INJORA MBL32-INM18-2400KV

INJORA MBL32 G2 Waterproof Brushless ESC & 2204 Fat Viper Outrunner Motor Instruction Manual

For 1/24 Axial SCX24 Upgrade

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of your INJORA MBL32 G2 Waterproof Brushless ESC and 2204 Fat Viper Outrunner Motor combo. This system is designed to enhance the performance of 1/24 Axial SCX24 micro crawlers, offering precise control and increased power. Please read this manual thoroughly before use to ensure proper function and safety.



Image 1.1: The INJORA MBL32 G2 ESC and 2204 Fat Viper Outrunner Motor package contents.

2. Product Features

- The INJORA MBL32 G2 ESC is based on AM32 firmware, specifically tailored and programmable for micro crawlers.
- Provides smooth and linear low-speed control, transitioning to powerful and aggressive high-speed performance.
- Operates quietly compared to traditional brushed systems, minimizing operational noise.
- Integrated BEC (Battery Eliminator Circuit) with adjustable output: 6.0V/7.4V.
- Waterproof design ensures reliable performance in various weather conditions.
- Supports PC programming via a USB programmer card (sold separately). Factory settings are optimized for INJORA 1721/2204 motors; adjustments are generally not recommended unless experienced.
- Includes multiple protection features: Low-voltage cutoff, fail-safe, and rotor lock protection.
- The SCX24 2204 Fat Viper Outrunner Motor significantly improves the driving performance of your RC vehicle.

3. Specifications

3.1. ESC Specifications (MBL32 G2)



Image 3.1: Detailed view of the INJORA MBL32 G2 Brushless ESC.

Parameter	Value
Part Number	MBL32 G2
LiPo Cells	2-3S
Continuous Current	25A
Peak Current	60A
BEC Output	6.0V/7.4V adjustable

BEC Current	3A
Dimensions (L*W*H)	30*19*12mm
Waterproof	Yes
App Tuning	Not Supported
Weight	0.45oz (13g)

3.2. Motor Specifications (2204 Fat Viper Outrunner)



Image 3.2: Detailed view of the INJORA 2204 Brushless Motor and its mount.

Parameter	Value
Model Number	2204

Motor Type	Sensorless Brushless Outrunner
RPM/Volt (KV)	2400KV
Motor Poles	14
Sine Mode Power	7
Max Power	2500W
No-Load Current	0.7A
Max Peak Current	50A
Motor Connectors	PH2.0 3Pin
Dimensions	28*19.2mm
Motor Output Shaft	2mm
Motor Pinion	0.5mod 12T
Weight	28g

3.3. Motor Mount Specifications

Parameter	**Value**
Housing Material	Aluminum, Carbon Fibre
Gears Material	Stainless Steel
Internal Gears	0.5mod 32T



Image 3.3: Dimensional overview of the ESC and motor components.

4. Package Contents

The INJORA MBL32 G2 ESC and 2204 Fat Viper Outrunner Motor package typically includes the following components:

- 1x INJORA MBL32 G2 Waterproof Brushless ESC
- 1x INJORA 2204 Fat Viper Outrunner Motor (2400KV)
- 1x Motor Mount (Aluminum, Carbon Fibre)
- 1x 0.5mod 12T Pinion Gear
- Necessary connection cables (e.g., receiver cable, battery connector cable)
- Small parts for installation (e.g., screws)



Image 4.1: All included components of the INJORA MBL32 G2 ESC and 2204 Fat Viper Outrunner Motor kit.

5. Setup and Installation

1. **Motor Installation:** Securely mount the 2204 Fat Viper Outrunner Motor to your RC vehicle's chassis using the provided motor mount. Ensure proper gear mesh between the motor pinion and the vehicle's main gear.
2. **ESC Placement:** Find a suitable location on your chassis for the MBL32 G2 ESC. Due to its waterproof design, it can be placed in areas exposed to moisture, but avoid submerging it for extended periods.
3. **Connections:**
    - Connect the 3-pin PH2.0 motor wires from the ESC to the motor.
    - Connect the ESC's receiver cable to Channel 2 (throttle) on your RC receiver.
    - Connect your 2S or 3S LiPo battery to the ESC's battery input connector. Ensure correct polarity.
4. **BEC Voltage Adjustment:** The MBL32 G2 features an adjustable BEC output (6.0V/7.4V). Adjust this setting according to your servo and receiver voltage requirements. Refer to your servo's specifications for compatible

voltage.

