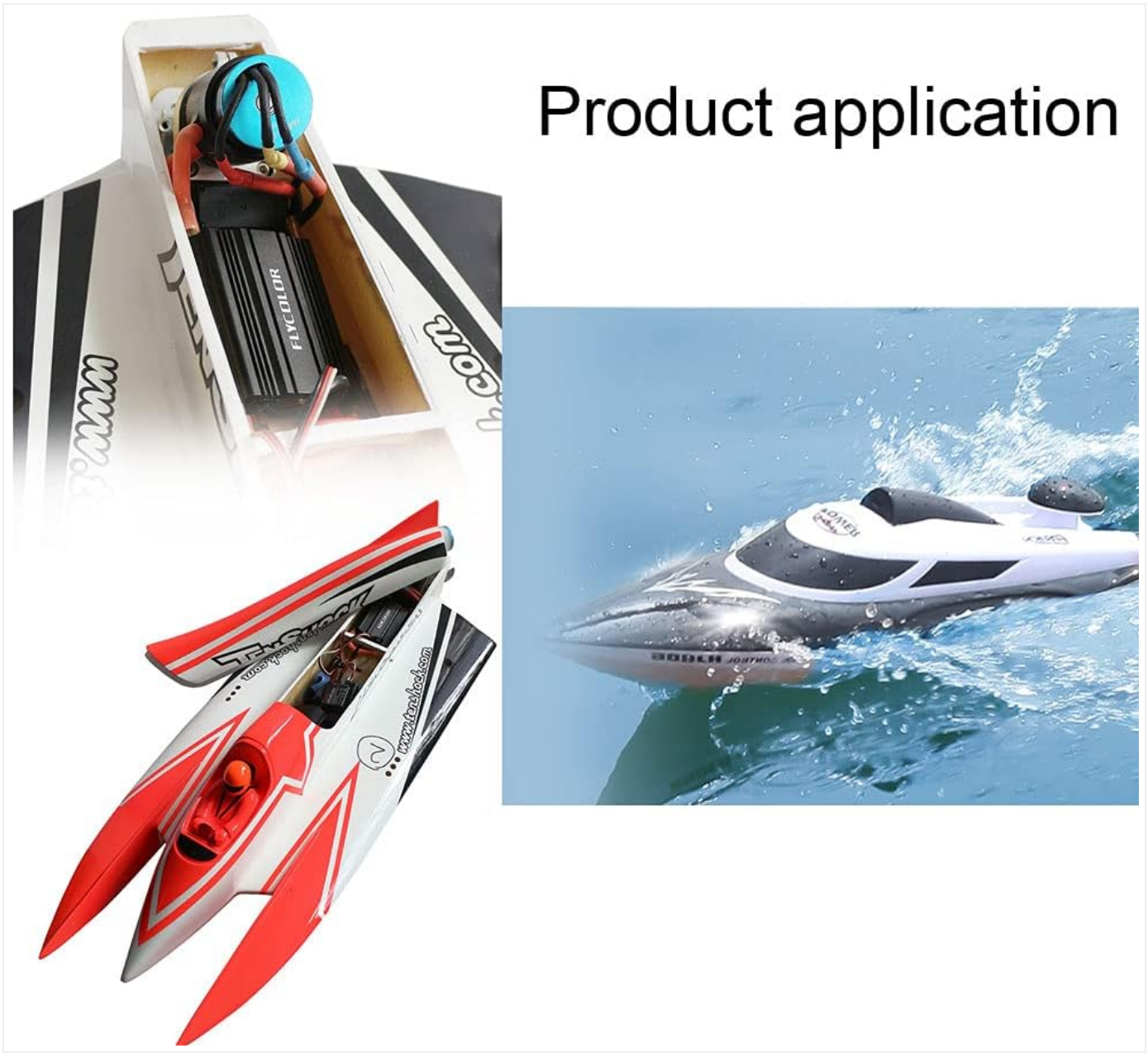

Figure 5.1: Example of the ESC installed within the hull of an RC boat, demonstrating typical placement and connections.

