

Hobbywing Fusion 8ight 2in1 FOC System

HOBBYWING Fusion 8ight 2in1 FOC System Instruction Manual

Brand: Hobbywing

1. OVERVIEW

The HOBBYWING Fusion 8ight 2in1 FOC System integrates the Electronic Speed Controller (ESC) and motor into a single unit, simplifying the layout and wiring of your remote-controlled vehicle. This system utilizes Field Oriented Control (FOC) driving mode, which significantly enhances the power delivery for rock crawlers by providing strong low-speed torque and improved control. Its high efficiency minimizes heat generation, extending runtime and ensuring quieter, smoother motor operation. The system is designed with IP67 protection, ensuring reliable performance across various conditions.

Key features include intelligent torque output, closed-loop speed control for precise handling, and active drag brake force adjustment for superior holding power on inclines. A robust built-in switch mode BEC delivers adjustable voltages (6V/7.4V/8.4V) and continuous/peak current of up to 6A/13A, suitable for high-torque and high-voltage servos. Real-time drag brake force adjustment is also possible via your transmitter's AUX channel. The system incorporates multiple protection functions, including low battery voltage, overheat, throttle loss, and lock-up protections. It is compatible with LED and LCD Program Box Pro/G2 for convenient parameter adjustments.



Figure 1: The HOBBYWING Fusion 8ight 2in1 FOC System, an integrated motor and ESC unit.

2. SAFETY INFORMATION

To ensure safe operation and prevent damage, please adhere to the following safety guidelines:

- Carefully check power devices and the manual of your car frame to ensure proper power pairing. Incorrect pairing can lead to overload and motor damage.
- Always wire all equipment parts carefully. Loose connections due to vibration may cause loss of control of your RC model.
- Never apply full throttle without the pinion installed. Extremely high RPMs without load can damage the motor.
- Avoid motor case temperatures exceeding 100 degrees Celsius (212 degrees Fahrenheit) to prevent demagnetization of the magnets.

3. WHAT'S IN THE BOX

The HOBBYWING Fusion 8ight 2in1 FOC System package typically includes the following components:

- HOBBYWING Fusion 8ight 2in1 FOC System (integrated motor and ESC)
- User Manual
- Programming Card Sticker (for LED program cards)
- Double-ended harness (extension for programming)
- Zip ties for cable management
- Mounting tape for the on/off switch

