Hobbywing 30120403

HOBBYWING QUICRUN Fusion Mini16 System User Manual

Integrated ESC & Motor System for 1/16 & 1/18 Crawlers

1. Safety Information

Thank you for purchasing this HOBBYWING product! Any improper use may cause damage to the product and related devices. We strongly recommend reading through this user manual before use and strictly abide by the specified operating procedures. We shall not be liable for any liability arising from the use of this product, including but not limited to reimbursement for incidental or indirect losses. Meanwhile, we do not assume any responsibility caused by unauthorized modification of the product. We have the right to change the product design, appearance, performance and use requirements without notice.

2. Product Overview

The QuicRun Fusion Mini16 FOC system features an integrated design of the ESC and motor, simplifying the car frame layout and wiring for enhanced convenience. Employing FOC (Field Oriented Control) driving mode for rock crawlers, it delivers strong low-speed torque, improving upon standard brushless systems and often being preferred over brushed systems for its overall feel.
The system boasts high efficiency, generates less heat, and effectively extends run time while the motor operates more quietly and smoothly. With an IP65 protection grade, it's capable of running in all conditions. It offers intelligent torque output and speed closed-loop control for precise handling and includes active drag brake force adjustment, providing superior holding power on inclines.
Equipped with a strong built-in switch mode BEC, the system offers a continuous current of up to 4A and supports switching between 6V and 7.4V, enabling it to drive high-torque and high-voltage servos. It also includes multiple protection functions: battery low voltage, overheat, throttle loss, and lock-up protection. For convenient ESC parameter settings, it supports LED and LCD G2/Pro program boxes.

- **Continuous / Peak Current:** 30A / 80A
- **Main Applications:** 1/16 & 1/18 Crawler
- **BEC Output:** 6V / 7.4V adjustable, continuous current 4A (Switch mode)
- **Size/Weight:** 24mm (diameter) x 42mm (length) / 72g (including wires & connectors)
- **Motor KV:** 3000KV

- **Diameter / Length of Motor:** 24mm / 42mm

3. What's in the Box

- (1) QR Fusion Mini16 System (Integrated ESC & Motor)
- (1) QR Manual (This document)

4. Specifications

Feature	Detail
Product Dimensions	4.2 x 2.8 x 1.3 inches; 4.13 ounces
Manufacturer Recommended Age	4 years and up
Item Model Number	30120403
Date First Available	September 18, 2024
Manufacturer	Hobbywing Technology
ASIN	B0DHG41H2N
Brand	Hobbywing
Model Name	Fusion Mini16
Material	Aluminum Casing, 4 pole BL Motor
UPC	088718513234

5. Setup

Proper setup is crucial for optimal performance and longevity of your HOBBYWING QUICRUN Fusion Mini16 System. Follow these steps carefully:

1. **Mounting the System:** Securely mount the integrated ESC and motor unit within your 1/16 or 1/18 scale crawler chassis. Ensure adequate airflow around the unit for heat dissipation. Use appropriate screws and mounting hardware to prevent vibration and movement during operation.
2. **Connecting to Receiver:** Connect the signal cable from the Fusion Mini16 ESC to the throttle channel (usually Channel 2) on your RC receiver. Ensure the polarity is correct (signal, positive, negative).
3. **Battery Connection:** Connect your compatible LiPo or NiMH battery pack to the power input wires of the Fusion Mini16. Ensure the battery connector matches the ESC's connector (e.g., T-plug, XT60). Double-check polarity before connecting to avoid damage.
4. **Servo Connection:** If using a separate steering servo, connect it to the appropriate channel on your receiver. The Fusion Mini16's built-in BEC will provide power to the receiver and servo.
5. **Radio Calibration:** Turn on your transmitter, then the RC vehicle. Calibrate the throttle range of the ESC with your transmitter. This typically involves holding full throttle, then full brake, then neutral, as indicated by the ESC's LED or beeps. Refer to the detailed calibration procedure in the full manual (if available) or Hobbywing's general ESC calibration guide.

6. **Parameter Settings (Optional):** For advanced users, the Fusion Mini16 supports parameter adjustments using LED or LCD G2/Pro program boxes. These can be used to fine-tune settings such as drag brake force, BEC voltage (6V/7.4V), and protection thresholds.



