INJORA FOC-M30-180-18

INJORA Roverin Waterproof FOC Power System Sensored Brushless ESC & 180 Motor Combo User Manual

Model: FOC-M30-180-18

Introduction

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of your INJORA Roverin Waterproof FOC Power System Sensored Brushless ESC & 180 Motor Combo. This system is designed for TRX4M Ascent-18 upgrades, offering precise power control and robust performance in various conditions.

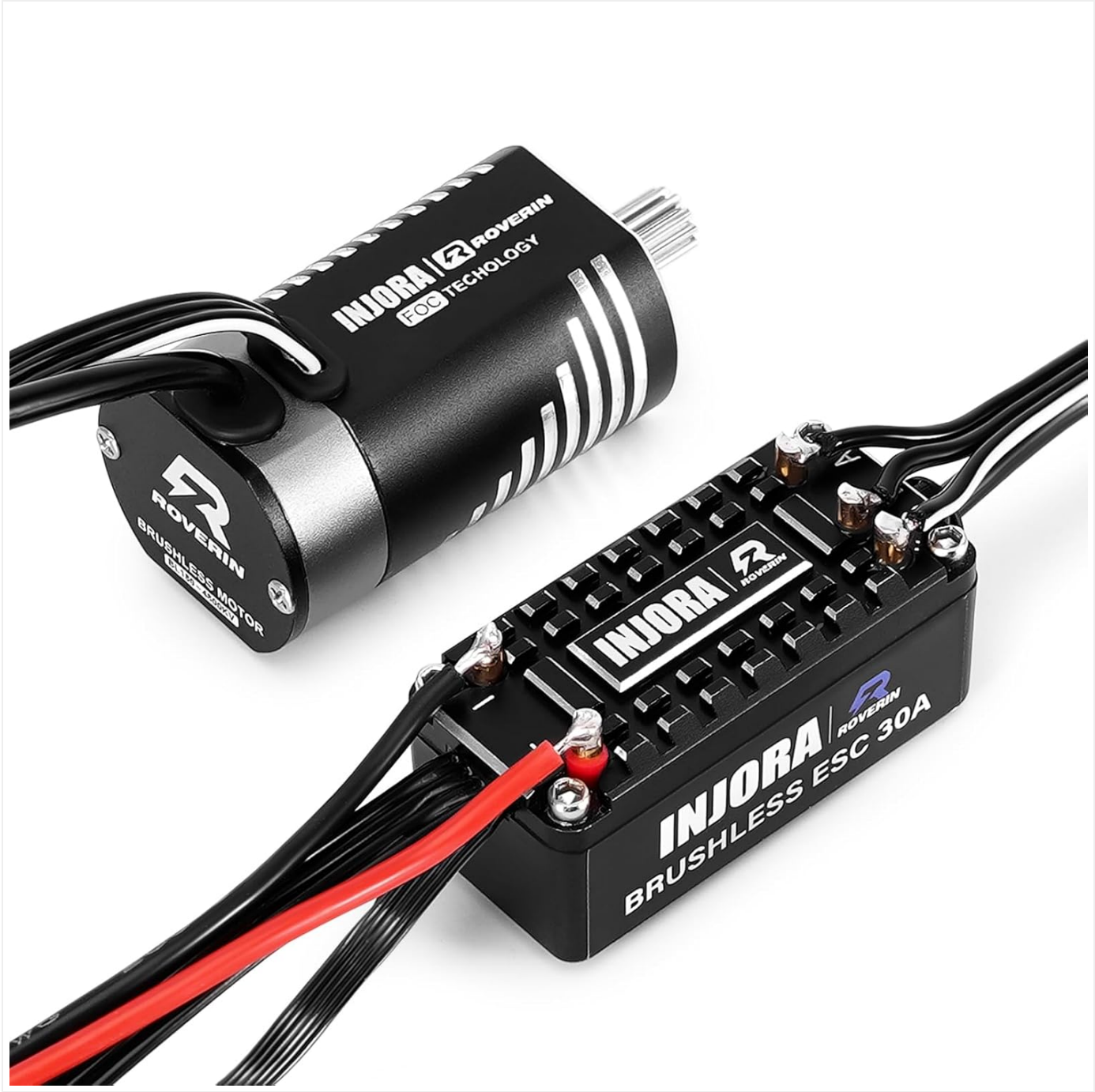

Image: The INJORA Roverin FOC Power System, featuring the sensored brushless ESC and 180 motor, connected and ready for installation.