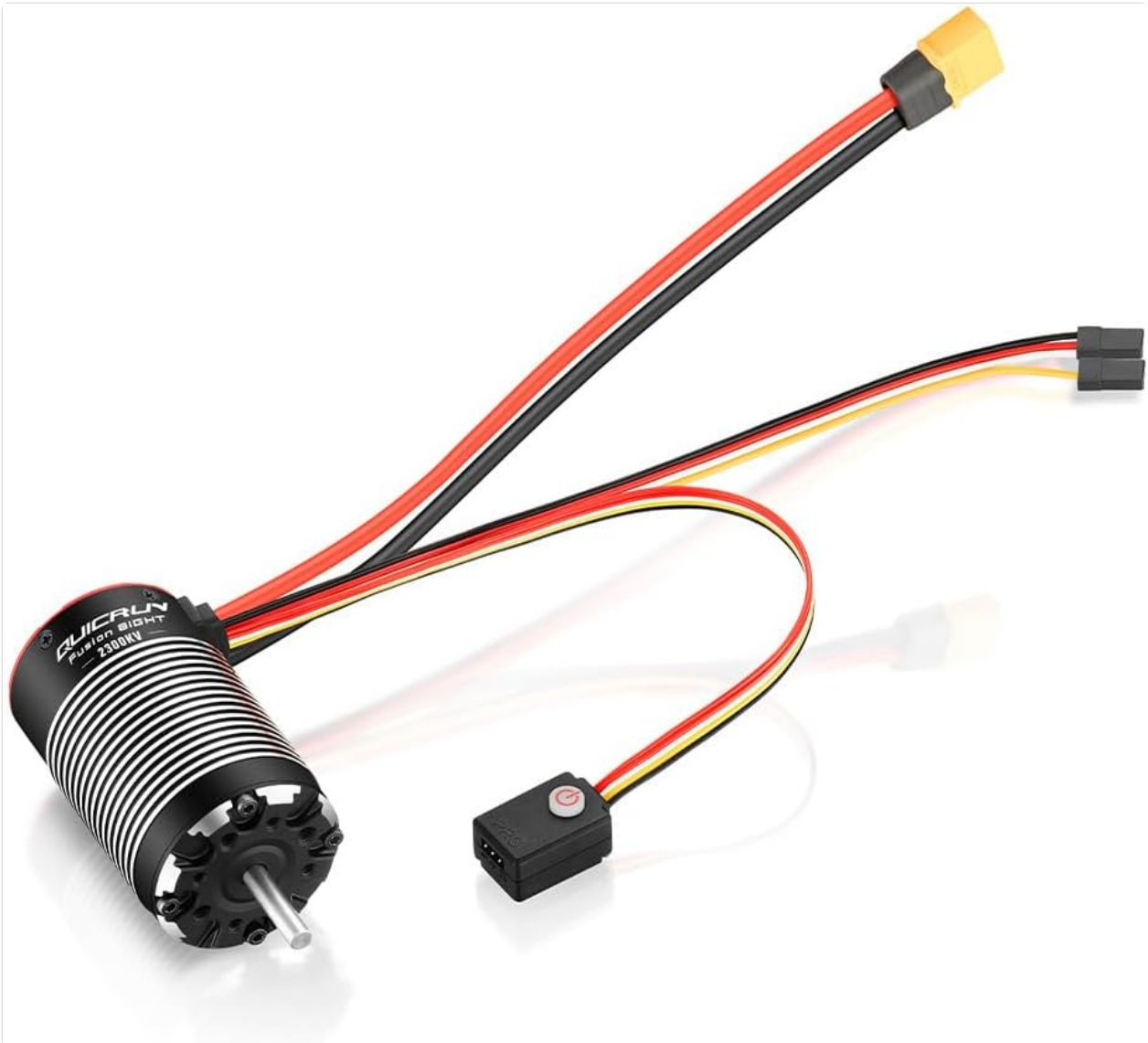


Figure 2: The HOBBYWING Fusion 8ight 2in1 FOC System and included accessories.

Video 1: An unboxing and overview of the Quickrun Fusion Pro, demonstrating the contents and initial setup considerations.

4. PRODUCT FEATURES

The Fusion 8ight 2in1 FOC System offers advanced features for enhanced performance and control:

- **Integrated Design:** Combines ESC and motor for simplified installation and wiring.

- **FOC Driving Mode:** Provides strong low-speed torque and improved control for rock crawlers.
- **High Efficiency:** Reduces heat, extends runtime, and ensures quiet, smooth operation.
- **IP67 Protection:** Ensures reliable performance in various environmental conditions.
- **Intelligent Torque & Speed Control:** Offers precise handling through intelligent torque output and speed closed-loop control.
- **Active Drag Brake:** Adjustable drag brake force for superior holding power on inclines.
- **Powerful BEC:** Built-in switch mode BEC with adjustable voltages (6V/7.4V/8.4V) and continuous/peak current of 6A/13A for high-torque servos.
- **Real-time Drag Brake Adjustment:** Adjust drag brake force on the fly via the transmitter's AUX channel.
- **Multiple Protections:** Includes low battery voltage, overheat, throttle loss, and lock-up protections.
- **Programmable:** Compatible with LED and LCD Program Box Pro/G2 for easy parameter adjustments.