Figure 5.1: The HOBBYWING QUICRUN Fusion Mini16 System, showing the integrated motor and ESC with power and signal wires. This image illustrates the compact design and connection points.

6. Operating Instructions

Once the system is properly set up, you can begin operating your RC crawler. The Fusion Mini16's FOC driving mode provides excellent control, especially at low speeds.

1. **Power On Sequence:** Always turn on your transmitter first, then connect the battery to the Fusion Mini16 system. This ensures the ESC receives a valid signal before powering up.
2. **Initial Check:** Before driving, perform a quick check of steering and throttle response. Ensure the motor spins in the correct direction (forward/reverse) and the steering operates as expected.

3. **Driving:** The FOC technology provides smooth, precise throttle control, ideal for rock crawling. Apply throttle gently for fine movements and utilize the active drag brake for holding position on inclines.
4. **Temperature Monitoring:** While the system is designed for high efficiency and less heat generation, always monitor the temperature of the motor and ESC during extended use, especially in demanding conditions. If the unit becomes excessively hot, allow it to cool down before continuing operation.
5. **Power Off Sequence:** Always disconnect the battery from the Fusion Mini16 system first, then turn off your transmitter.



Figure 6.1: A view of the HOBBYWING QUICRUN Fusion Mini16 System, highlighting the motor with its distinctive red cap. This image shows the compact nature of the integrated unit.

7. Maintenance

Regular maintenance will help ensure the longevity and reliable performance of your Fusion Mini16 system.

- **Cleaning:** After each use, especially in dusty or wet conditions, gently clean the system to remove dirt, dust, and

debris. Use a soft brush or compressed air. Avoid using harsh chemicals or excessive moisture.

- **Inspection:** Periodically inspect all wires and connectors for signs of wear, fraying, or damage. Ensure all connections are secure. Check the motor for any obstructions or unusual resistance.
- **Storage:** When not in use, store the Fusion Mini16 system in a clean, dry place away from direct sunlight and extreme temperatures. Disconnect the battery for long-term storage.
- **Firmware Updates:** Check the Hobbywing official website periodically for any available firmware updates for your Fusion Mini16 system. Updates can improve performance, add features, or fix bugs.



Figure 7.1: An alternative view of the HOBBYWING QUICRUN Fusion Mini16 System, providing a clear look at the motor's cooling fins and the integrated ESC. This angle emphasizes the compact and robust construction.

8. Troubleshooting

If you encounter issues with your Fusion Mini16 system, refer to the following common problems and solutions:

Problem	Possible Cause	Solution

System does not power on	Battery not connected, low battery voltage, faulty connection, ESC switch off	Check battery connection and charge level. Ensure all wires are securely connected. Verify ESC switch is in the ON position.
Motor stutters or runs erratically	Incorrect throttle calibration, loose motor wires, sensor issue, motor damage	Recalibrate throttle range. Check all motor wire connections. Inspect motor for physical damage.
No throttle response	Transmitter not on, receiver not bound, signal cable loose, throttle trim incorrect	Ensure transmitter is on and battery is charged. Re-bind receiver if necessary. Check signal cable connection to receiver. Adjust throttle trim to neutral.
System overheats	Overgearing, insufficient airflow, prolonged heavy load, damaged motor/ESC	Reduce gearing. Ensure proper ventilation. Allow system to cool down between runs. Inspect for damage.
BEC output issues (servo not working)	Overload on BEC, faulty servo, incorrect BEC voltage setting	Check servo current draw. Test with a different servo. Verify BEC voltage setting (6V/7.4V) using a program box.

If the problem persists after attempting these solutions, please contact Hobbywing customer support for further assistance.

9. Warranty and Support

HOBBYWING products are manufactured to the highest quality standards. For information regarding warranty coverage, terms, and conditions, please refer to the warranty card included with your product or visit the official HOBBYWING website. For technical support, troubleshooting beyond this manual, or spare parts inquiries, please contact HOBBYWING customer service directly through their official channels.
Official Website: www.hobbywing.com

© 2024 Hobbywing Technology. All rights reserved.
Product Model: Fusion Mini16 (30120403)

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question