Key Features

- **Powerful Low-Speed Torque & Smooth Operation:** The FOC algorithm ensures precise power control, delivering strong torque even at extremely low speeds for smooth and responsive driving.
- **Adjustable Drag Brake (Up to 200%):** Enhanced climbing and speed control. Improved efficiency and reduced noise. Twice the braking power of standard brushless systems, ensuring superior downhill control.
- **Smart Magnetic Encoder Motor:** Stable three-phase signal output for precise control. Accurate sensor feedback eliminates jitter and enhances smooth acceleration.
- **IP67 Waterproof & Dustproof:** Fully protected against water, mud, dust, and snow, ensuring durability in extreme environments.

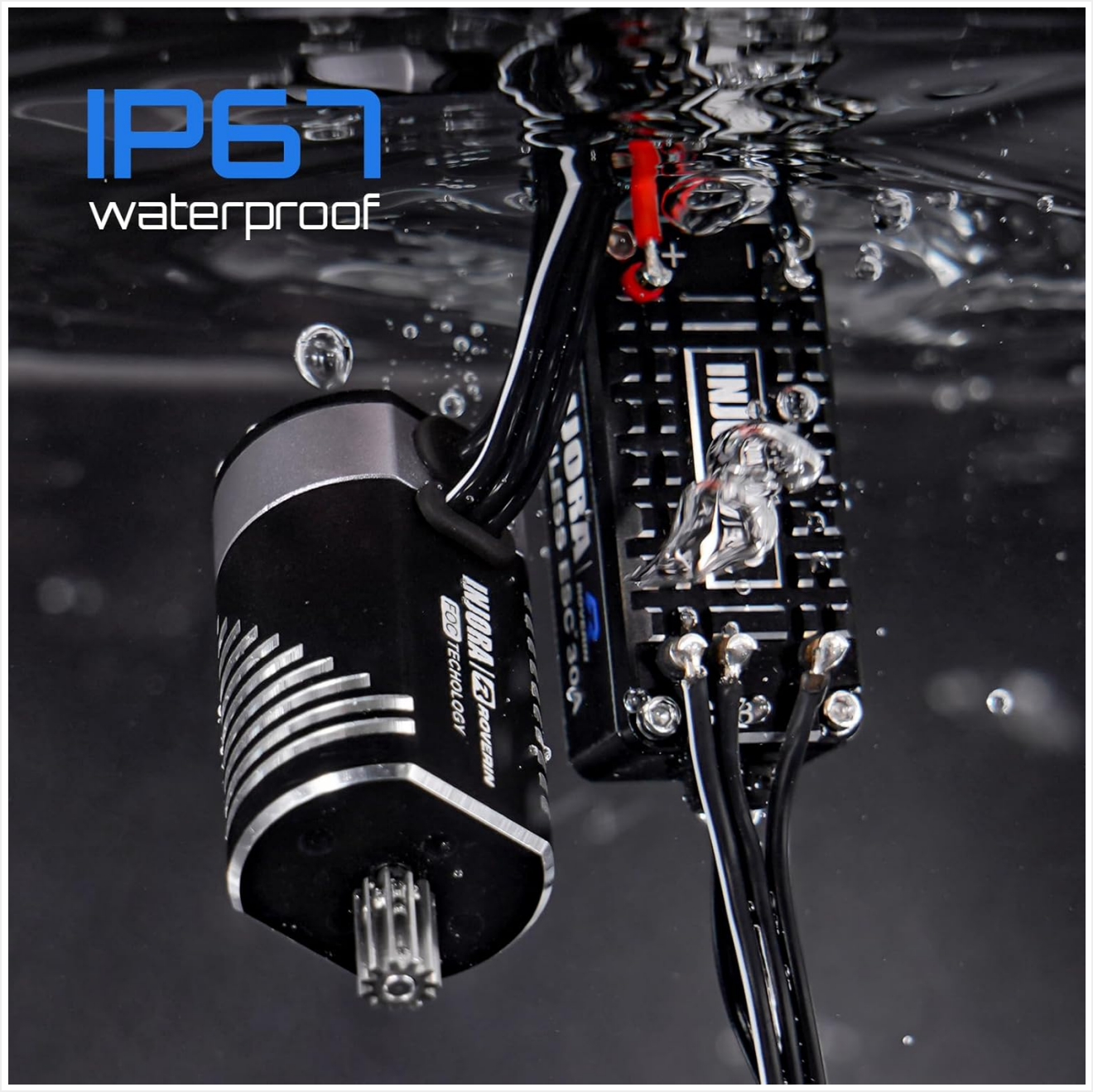

Image: The INJORA Roverin ESC and motor submerged in water, illustrating its IP67 waterproof and dustproof capabilities.

- **Bluetooth & Smart App Tuning:** Built-in Bluetooth for easy adjustments—no extra devices needed. Real-time tuning, data logging, and firmware updates via the INJORA Link App (iOS & Android).