6. Operating Instructions and Programming

The ESC offers various programmable settings to optimize performance. These settings can typically be adjusted using your transmitter or a dedicated program card.

6.1 Initial Calibration (Throttle Range)

1. Turn on your transmitter and set the throttle trim to neutral.
2. Connect the battery to the ESC while holding the throttle stick at full throttle.
3. Wait for the ESC to emit a series of beeps indicating it has detected the full throttle position.
4. Move the throttle stick to the lowest position (full brake/reverse).
5. Wait for another series of beeps indicating the lowest throttle position has been set.
6. The ESC is now calibrated and ready for use.

6.2 Programmable Parameters

The FlyMonster-90A ESC allows users to set various functions. Refer to the program card manual (if using one) for detailed instructions on each parameter. Common adjustable parameters include:

- **Running Mode:** Forward/Brake, Forward/Brake/Reverse.
- **Motor Direction:** Normal/Reverse.
- **Low Voltage Cutoff:** Adjustable threshold to protect battery.
- **Start Mode:** Punch level for initial acceleration.
- **Timing:** Motor timing adjustment for efficiency or power.
- **BEC Voltage:** Fixed at 5.5V.

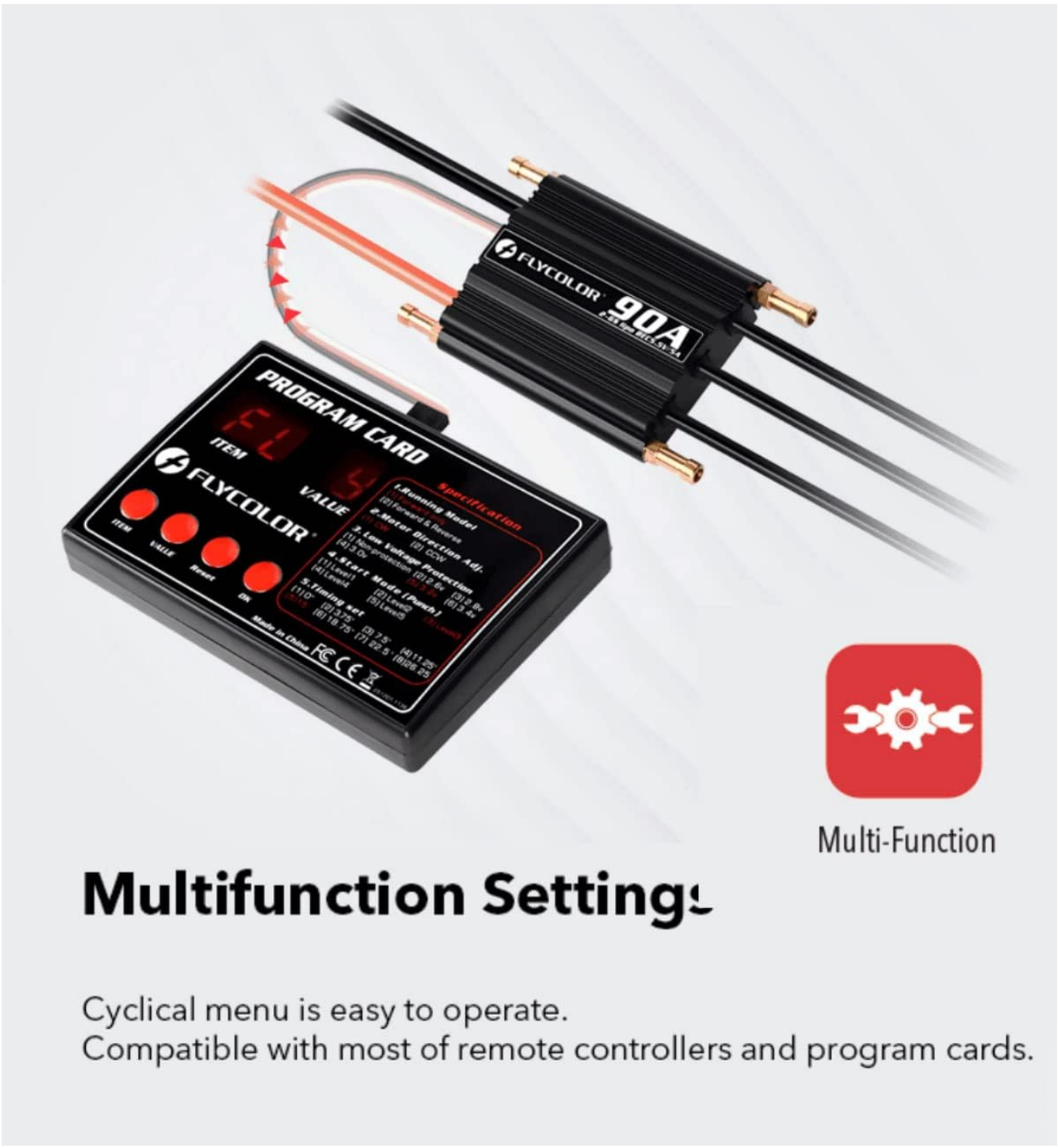

Figure 6.1: The ESC connected to a program card, demonstrating the interface for adjusting various settings. The cyclical menu simplifies operation and is compatible with most remote controllers and program cards.

7. Maintenance and Care

- After each use, especially in saltwater, rinse the ESC with fresh water to remove any salt or debris.
- Ensure the ESC is completely dry before storage.
- Regularly inspect all wires and connectors for signs of wear, damage, or corrosion. Replace damaged components immediately.
- Store the ESC in a cool, dry place away from direct sunlight and extreme temperatures.
