

Lumenier QAV-R 2

Lumenier QAV-R 2 Freestyle Quadcopter Frame - 5" User Manual

Model: QAV-R 2 | Brand: Lumenier

1. INTRODUCTION

The Lumenier QAV-R 2 is a high-performance freestyle quadcopter frame, designed as a successor to the popular QAV-R. This frame incorporates modern design elements and compatibility features preferred by contemporary FPV pilots, suitable for both racing and cinematic applications.

Constructed from high-quality Lumenier carbon fiber with a smooth clear coat finish, the QAV-R 2 offers exceptional strength and durability. The carbon weave is strategically laid out parallel to each part of the frame to maximize structural integrity. This manual provides detailed information on the frame's features, assembly, and maintenance.

2. KEY FEATURES

- **Durable Carbon Fiber Construction:** Made from high-quality Lumenier carbon fiber with a protective clear coat.
- **Robust Arm Design:** Individually removable arms, 4.5mm thick for 5" and 6" versions, and 5mm thick for 7" versions. The four arms form an interlocking arrangement at the bottom for enhanced strength.
- **Motor Protection:** Arms include integrated bumpers to protect motors from impact damage.
- **Reinforced Plates:** Bottom plate is 2.5mm thick, and the top plate is 2mm thick, resulting in 7.5mm of carbon at the frame's center.
- **Flexible Electronics Mounting:** Supports both standard 30.5x30.5mm and mini 20x20mm electronics stacks.
- **Top-Mount Battery Design:** Designed for top-mounting the LiPo battery, with an included silicone non-slip pad to secure the battery during flight and crashes.
- **Version Options:** Available in two main versions, the standard QAV-R 2 (28mm plate gap) and the QAV-R 2 Slam (20mm plate gap, optimized for micro cameras). This manual pertains to the 5" arm length version.

3. SETUP AND ASSEMBLY

This section outlines the general steps for assembling your Lumenier QAV-R 2 frame and integrating your electronics. Specific component installation may vary based on your chosen flight controller, ESCs, and other hardware.



Figure 3.1: Fully assembled Lumenier QAV-R 2 Freestyle Quadcopter Frame, showcasing its carbon fiber construction and robust design. The image highlights the main body, arms, and mounting points for electronics.

3.1 Frame Assembly

1. **Attach Arms:** Secure the four individual carbon fiber arms to the bottom plate using the provided hardware. Ensure the interlocking arrangement is correctly aligned for maximum strength.
2. **Install Standoffs:** Mount the aluminum or carbon standoffs to the bottom plate. These will support the top plate and create the electronics stack space.
3. **Secure Top Plate:** Place the top plate onto the standoffs and secure it with the remaining hardware. Ensure all screws are tightened appropriately, but do not overtighten to avoid stripping threads or damaging carbon fiber.

3.2 Electronics Integration

1. **Mount ESCs:** Depending on your setup, mount your Electronic Speed Controllers (ESCs) either on the arms or within the main frame stack. The QAV-R 2's design allows for arm-mounted ESCs, which can free up space in the central stack.
2. **Install Flight Controller and Other Boards:** Utilize the 30.5x30.5mm or 20x20mm mounting holes within the frame to install your flight controller, video transmitter (VTX), and receiver (RX). Use appropriate standoffs and vibration dampeners if necessary.
3. **Camera Mounting:** Install your FPV camera in the designated camera mounting area at the front of the frame. The QAV-R 2 Slam version is specifically designed for micro-sized cameras.
4. **Motor Installation:** Attach your motors to the ends of the arms using the provided motor screws. Ensure the screws are not too long, as they can damage motor windings.

3.3 Battery Mounting

The QAV-R 2 is designed for top-mounting the LiPo battery. Place the included silicone non-slip battery pad on the top plate. This pad helps to grip the battery and prevent movement during aggressive maneuvers or crashes. Secure the battery with a battery strap (not included) through the designated slots on the top plate.

4. OPERATING CONSIDERATIONS

While the QAV-R 2 is a frame and not an operational device itself, its design significantly impacts the performance and durability of the complete quadcopter. Consider the following during operation:

- **Durability in Flight:** The robust carbon fiber construction and interlocking arm design contribute to the frame's ability to withstand impacts during freestyle flying and racing.
- **Motor Protection:** The integrated arm bumpers are designed to absorb impact and protect your motors in the event of a crash.
- **Battery Security:** Always ensure your LiPo battery is securely fastened with a strap and utilizing the non-slip pad to prevent ejection during flight, which can lead to loss of power or control.

