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BETAFPV Air65 II

BETAFPV Air65 II 65mm Brushless Whoop Frame Kit User Manual

Model: Air65 II | Brand: BETAFPV

1. INTRODUCTION

This manual provides detailed instructions and information for the BETAFPV Air65 II 65mm Brushless Whoop Frame Kit. This ultralight frame is designed for 1S micro FPV racing quadcopters, offering enhanced performance and durability. It is compatible with various flight controllers, motors, and propellers, enabling custom builds for optimal flight experience.



Image 1.1: The BETAFPV Air65 II Brushless Whoop Frame Kit, featuring both black and transparent white frames.

2. KEY FEATURES

- **Ultralight Design:** Weighing only 2.65g, the Air65 II frame is engineered for maximum agility and performance in micro FPV quadcopters.
- **Enhanced Thrust:** The redesigned arm braces (reduced from 6 to 4) and refined duct aerodynamics result in a 5% increase in thrust compared to the previous generation, providing improved throttle response.
- **Reliable Flight Characteristics:** Structural refinements minimize frame vibration, contributing to a near-perfect PID step response with less than 12ms lag for precise control and smooth maneuvers.
- **Optimized Resilient Material:** Constructed from a durable PP blend, the frame is designed to withstand impacts from crashes, ensuring longevity and reliability.
- **Detailed Engineering:** Features include retained motor fixed slots for precise alignment, new motor screw protection structures, enlarged 1.2mm FC holes for 1.4mm screws, and lowered 12.4mm ducts with a 3.8mm slim profile to accommodate short-can motors.

Air65 II Brushless Whoop Frame

Comprehensive structure upgrade to
build next-level micro whoops



○ Frame Reshaped: +5% Thrust ○ Reliable Response ○ Optimized Resilient Material ○ 2.65g Ultra-light

Image 2.1: Overview of the Air65 II frame's key structural and performance improvements.



2.65g

Weighs 2.65g

Image 2.2: The ultralight design of the Air65 II frame, weighing 2.65 grams.

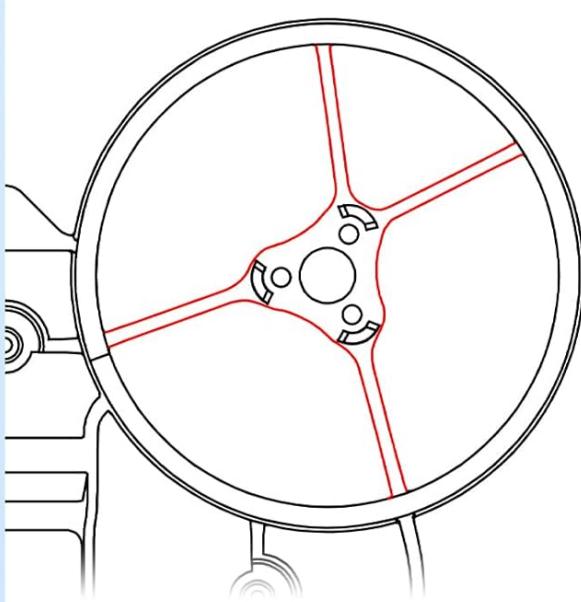
3. SPECIFICATIONS

| | |
|--|--------------------------------|
| Item | Air65 II Brushless Whoop Frame |
| Material | PP (Polypropylene) |
| Weight | 2.65g |
| Wheelbase | 65mm |
| Motor Mounting | 3-M1.4-6.6mm |
| Flight Controller Mounting Hole | 25.5×25.5mm |
| Battery Slot Size | 11.4×6.2mm |

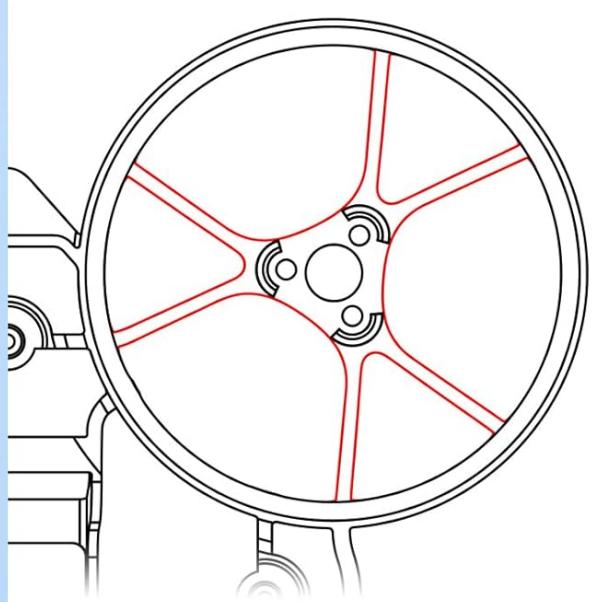
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|---------------|--------------------------|
| Maximum Size | 82.6*82.6*15.1mm |
| Color Options | Black, Transparent White |

Air65 II Brushless Whoop Frame

Updated Arm Braces Design Up to $\uparrow 5\%$ Thrust



Air65 II Frame



Air65 Frame

Image 3.1: Comparison of arm brace designs between Air65 II and Air65 frames, highlighting the updated structure for improved thrust.