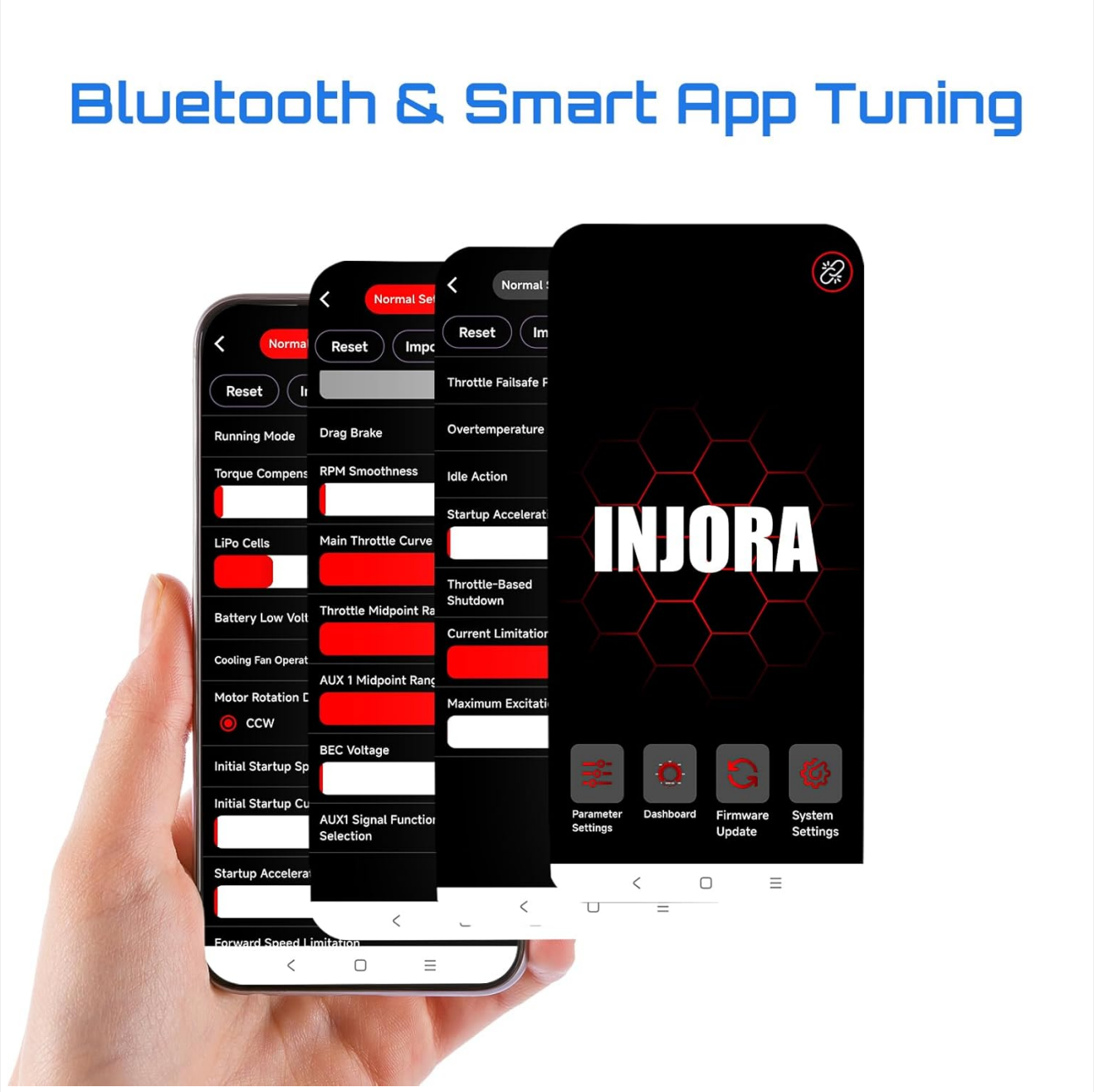

Image: A smartphone displaying the INJORA Link App, highlighting its interface for Bluetooth tuning and parameter adjustments.

- **Note on BEC Output:** The BEC supports up to 10V output for low-current applications only (e.g., powering receivers or sensors). For high-current servos, we recommend using 6V–7.4V for reliable and safe operation.

Safety Information

Please read and understand all safety precautions before operating your FOC Power System. Failure to do so may result in damage to the product, property, or personal injury.

- Always disconnect the battery from the ESC when not in use to prevent accidental operation and battery discharge.
- Ensure all connections are secure and properly insulated to prevent short circuits.
- Do not operate the system in temperatures outside its recommended range.
- Keep the ESC and motor clear of debris and obstructions during operation.
- Exercise caution when handling batteries, especially LiPo batteries, and follow their specific safety guidelines.
- This product is recommended for users 14 years and up. Adult supervision is advised for younger users.

Comprehensive Protection System

- **Low Voltage Protection:** Prevents over-discharge of the battery.
- **Overheat Protection:** Reduces power if overheating occurs.
- **Overvoltage Protection:** Limits excessive voltage input.
- **Overcurrent Protection:** Prevents damage from high current.
- **Phase Loss Protection:** Shuts down ESC if a phase wire disconnects.
- **Throttle Signal Loss Protection:** Stops runaway scenarios.
- **Motor Disconnection Protection:** Alerts and limits power if motor communication is lost.

Setup and Installation

Follow these steps for proper installation of your INJORA Roverin FOC Power System.

1. **Mounting the Motor:** Securely mount the 180 motor to your vehicle's motor mount using appropriate screws. Ensure proper gear mesh between the motor pinion (0.4mod 11T) and the vehicle's spur gear.
2. **Mounting the ESC:** Find a suitable location in your vehicle for the ESC, ensuring it is protected from excessive vibration and heat. Use double-sided tape or screws to secure it.
3. **Connecting the Motor to ESC:** Connect the three motor phase wires from the 180 motor to the corresponding output terminals on the FOC Brushless ESC. Ensure the connections are firm.