5. MAINTENANCE

Regular maintenance ensures the longevity and safe operation of your QAV-R 2 frame.

- **Post-Crash Inspection:** After any significant impact, thoroughly inspect all carbon fiber components for cracks, delamination, or stress marks. Pay close attention to the arms and the central plates.
- **Hardware Check:** Periodically check all screws and nuts for tightness. Vibrations during flight can cause hardware to loosen over time. Apply thread-locking compound (e.g., blue Loctite) to critical screws if desired, but avoid on plastic or carbon fiber directly.
- **Cleaning:** Clean the carbon fiber frame with a soft, damp cloth to remove dirt, dust, and debris. Avoid harsh chemicals that could damage the clear coat.
- **Arm Replacement:** If an arm is damaged, it can be individually replaced. Loosen the screws securing the arm to the bottom plate, remove the damaged arm, and install a new one, ensuring proper alignment and tightness.

6. TROUBLESHOOTING

This section addresses common issues that may arise with the QAV-R 2 frame.

- **Excessive Vibrations:**
 - Ensure all frame screws are tight. Loose screws can introduce unwanted vibrations.
 - Check for damaged or bent arms. Even minor damage can cause vibrations.
 - Verify that motors are securely mounted and propellers are balanced and undamaged.
- **Frame Damage After Crash:**
 - Inspect arms first, as they are designed to be individually replaceable.
 - Check top and bottom plates for cracks, especially around mounting holes.
 - Replace any compromised carbon fiber components immediately to maintain structural integrity.
- **Electronics Not Fitting:**
 - Confirm your electronics stack size (30.5x30.5mm or 20x20mm) matches the frame's compatibility.
 - For the QAV-R 2 Slam version, ensure your camera is a micro-sized unit to fit the reduced gap.

7. SPECIFICATIONS

Attribute	Detail
Model	QAV-R 2 Freestyle Quadcopter Frame - 5"
Brand	Lumenier
Material	High-quality Lumenier Carbon Fiber with Clear Coat
Arm Thickness	4.5mm (for 5" and 6" versions)
Bottom Plate Thickness	2.5mm
Top Plate Thickness	2mm
Center Carbon Thickness	7.5mm
Electronics Stack Compatibility	30.5x30.5mm and 20x20mm
Frame Version Gap (Standard)	28mm
Frame Version Gap (Slam)	20mm
Approximate Weight	9.6 ounces (272 grams)

8. WARRANTY AND SUPPORT

Warranty Information: Specific warranty terms for the Lumenier QAV-R 2 frame are provided by the manufacturer, Lumenier, or the authorized reseller at the time of purchase. Please refer to your purchase documentation or the official Lumenier website for detailed warranty coverage and procedures.

Technical Support: For technical assistance, assembly questions, or troubleshooting beyond the scope of this manual, please contact Lumenier customer support or the authorized reseller from whom you purchased the product. You can often find support resources, FAQs, and contact information on the official Lumenier website or the reseller's support pages.

For purchases made via Amazon, you may also contact the seller directly through your Amazon order history for product-specific inquiries. The seller for this product is [GetFPV](#).

Requirement Specification
Search and Rescue - Land

Version 1.0

Author: Rickard Wretling
Date: December 19, 2022

OWL

Owner name	Requirement specification (SRS)	E-mail	gitlab@tsrt10.se
Owner group	TSRT	Document type	Requirement specification
Owner role	Editor	Author's name	Rickard Wretling
Project name	Search and Rescue - Land	Document name	Requirement Specification.pdf

[\[pdf\]](#) Specifications

Requirement Specification Search and Rescue Land TSRT10 Kravspecifikation tsrt10 gitlab pages liu se
2022 sbd documents |||

Requirement Specification Search and Rescue - Land Version 1.0 Author: Rickard Wretling Date: Decemb ... ts set on the UAV. 4.1 General Description of the UAV The UAV is a quadcopter based on the Lumenier **QAV-R 2** frame that consists of a Pixhawk 4 flight controller and a Raspberry Pi 4b connected with UA...

lang:en score:9 filesize: 615.24 K page_count: 29 document date: 2022-12-19