GoolRC FPM4216558506111BB

GoolRC 3650 4300KV Brushless Motor Combo User Manual

Model: FPM4216558506111BB

1. Introduction

This user manual provides detailed instructions for the GoolRC 3650 4300KV Brushless Motor with 60A Brushless ESC Electric Speed Controller, 25KG Digital Servo, and Programming Card. This combo set is designed for 1/8 and 1/10 scale RC cars, offering a balance of quality and performance.

Image: The complete GoolRC brushless motor combo set, including the motor, ESC, servo, and programming card.

2. Product Components

The GoolRC combo set includes the following key components:

- **3650 Brushless Motor (4300KV):** A high-efficiency motor with pure copper windings and a precision-balanced rotor for maximum RPM and reliability.
- **60A Brushless Electronic Speed Controller (ESC):** Features enhanced throttle response, strong brakes, and linearity. It supports a program card for adjustments and includes multiple protection features.
- **25KG Digital Servo:** Provides high torque for steering control.
- **Programming Card:** Used to adjust various parameters of the ESC.

2.1. 3650 Brushless Motor

This 4-pole brushless motor is designed for high performance, featuring high purity copper windings to maximize efficiency. Its precision-balanced rotor ensures smoothness and reliability.

Image: Detailed view of the 3650 brushless motor, highlighting its 15mm shaft length, 3.175mm shaft diameter, and 4.0mm gold connectors.

2.2. 60A Brushless ESC

The 60A ESC provides excellent acceleration and throttle linearity. It is waterproof and includes essential protection features such as low voltage cut-off, over-heat protection, throttle signal loss protection, and motor blocked protection. The ESC also features efficient heat dissipation.