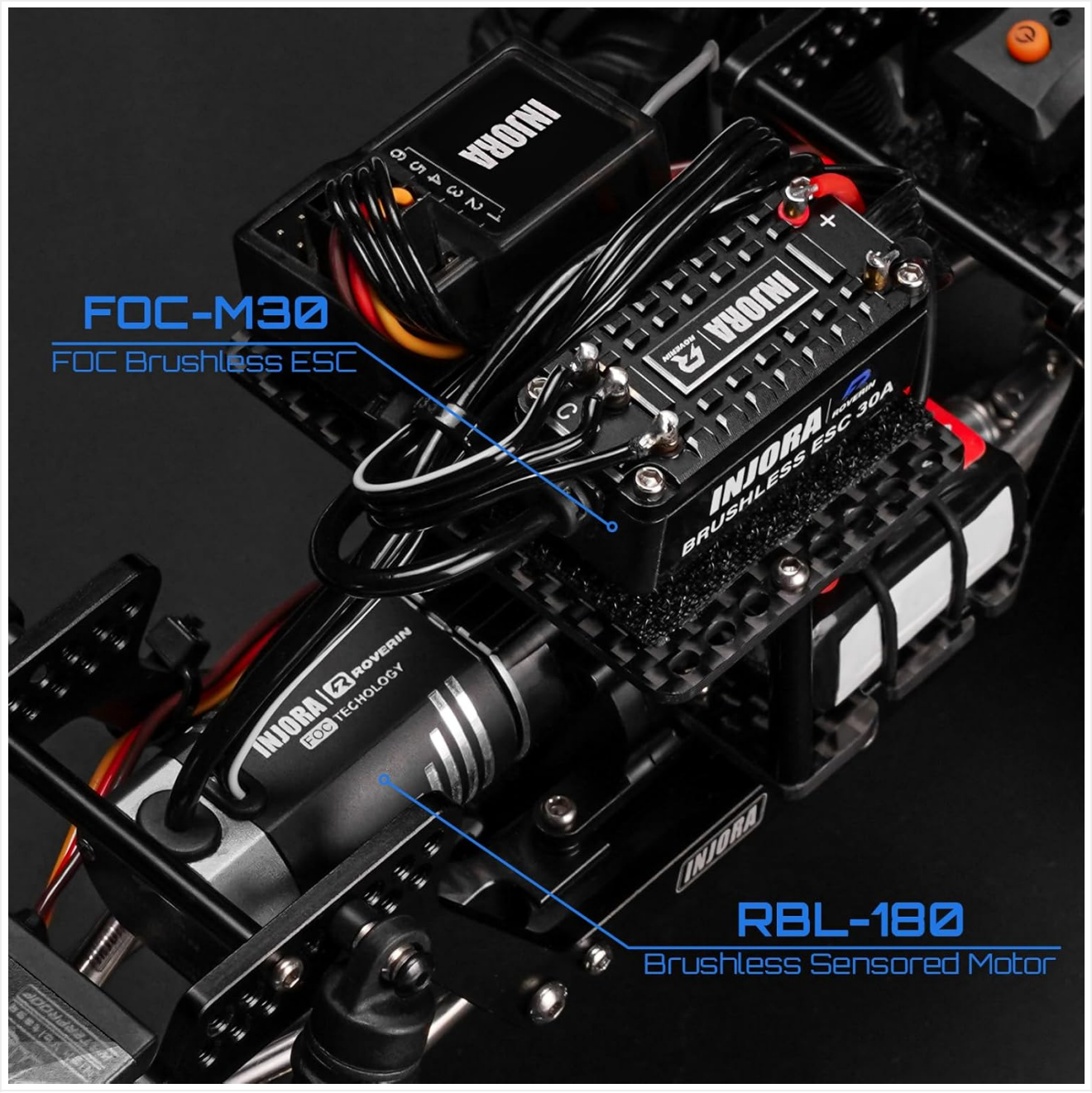

Image: The INJORA FOC-M30 ESC and RBL-180 Brushless Sensored Motor shown installed within an RC vehicle chassis, illustrating typical mounting and wiring.

4. **Connecting the Sensor Cable:** Connect the sensored cable from the motor to the sensor port on the ESC. This is crucial for sensored operation and smooth low-speed performance.
5. **Connecting to Receiver:** Plug the ESC's throttle cable (usually a black, red, and white wire) into the throttle channel (CH2) of your RC receiver.
6. **Connecting Battery:** Connect your 2-3S LiPo battery to the ESC's battery input connector. Ensure correct polarity.
7. **Initial Calibration:**
    - Turn on your transmitter and ensure the throttle trim is at neutral.
    - Turn on the ESC. It will typically emit a series of beeps.
    - Follow the ESC's specific calibration procedure (refer to the included quick start guide or INJORA website for detailed steps if needed). This usually involves setting the neutral, full throttle, and full brake points.
8. **App Connection (Optional but Recommended):** Download the INJORA Link App from your device's app store. Enable Bluetooth on your device and open the app. The app should detect your ESC, allowing you to connect and fine-tune parameters.