- Do not attempt to open or modify the ESC casing, as this may void the warranty and compromise its waterproof integrity.

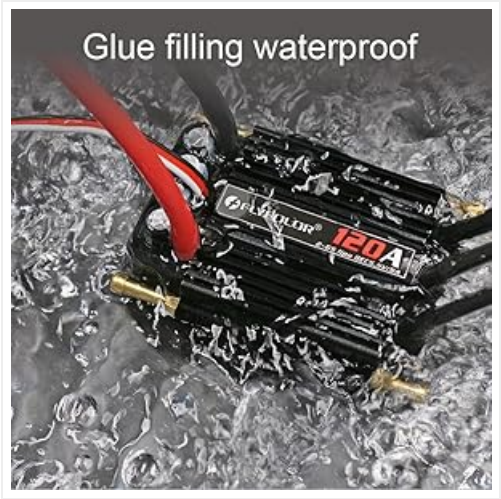

Figure 7.1: The ESC submerged in water, demonstrating its waterproof design, which is achieved through glue filling.

8. Troubleshooting

If you encounter issues with your ESC, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Motor does not start or jitters.	Incorrect throttle calibration, loose motor wires, motor/ESC issue.	Perform throttle calibration. Check all motor wire connections. Ensure motor is not seized.
ESC overheats.	Overload, insufficient cooling, incorrect motor timing.	Reduce load. Ensure water cooling system is functioning (if applicable). Adjust motor timing.
Motor runs in the wrong direction.	Incorrect motor wire connection.	Swap any two of the three motor phase wires.
No response from ESC.	No power, signal loss, damaged ESC.	Check battery connection and charge. Verify receiver connection and transmitter power.
Low voltage cutoff activates too soon.	Low voltage cutoff threshold set too high, battery voltage too low.	Adjust low voltage cutoff setting. Charge battery fully.

9. Specifications

Parameter	Value
Model Number	90A
Continuous Current	90A
BEC Output	5.5V/5A (Switch BEC)
Input Voltage	2-6S LiPo
Waterproof Rating	Waterproof (Glue filling)
Dimensions (L x W x H)	57 x 49 x 18 mm (approx.)
Item Weight	5 ounces (approx. 141.75 grams)
Recommended Age	14 years and up

Parameter	Value
ASIN	B09JWP3F26

10. Warranty and Support

For warranty information and technical support, please contact FLYCOLOR customer service or refer to the official FLYCOLOR website. Keep your purchase receipt as proof of purchase.
You can visit the official FLYCOLOR store on Amazon for more products and information:FLYCOLOR Amazon Store.