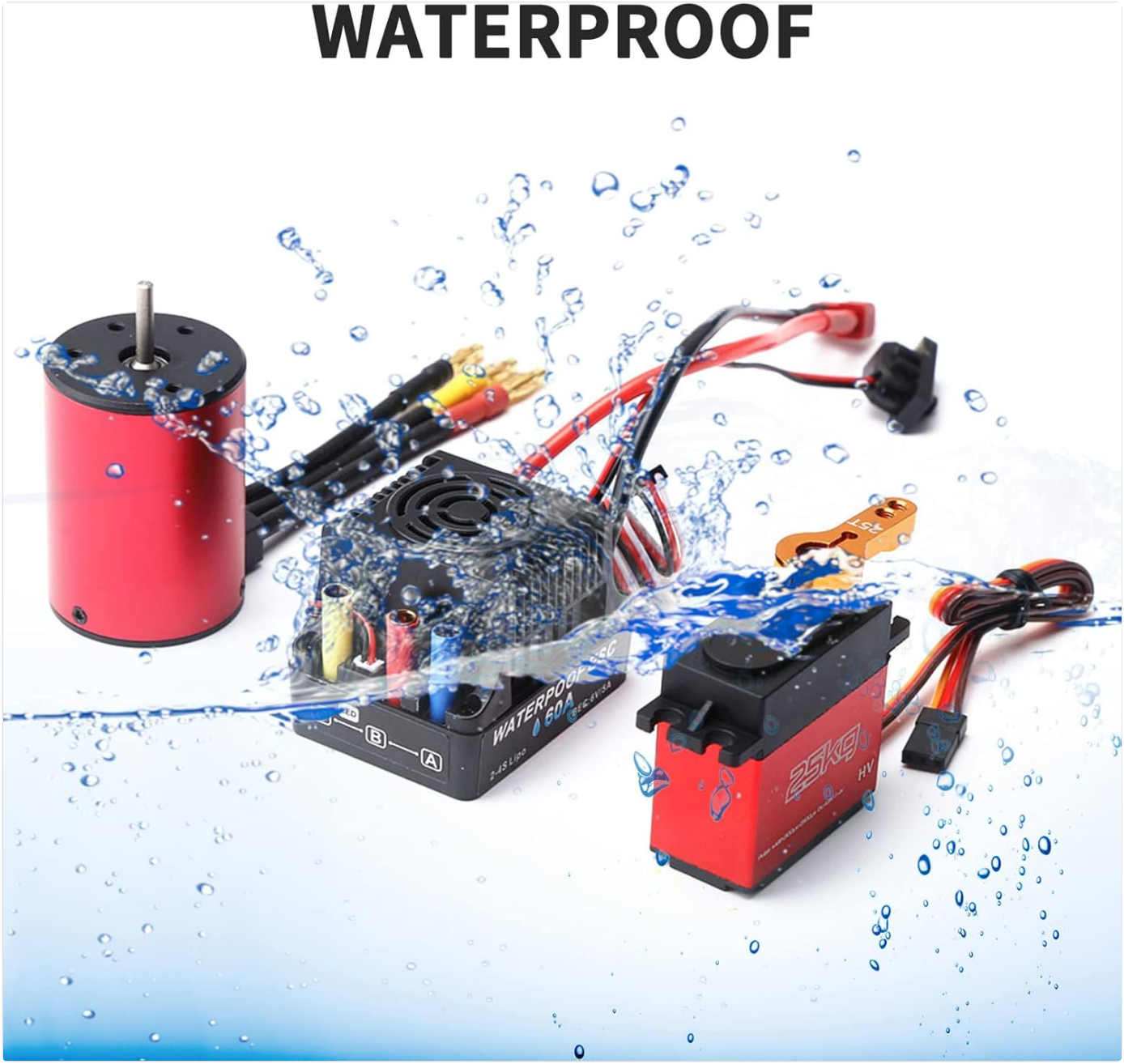

Image: The 60A waterproof ESC shown with water, illustrating its water-resistant design.

Image: Illustration of the heat dissipation mechanism of the 60A ESC, showing airflow arrows.

2.3. 25KG Digital Servo

This digital servo offers 25KG of large torque, essential for precise steering control in RC vehicles. It features copper and aluminum gears for durability.

Image: The 25KG digital servo, highlighting its high torque capability.

2.4. Programming Card

The programming card allows users to easily adjust various parameters of the ESC, including low voltage cut-off, start mode, max brake force, max reverse force, and neutral range.

Image: The programming card shown with the other components of the GoolRC combo set.

3. Setup and Installation

Follow these steps for proper installation and setup of your GoolRC brushless motor combo:

1. **Motor Installation:** Securely mount the 3650 brushless motor into your RC car chassis. Ensure proper gear mesh between the motor pinion and the spur gear.
2. **ESC Connection:**
    - Connect the three motor wires (usually color-coded or labeled A, B, C) from the ESC to the corresponding motor terminals. Ensure correct polarity if not color-coded.
    - Connect the battery connector from the ESC to your RC car's battery. Ensure the battery type (2-4S Lipo) is compatible with the ESC.
    - Plug the ESC's signal cable (usually a three-wire servo connector) into the throttle channel of your RC receiver (typically channel 2).
3. **Servo Installation:** Mount the 25KG digital servo in the designated servo location in your RC car. Connect the servo horn to your steering linkage.
4. **Servo Connection:** Plug the servo's signal cable into the steering channel of your RC receiver (typically channel 1).
5. **Programming Card Connection:** To adjust ESC settings, connect the programming card to the ESC's programming port. Refer to the programming card section for detailed instructions.

6. **Initial Calibration:** Before first use, calibrate the ESC with your radio transmitter. This typically involves setting the neutral, full throttle, and full brake positions. Refer to your RC transmitter's manual for specific calibration procedures.

4. Operating Instructions

Once installed and calibrated, your GoolRC brushless system is ready for operation. Always ensure your battery is fully charged and securely connected.

- **Power On:** Turn on your radio transmitter first, then connect the battery to the ESC. The ESC will typically emit a series of beeps indicating successful power-on and cell count detection.
- **Throttle Control:** Use the throttle trigger on your transmitter to control the motor speed. Push forward for acceleration, pull back for braking, and further back for reverse (if enabled).
- **Steering Control:** Use the steering wheel on your transmitter to control the 25KG digital servo for precise steering.
- **ESC Programming:** Use the provided programming card to fine-tune ESC parameters such as:
    - *Low Voltage Cut Off:* Protects your battery from over-discharge. Adjustable to 3.1V/Cell, 2.8V/Cell, 3.3V/Cell, or No cut-off.
    - *Start Mode:* Adjusts initial acceleration (Medium, Soft, Strong).
    - *Max Brake Force:* Sets the maximum braking power (25%, 50%, 75%, 100%).
    - *Max Reverse Force:* Sets the maximum power in reverse (25%, 50%, 75%, 100%).
    - *Neutral Range:* Defines the dead band around the neutral throttle position (6%, 9%, 12%, work state).
- **Power Off:** Always disconnect the battery from the ESC first, then turn off your radio transmitter.