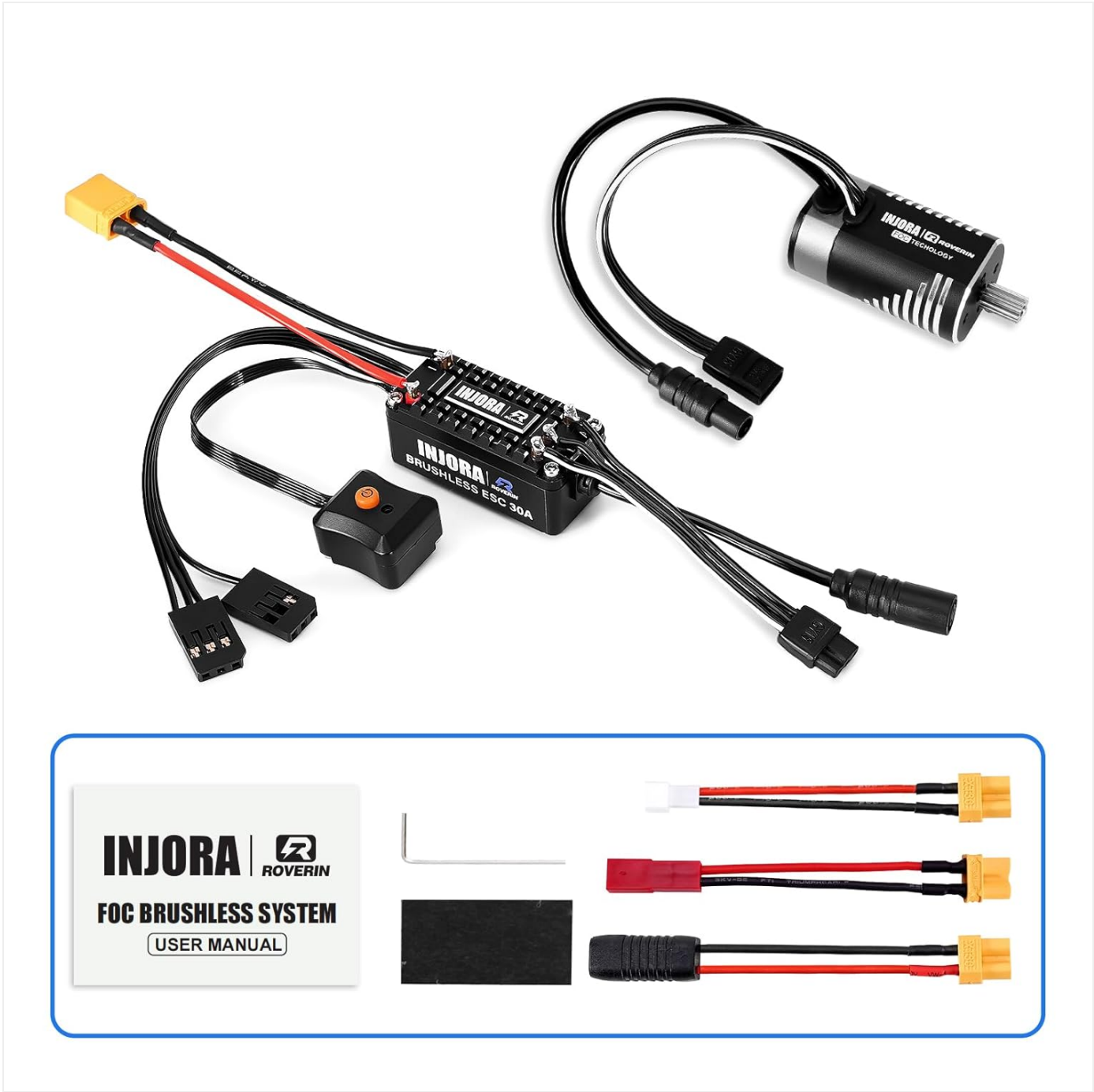

Image: All components of the INJORA FOC Brushless System, including the ESC, motor, and various connection cables, laid out for assembly.

Operation

Once installed and calibrated, your INJORA Roverin FOC Power System is ready for operation.