5. **Initial Test:** Before full operation, perform a low-speed test to ensure all connections are correct and the motor responds appropriately to throttle input.

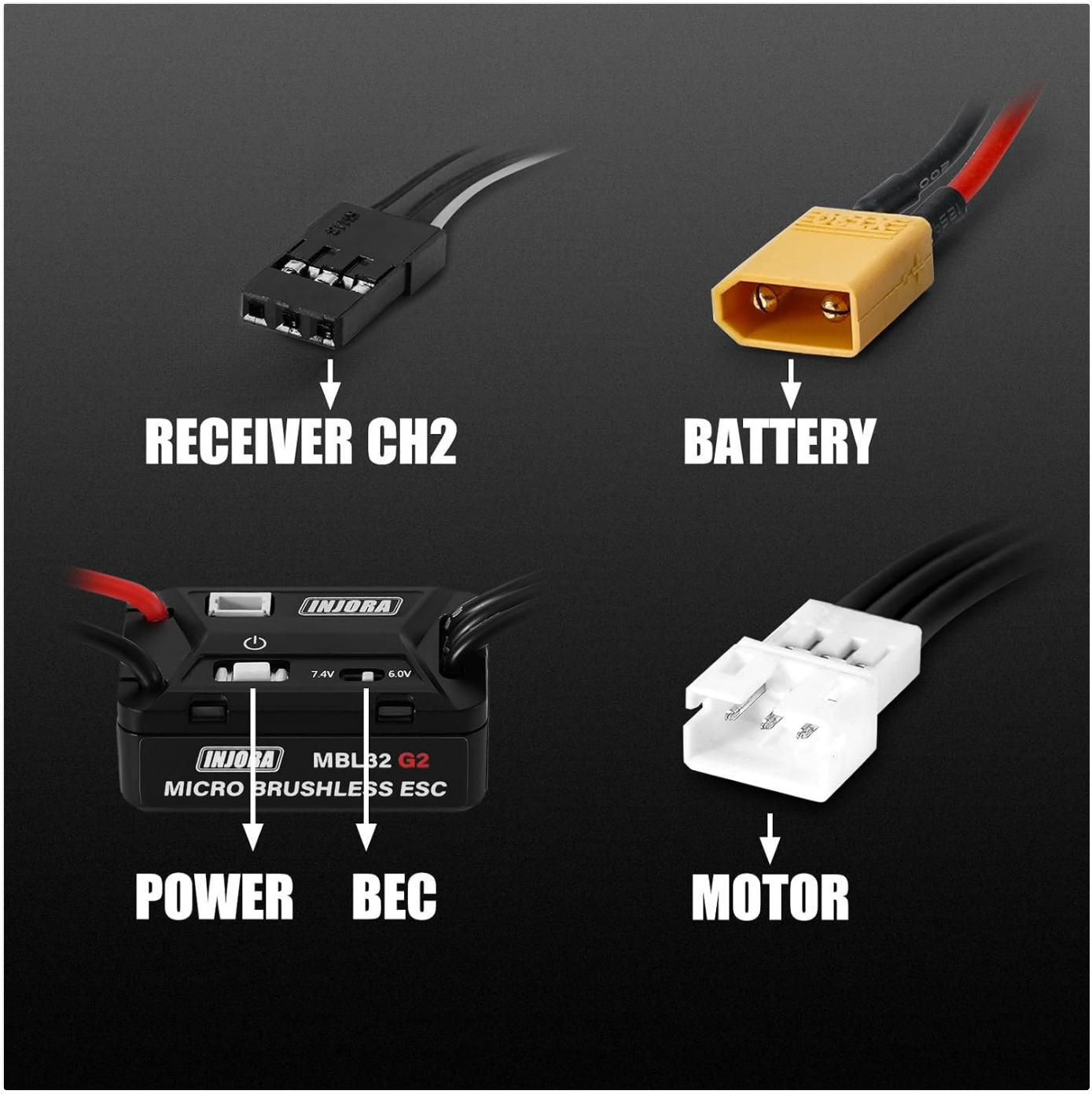


Image 5.1: Diagram illustrating the connection points for the ESC, motor, receiver, and battery.