4. ASSEMBLY GUIDELINES

The BETAFPV Air65 II frame is designed for DIY assembly. Follow these general guidelines for integrating your components.

- Motor Installation:** Secure your chosen 07xx or 08xx series brushless motors to the frame's motor mounting points using M1.4 screws. Ensure the motors are oriented correctly and the wires are routed safely. The frame features retained motor fixed slots for precise alignment.
- Flight Controller Mounting:** Mount your 25.5x25.5mm flight controller (e.g., Matrix 1S FC) onto the designated mounting holes. The enlarged 1.2mm FC holes are compatible with 1.4mm screws. Ensure the FC is securely

fastened but avoid overtightening to prevent damage to the frame posts.

3. **Propeller Attachment:** Attach 31mm/1219S propellers to your motors. Ensure they are installed in the correct direction for proper thrust generation.
4. **Battery Integration:** The frame includes a battery slot sized 11.4x6.2mm, suitable for 1S batteries like LAVA 1S 260mAh or 300mAh. Secure the battery firmly to prevent movement during flight.
5. **Canopy Installation:** If using a canopy (e.g., Air Canopy, Canopy for Micro Camera 2022), attach it to protect your camera and electronics.

Important: Always perform a thorough pre-flight check after assembly to ensure all components are securely attached and functioning correctly.

5. RECOMMENDED COMPATIBLE PARTS

The Air65 II frame is designed to be compatible with a range of components for optimal performance.

- **Batteries:** LAVA 1S 260mAh 80C Battery, LAVA 1S 300mAh 75C Battery
- **Flight Controllers:** Air Brushless Flight Controller, Matrix 1S Brushless Flight Controller (3in1/4in1), Matrix 1S Brushless Flight Controller (5in1)
- **Motors:** 0702 II Brushless Motors, 0802SE Brushless Motors
- **Canopies:** Air Canopy, Canopy for Micro Camera 2022, Micro Canopy Lite
- **Propellers:** GF 1219S 3-Blade Propellers, HQ 31mm Ultralight 3-Blade Propellers

Air65 II Brushless Whoop Frame

Updated Arm Braces Design Up to $\uparrow 5\%$ Thrust



Image 5.1: Thrust performance graphs comparing Air65 II with Air65 for different motor and propeller combinations.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Air65 II frame.

- Inspection:** Periodically inspect the frame for any signs of cracks, stress marks, or deformation, especially after crashes.
- Cleaning:** Clean the frame regularly to remove dirt, dust, and debris that can accumulate and affect component performance or add unnecessary weight. Use a soft brush or compressed air.
- Fastener Check:** Ensure all screws (motor, FC, canopy) are securely tightened. Avoid overtightening, which can strip threads or damage the frame material.
- Component Integrity:** Verify that all mounted components (motors, FC, battery) are still firmly attached and not loose.

7. TROUBLESHOOTING

This section addresses common issues related to the Air65 II frame.

- **Frame Cracks/Damage:**

- **Symptom:** Visible cracks, broken arm braces, or deformed ducts.
- **Solution:** The frame is made from resilient PP material, but severe impacts can cause damage. Replace damaged frames promptly to maintain flight integrity and safety.

- **Loose Components:**

- **Symptom:** Motors or flight controller feel loose or shift during flight.
- **Solution:** Re-tighten mounting screws. Ensure screws are appropriate for the mounting holes (e.g., 1.4mm screws for 1.2mm FC holes). Apply a small amount of thread-locker if components frequently loosen, but use sparingly and carefully.

- **Excessive Vibration:**

- **Symptom:** Unstable flight, blurry FPV feed, or unusual motor noise.
- **Solution:** Check for bent propellers and replace if necessary. Ensure motors are securely mounted and free of debris. Verify that the flight controller is properly isolated from vibrations. The Air65 II frame's design helps reduce vibration, but external factors can still contribute.

8. WARRANTY AND SUPPORT

For specific warranty information and technical support regarding your BETAFPV Air65 II Brushless Whoop Frame Kit, please refer to the official BETAFPV website or contact their customer service directly.

You can also visit the official BETAFPV store on Amazon for product information and support: [BETAFPV Amazon Store](#).

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This manual is for informational purposes only. Specifications are subject to change without notice.

Related Documents - Air65 II

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