- **Power On:** Ensure your transmitter is on first, then connect the battery to the ESC.
- **Throttle Control:** Use the throttle stick on your transmitter to control the speed and direction of your vehicle. Forward motion is achieved by pushing the stick forward, and reverse by pulling it back from neutral.
- **Braking:** The system features an adjustable drag brake. When the throttle stick returns to neutral, the drag brake will engage, providing resistance. Pulling the throttle stick further back from neutral will engage the proportional brake/reverse.
- **App Tuning:** For advanced users, the INJORA Link App allows real-time adjustment of parameters such as drag brake strength, throttle curves, motor timing, and more. Refer to the app's interface for detailed explanations of each setting.

- **Waterproof Operation:** While the system is IP67 waterproof, it is important to ensure that other electronic components in your vehicle (receiver, servo, battery) are also adequately protected if operating in wet conditions. Always dry the system thoroughly after exposure to water.

Maintenance

Regular maintenance will ensure the longevity and optimal performance of your FOC Power System.

- **Cleaning:** After each use, especially in dirty or wet conditions, clean the ESC and motor. Use a soft brush or compressed air to remove dirt and debris. For wet conditions, rinse with fresh water and allow to air dry completely before storage or next use.
- **Inspections:** Periodically inspect all wires and connectors for signs of wear, fraying, or corrosion. Ensure all connections are secure.
- **Motor Bearings:** While the motor is sealed, occasional inspection for smooth rotation is recommended. If any grinding or excessive play is detected, consider professional servicing.
- **Firmware Updates:** Check the INJORA Link App periodically for available firmware updates. Keeping the firmware updated can improve performance and add new features.
- **Storage:** Store the ESC and motor in a cool, dry place away from direct sunlight and extreme temperatures. Disconnect the battery during storage.

Troubleshooting

This section addresses common issues you might encounter with your FOC Power System.

Problem	Possible Cause	Solution
Motor not responding / No power	Battery not connected, low battery voltage, loose connections, ESC not calibrated.	Check battery connection and charge level. Secure all wires. Perform ESC calibration.
Motor stutters or runs rough	Incorrect motor/ESC wiring, damaged sensor cable, motor phase loss, incorrect ESC settings.	Verify motor wire connections. Check sensor cable for damage. Reset ESC settings via app.
ESC overheats	Overgearing, excessive load, poor ventilation, damaged motor.	Reduce gearing. Ensure adequate airflow around ESC. Check motor for binding or damage.
Vehicle runs in reverse when throttle is forward	Motor rotation direction set incorrectly.	Adjust motor rotation direction in the INJORA Link App.
No Bluetooth connection to app	Bluetooth off, app permissions, ESC not powered on, too far from device.	Ensure Bluetooth is enabled on device. Grant app permissions. Power on ESC. Move closer to ESC.

Specifications

ESC Specifications (FOC-M30)

- **ESC Type:** FOC Brushless ESC
- **Continuous/Peak Current:** 30A / 100A
- **Supported Motors:** Only compatible with INJORA Brushless Sensored 180 Motor
- **Scale Compatibility:** ≤1/18 scale vehicles
- **Battery Support:** 2-3S LiPo
- **BEC Output:** 0-10V adjustable, 5A continuous, 10A peak

- **Waterproof:** Yes (IP67)
- **Size:** 35.5mm × 16.3mm × 16.3mm
- **Weight:** 25.5g

Motor Specifications (180 Motor)

- **Motor KV:** 4800KV
- **Motor Type:** Brushless Sensored 180 Motor
- **At no load (7.4V):** RPM: 35000±10% Current: <0.9A
- **At load (7.4V):** RPM: 31000±10% Current: 3.0A
- **Battery Support:** 2-3S LiPo
- **Waterproof:** Yes (IP67)
- **Size:** 42.7mm × 18mm × 20.5mm
- **Weight:** 36.5g
- **Motor Pinion:** 0.4mod 11T