PC Programming: The ESC supports PC programming via a USB programmer card (not included). This allows for fine-tuning of parameters. However, factory settings are optimized for INJORA 1721/2204 motors, and adjustments are generally not recommended for novice users.

6. Operation

The INJORA MBL32 G2 ESC and 2204 Fat Viper Outrunner Motor system is designed for optimal performance in 1/24 scale micro crawlers. Its brushless design provides efficient power delivery and quiet operation.

- **Smooth Low-Speed Control:** The system excels in crawling applications, offering precise and smooth throttle response at low speeds, crucial for technical maneuvers.

- **High-Speed Power:** When higher speeds are required, the motor delivers strong and aggressive acceleration.
- **Waterproof Capability:** The waterproof design allows for operation in damp conditions, but care should be taken to avoid prolonged submersion or exposure to corrosive liquids.



Image 6.1: The ESC and motor system installed and operating in an RC crawler.

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your ESC and motor system.

- **Cleaning:** After each use, especially in dusty or wet conditions, gently clean the ESC and motor to remove dirt, debris, and moisture. Use a soft brush or compressed air.
- **Connection Check:** Periodically inspect all electrical connections (motor wires, receiver cable, battery connector) for looseness, corrosion, or damage. Secure any loose connections.
- **Motor Inspection:** Check the motor for any signs of wear, especially the pinion gear. Ensure the motor shaft spins freely without excessive resistance.

- **Storage:** Store the components in a dry, cool place away from direct sunlight and extreme temperatures.

8. Troubleshooting

If you encounter issues with your INJORA MBL32 G2 ESC and 2204 Fat Viper Outrunner Motor, refer to the following common troubleshooting steps:

Problem	Possible Cause	Solution
Motor not responding or intermittent operation	Loose connections, low battery voltage, receiver/transmitter issue, motor or ESC fault.	Check all wiring connections. Ensure battery is fully charged. Verify receiver and transmitter are properly bound and functioning. Inspect motor wires for damage.
Motor stutters or runs roughly	Incorrect motor timing, damaged motor wires, ESC settings.	Ensure motor wires are securely connected. If using PC programming, verify settings are appropriate for the motor.
ESC cuts out during operation (Low-voltage protection)	Battery voltage dropped below safe threshold.	Recharge or replace the battery. Ensure the battery is suitable for the current draw of the system.
Motor locks up (Rotor lock protection)	Obstruction preventing motor rotation, excessive load.	Remove any obstructions. Reduce load on the motor if possible. Check for damaged gears.
No response from ESC (Fail-safe)	Loss of signal from transmitter.	Check transmitter battery. Ensure transmitter and receiver are within range and properly bound.

If problems persist after following these steps, contact INJORA customer support for further assistance.

9. Safety Information

- This product is recommended for users aged 14 years and up. Adult supervision is advised for younger users.
- Always disconnect the battery from the ESC when not in use or during maintenance to prevent accidental operation.
- Ensure proper ventilation around the ESC and motor during operation to prevent overheating.
- Handle LiPo batteries with care. Follow all manufacturer guidelines for charging, discharging, and storage of LiPo batteries.
- Keep fingers and loose clothing away from rotating parts (motor, gears, wheels) during operation.
- Do not modify the ESC or motor in ways not specified by the manufacturer, as this may void the warranty and create safety hazards.
- Operate your RC vehicle in a safe environment, away from people, pets, and obstacles.

10. Warranty and Support

For warranty information, technical support, or replacement parts, please contact INJORA customer service directly. Retain your proof of purchase for warranty claims.

Manufacturer: INJORA

Model Number: MBL32-INM18-2400KV

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