5. Maintenance

Regular maintenance ensures the longevity and optimal performance of your GoolRC components:

- **Cleaning:** After each use, especially in dusty or wet conditions, clean the motor, ESC, and servo. Use a soft brush or compressed air to remove dirt and debris. While the ESC is waterproof, avoid prolonged submersion and ensure it is dry before storage.
- **Motor Inspection:** Check the motor's shaft and bearings for any signs of wear or damage. Ensure the motor mounting screws are tight.
- **ESC Inspection:** Visually inspect the ESC for any damaged wires, connectors, or signs of overheating. Ensure the cooling fan (if present) is free of obstructions and functioning correctly.
- **Servo Inspection:** Check the servo horn and linkages for looseness or damage. Ensure the servo operates smoothly without binding.
- **Connector Check:** Periodically inspect all electrical connectors (battery, motor, servo) for corrosion or loose connections.
- **Storage:** Store components in a dry, cool place away from direct sunlight and extreme temperatures.

6. Troubleshooting

This section addresses common issues you might encounter:

Problem	Possible Cause	Solution
Motor not responding / No power	Battery not connected, low battery voltage, ESC not calibrated, loose connections.	Check battery connection and charge level. Re-calibrate ESC. Secure all connections.

Problem	Possible Cause	Solution
Motor stutters or cogging	Incorrect motor wiring, sensor wire issue (if applicable), ESC timing setting, gearing too high.	Verify motor wire connections. Adjust ESC timing. Check gearing for appropriate ratio.
ESC overheats	Over-gearing, motor too large for application, insufficient airflow, continuous heavy load.	Reduce gearing. Ensure proper ventilation. Allow cool-down periods.
Servo not responding or erratic	Loose servo connection, damaged servo, receiver issue, low BEC voltage.	Check servo connection to receiver. Test with another servo if possible. Ensure BEC output is stable.
Programming card not working	Incorrect connection, ESC not powered on, faulty card.	Ensure programming card is correctly connected to the ESC's programming port and the ESC is powered.

7. Specifications

7.1. 3650 Brushless Motor

KV(RPM/Volt): 4300KV

Watt: 850

Max RPM: 60000

Max Voltage: <8.4V

Max Amps: 100A

Rotor Poles: 4

Diameter: 36mm

Length: 50mm

Shaft Length: 15mm

Shaft Diameter: 3.175mm

Connector: 4.0mm Gold

7.2. 60A Brushless ESC

Item Model: 60A

Type: Brushless

Voltage Level: Normal

Continuous Current: 100A

Burst Current (10s): 800A

Suggested Battery Cell: 2-4S Lipo

BEC Output: 6.0V/5A

Size: 52*39*38mm

7.3. 25KG Digital Servo

Operating Voltage: 4.8 ~ 6.8 DC Volts

Dead Band: 3mus

Weight: 60g

Motor Type: DC Motor

Gear Type: Copper & Aluminum

Working Frequency: 50-333Hz

Operating Travel: 180deg (PWM 500-2500mus) or 270deg (PWM 500-2500mus)

Size: 40*20*40.5mm

7.4. Programming Card

Low Voltage Cut Off Settings: 3.1V/Cell, 2.8V/Cell, 3.3V/Cell, No cut-off

Start Mode Settings: Medium, Soft, Strong

Max Brake Force Settings: 25%, 50%, 75%, 100%

Max Reverse Force Settings: 25%, 50%, 75%, 100%

Neutral Range Settings: 6%, 9%, 12%, Work State

Image: Dimensional overview of the motor, servo, and ESC components.

8. Warranty and Support

For warranty information, technical support, or any inquiries regarding your GoolRC product, please contact GoolRC customer service directly. You can often find support contact details on the official GoolRC website or through the retailer where the product was purchased.

Visit the official GoolRC Store for more information: GoolRC Store on Amazon