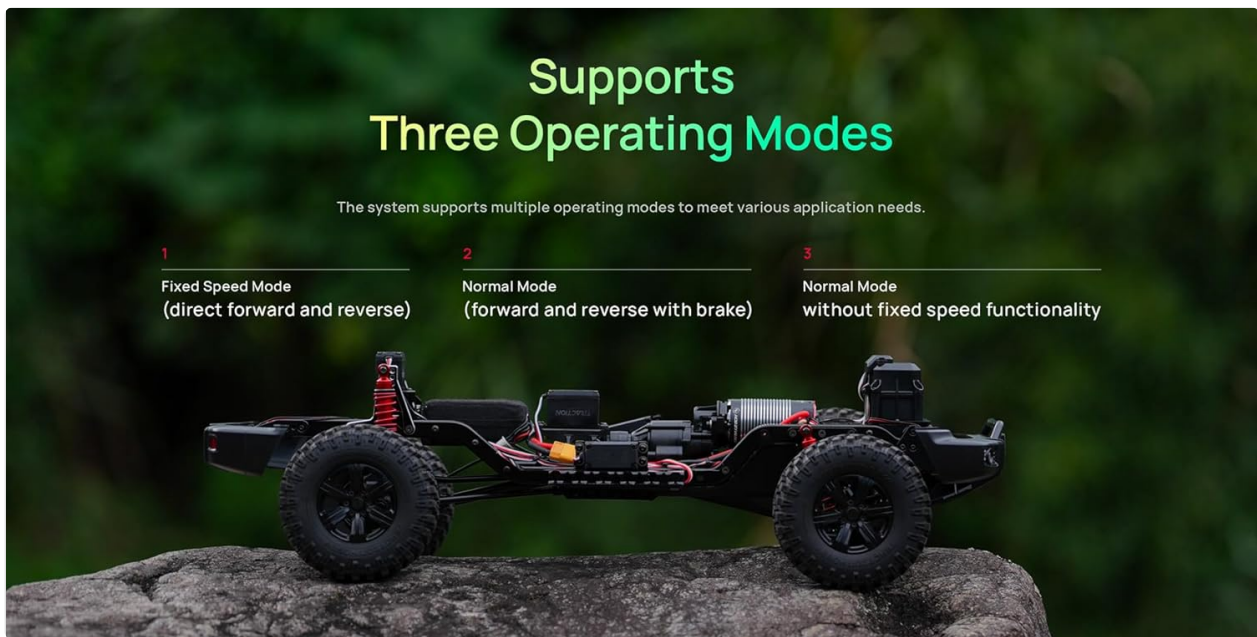


Figure 3: The system supports three operating modes: Fixed Speed Mode, Normal Mode (forward and reverse with brake), and Normal Mode (without fixed speed functionality).

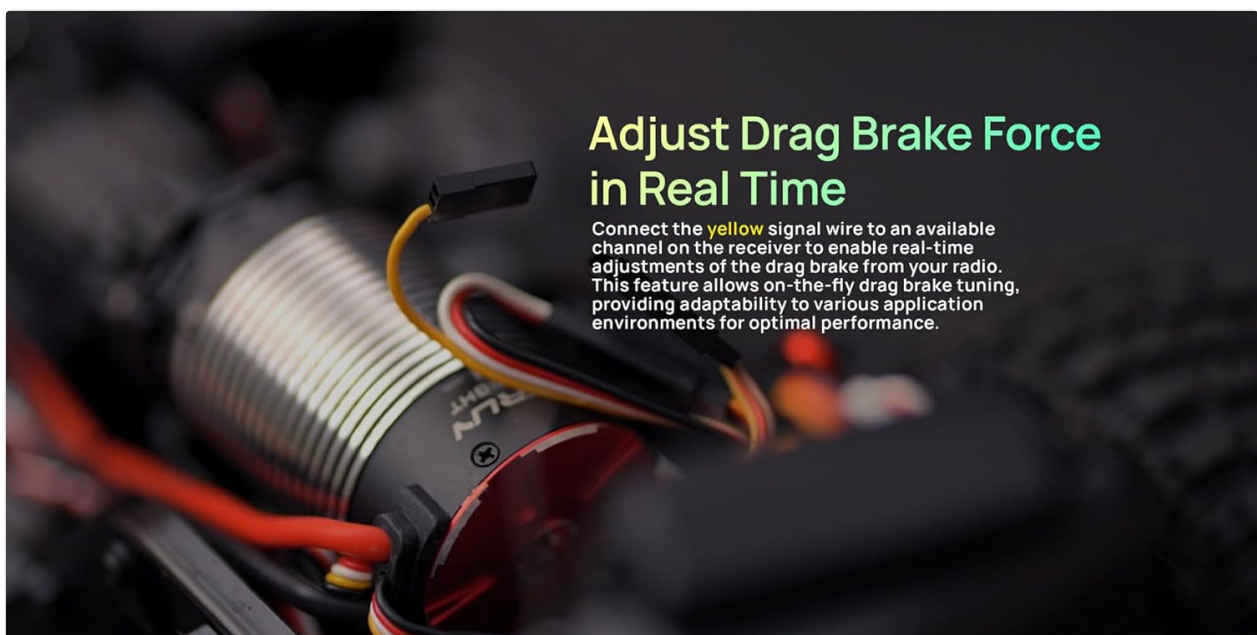


Figure 4: Connect the yellow signal wire to an available channel on the receiver to enable real-time adjustments of the drag brake from your radio.

5. SETUP & INSTALLATION

Follow these steps to install and set up your HOBBYWING Fusion 8ight 2in1 FOC System:

1. **Mounting the System:** Securely mount the integrated motor/ESC unit in your vehicle chassis. Ensure proper ventilation around the unit.
2. **Wiring Connections:** Connect the power wires to your battery. Connect the signal wire from the ESC to the throttle channel of your receiver. If using real-time drag brake adjustment, connect the yellow signal wire to an available AUX channel on your receiver.
3. **On/Off Switch:** Mount the on/off switch in an accessible location using the provided mounting tape.
4. **Automatic Motor Pairing (Sensor Reset):** This process calibrates the motor's sensors with the ESC.
 - Ensure the motor is free to rotate (no pinion installed).
 - Connect the battery to the ESC.
 - Press and hold the on/off button until the LED flashes green (approximately 3-5 seconds).
 - Release the button. The motor will emit a series of beeps, indicating successful pairing.