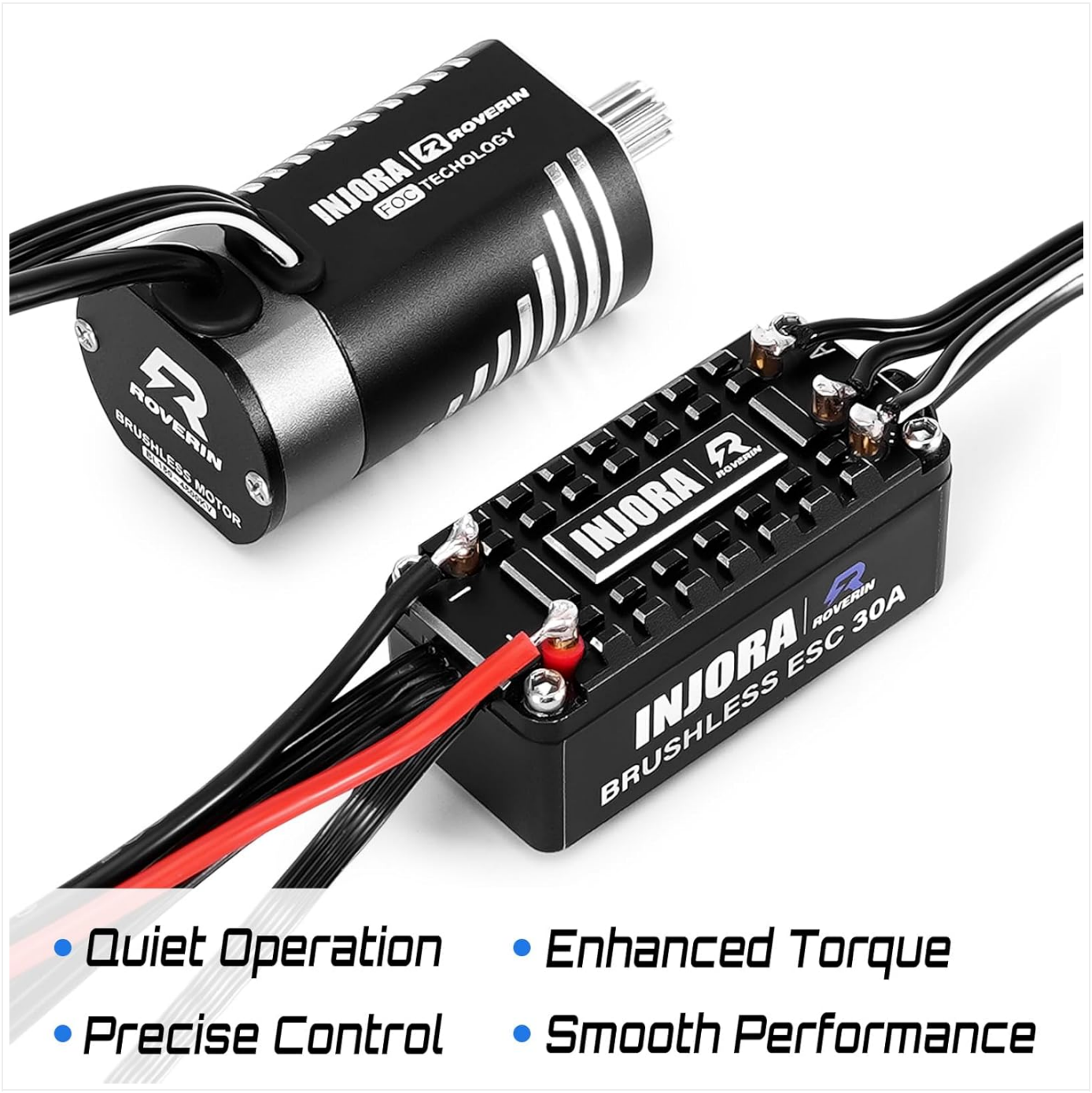

Image: Detailed dimensional drawings of the INJORA ESC and 180 Motor, with measurements provided in millimeters.

Warranty and Support

INJORA products are manufactured to high quality standards. For specific warranty details, please refer to the warranty information provided with your purchase or visit the official INJORA website.
For technical support, troubleshooting assistance, or inquiries regarding parts and service, please contact INJORA customer support through their official channels. You can often find contact information on the product packaging or the INJORA brand store on Amazon.
Visit the INJORA Store on Amazon for more information and product updates.