Video 2: Installation guide for a motor, ESC, and transmission system in an RC vehicle chassis.

6. PROGRAMMING & OPERATION

The HOBBYWING Fusion 8ight 2in1 FOC System offers extensive programmability to fine-tune performance. You can adjust parameters using either the Multifunction LCD Program Box Pro or the HW Link App via Bluetooth.

6.1. Using the Multifunction LCD Program Box Pro

Connect the program box to the ESC's programming port. Ensure the ESC is powered on. Use the scroll wheel and 'Save' button to navigate and confirm settings.

Video 3: Detailed demonstration of the Multifunction LCD Program Box Pro, including navigation and parameter adjustment.

6.2. Using the HW Link App (Bluetooth)

The Fusion 8ight 2in1 FOC System features built-in Bluetooth connectivity. Download the HW Link App on your smartphone. Connect to the device via Bluetooth to access parameters, firmware updates, and data logs.

6.3. Key Parameter Settings

The system offers 13 adjustable settings to accommodate diverse application requirements:

- **Running Mode:** Select between Fixed Speed Mode, Forward/Reverse with Brake (Normal Mode), or Forward/Reverse (Normal Mode without fixed speed).
- **Lipo Cells:** Auto-detect or manually set the number of LiPo cells.
- **Cutoff Voltage:** Configures the low voltage cutoff protection (Disabled, Low, Medium, High).
- **ESC Thermal Protection:** Sets the ESC overheat protection threshold (Disabled, Low, High).
- **Motor Thermal Protection:** Sets the motor overheat protection threshold (Disabled, Low, High).
- **BEC Voltage:** Adjustable BEC output voltage (6V/7.4V/8.4V).
- **Drag Brake Force:** Adjusts the strength of the drag brake (0-100%).
- **Drag Brake Rate:** Controls how quickly the drag brake is applied (Level 1-9).
- **Max. Reverse Force:** Sets the maximum reverse power (25-100%).
- **Max. Brake Force:** Sets the maximum braking power when using the brake function (25-100%).

- **RPM Decrease Rate:** Adjusts the rate at which RPM decreases when throttle is released, affecting the FOC feel.
- **Punch:** Controls the initial acceleration response (Level 1-9).
- **Neutral Range:** Adjusts the dead zone around the neutral throttle position.

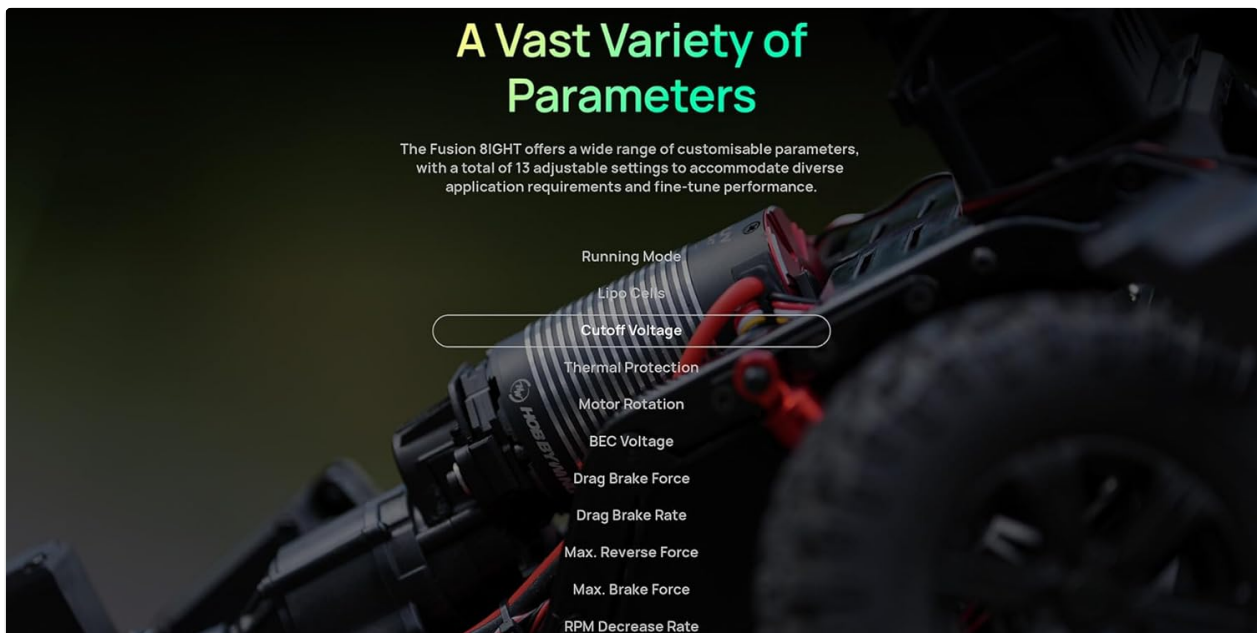


Figure 5: A vast variety of parameters are available for fine-tuning the Fusion 8iGht system.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Fusion 8iGht system:

- Keep the motor/ESC unit clean and free from dirt, dust, and moisture.
- Regularly inspect all wiring and connectors for signs of wear or damage.
- Ensure the motor bearings are smooth and free from obstruction.
- Check for any loose screws on the motor or mounting points.
- Store the unit in a dry, cool environment when not in use.

8. TROUBLESHOOTING

If you encounter any issues with your Fusion 8iGht system, consider the following:

- **Motor Overheating/Abnormal Operation:** If the motor or ESC overheats or behaves unusually, perform the Automatic Motor Pairing (Sensor Reset) procedure as described in the Setup section. This often resolves sensor-related issues.
- **Loss of Control/Intermittent Operation:** Check all wiring connections, receiver, and transmitter for proper function. Ensure battery voltage is sufficient.
- **Incorrect Motor Rotation:** If the motor rotates in the wrong direction, adjust the 'Motor Rotation' parameter in the ESC settings (do not adjust via transmitter).
- **Lack of Power/Response:** Verify battery charge, check all connections, and ensure appropriate gearing for your vehicle. Adjust 'Punch' settings for desired throttle response.

9. SPECIFICATIONS


Specification	Value
Main Application	1/8 crawler
Current (Continuous/Peak)	80A/240A
KV Rating	2300KV
Poles	4 Pole
BEC Output	6V/7.4V/8.4V adjustable, 6A continuous (switch mode)
Shaft Diameter	5mm
Exposed Shaft Length	18.5mm
Dimensions (Diameter x Length)	42mm x 69mm
Weight	338g (including wires)
Product Dimensions (Packaging)	5.2 x 3.4 x 2.1 inches
Item Weight (Packaging)	7.4 ounces


10. WARRANTY & SUPPORT

For warranty information and technical support, please refer to the official Hobbywing website or contact their customer service directly. Keep your purchase receipt as proof of purchase.

Hobbywing Technology is committed to providing high-quality products and customer satisfaction. They reserve the right to change product design, appearance, performance, and user requirements without notice.

Related Documents - Fusion 8ight 2in1 FOC System

	<p>HOBBYWING QUICRUN Fusion 8IGHT SE ESC/Motor 2in1 System User Manual</p> <p>Detailed user manual for the HOBBYWING QUICRUN Fusion 8IGHT SE ESC/Motor 2in1 system, covering features, specifications, setup, programming, and troubleshooting for 1/8th scale crawlers.</p>
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	<p><u>QUICRUN Fusion 8IGHT SE Integrated Machine User Manual</u></p> <p>User manual for the HOBBYWING QUICRUN Fusion 8IGHT SE integrated ESC and motor combo, detailing features, specifications, wiring, setup, programming, LED indicators, and troubleshooting for 1/8 scale RC crawlers.</p>
	<p><u>HOBBYWING QuicRun Fusion Pro Elite ESC/Motor 2in1 System User Manual</u></p> <p>User manual for the HOBBYWING QuicRun Fusion Pro Elite ESC/Motor 2in1 system, detailing features, specifications, connections, setup, programmable items, and troubleshooting for RC car applications.</p>
	<p><u>HOBBYWING QUICRUN Fusion Mini16 ESC User Manual - Features, Setup, and Troubleshooting</u></p> <p>Comprehensive user manual for the HOBBYWING QUICRUN Fusion Mini16 ESC and motor system. Learn about features, specifications, connections, ESC setup, programming, troubleshooting, and more for your RC crawler.</p>
	<p><u>HOBBYWING QUICRUN Fusion Pro User Manual</u></p> <p>User manual for the HOBBYWING QUICRUN Fusion Pro, a 2-in-1 FOC system for 1/10 scale crawlers, detailing features, specifications, connections, setup, programming, and troubleshooting.</p>
	<p><u>Hobbywing QuicRun Fusion BL SYS for Crawler-540Spec User Manual</u></p> <p>User manual for the Hobbywing QuicRun Fusion BL SYS for Crawler-540Spec, detailing features, specifications, setup, programming, and troubleshooting for this RC crawler ESC and motor system.</p>