## Diatone Mamba Toka 2808 Brushless Motor 1100KV

# Diatone Mamba Toka 2808 Brushless Racing Motors 4-6S 1100kV User Manual

Model: Mamba Toka 2808 1100KV

## 1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your Diatone Mamba Toka 2808 Brushless Racing Motors. Please read this manual thoroughly before using the product to ensure optimal performance and safety.


Image 1.1: A set of four Diatone Mamba Toka 2808 1100KV brushless motors.

## 2. Safety Instructions

Always observe the following safety precautions to prevent injury or damage to the product and surrounding equipment:

- Ensure all connections are secure and correctly polarized before applying power. Incorrect wiring can cause damage.
- Operate motors within their specified voltage range (4-6S LiPo). Exceeding this range can lead to overheating and motor failure.
- Keep fingers and loose clothing away from spinning propellers and motors. Propellers can cause severe injury.
- Mount motors securely to prevent detachment during operation.
- Avoid operating motors in dusty, wet, or corrosive environments.
- Disconnect power immediately if any unusual noise, smoke, or excessive heat is detected.
- Always use an Electronic Speed Controller (ESC) compatible with brushless motors and capable of handling the motor's peak current.

## 3. Package Contents

Verify that all items are present in your package:

- 4x Mamba Toka 2808 1100KV Motors


Image 3.1: Two Mamba Toka 2808 motors, showing the attached wiring.

## 4. Specifications

Detailed technical specifications for the Diatone Mamba Toka 2808 1100KV Brushless Motor:

| | |
|---|---|
| **Model** | Mamba Toka 2808 1100KV |
| **Overall Dimensions** | Ø35.1×40.3mm |
| **Propeller Shaft Diameter** | 5mm |
| **Installation Hole Position** | 16×16mm, M3 |
| **Recommended Propeller** | 7" |
| **Bottom Bearing** | 13*6*5 |
| **Top Bearing** | 10*6*4 |
| **Slots/Poles** | 12N14P |
| **Shaft Diameter** | 6.0mm |
| **Magnet Wire** | 240°C Enameled Wire |
| **Stator Diameter** | 28mm |
| **Stator Height** | 8mm |
| **Rated Voltage** | 4~6S (16.8V~25.2V) |

| | |
|---|---|
| **Peak Current** | 38.7A |
| **Idle Current** | 1.2A |
| **Maximum Power** | 862.5W |
| **Internal Resistance** | 68mΩ |
| **Weight** | 63.5g |
| **Material** | Metal |


Image 4.1: Close-up view of a Mamba Toka 2808 1100KV motor, highlighting model details.


Image 4.2: Angled view showing the motor's internal windings and construction.

## 5. Setup and Installation

1. **Mounting the Motors:**

   Securely attach each motor to your frame using M3 screws. The installation hole pattern is 16x16mm. Ensure screws are not too long, as they can damage motor windings if they extend too far into the motor base.


Image 5.1: Bottom view of the motor, illustrating the mounting screw pattern.

2. **Wiring to ESC:**

   Connect the three motor wires to the corresponding three wires on your Electronic Speed Controller (ESC). The order of connection determines the motor's rotation direction. If the motor spins in the wrong direction, swap any two of the three motor wires, or reverse the direction in your flight controller software (e.g., Betaflight).

3. **Propeller Attachment:**

   Attach the recommended 7-inch propellers to the 5mm propeller shaft. Ensure propellers are balanced and securely fastened to prevent vibrations and potential damage during flight. Always check propeller direction for proper thrust.

4. **Initial Power-Up:**

   Before attaching propellers, connect the ESCs to your flight controller and power source. Perform an initial test to ensure all motors spin smoothly and in the correct direction. Calibrate ESCs if necessary according to your ESC manufacturer's instructions.

## 6. Operating Instructions

These motors are designed for high-performance racing drones. Follow these guidelines for safe and effective operation:

- **Power Source:** Use a 4-6S LiPo battery (16.8V-25.2V) that can provide sufficient current for your setup.
- **ESC Configuration:** Ensure your ESCs are properly configured for brushless motors, including settings for timing, PWM frequency, and current limits, as recommended by your ESC manufacturer.
- **Flight Controller Tuning:** Proper flight controller PID tuning is crucial for stable and efficient flight. Refer to your flight controller's manual for tuning procedures.
- **Temperature Monitoring:** Monitor motor temperatures during and after flights. Excessive heat can

indicate an issue with tuning, propeller choice, or motor overload.

## 7. Maintenance

Regular maintenance helps prolong the lifespan and performance of your motors:

- **Cleaning:** Periodically clean the motors to remove dust, dirt, and debris that can accumulate in the stator and bearings. Use compressed air or a soft brush.
- **Bearing Inspection:** Check motor bearings for any signs of wear, roughness, or excessive play. Worn bearings can cause vibrations and reduced performance. Replace bearings if necessary.
- **Wire Inspection:** Inspect motor wires for any cuts, fraying, or loose connections. Repair or replace damaged wires promptly.
- **Screw Tightness:** Regularly check that all mounting screws and propeller nuts are securely tightened.

## 8. Troubleshooting

| Problem | Possible Cause | Solution |
|---|---|---|
| Motor not spinning | Loose wire connection, faulty ESC, damaged motor winding, incorrect flight controller setup. | Check all wire connections. Test with a known good ESC. Inspect motor for visible damage. Verify flight controller motor output settings. |
| Motor spinning in wrong direction | Incorrect motor wire order, flight controller software setting. | Swap any two motor wires connected to the ESC, or reverse motor direction in flight controller software (e.g., Betaflight configurator). |
| Excessive vibration | Unbalanced propeller, bent motor shaft, worn bearings, loose motor mount. | Check and balance propellers. Inspect motor shaft for bends. Replace worn bearings. Tighten motor mounting screws. |
| Motor overheating | Over-propped, incorrect ESC timing, motor damage, excessive current draw. | Use smaller or less aggressive propellers. Adjust ESC timing. Inspect motor for damage. Check current draw with a power meter. |

## 9. Warranty Information

Diatone products are typically covered by a limited manufacturer's warranty against defects in materials and workmanship. The specific terms and duration of the warranty may vary. Please retain your proof of purchase for any warranty claims. For detailed warranty information, refer to the official Diatone website or contact your retailer.

## 10. Customer Support

For technical assistance, troubleshooting, or further inquiries regarding your Diatone Mamba Toka 2808 Brushless Motors, please visit the official Diatone website or contact your authorized dealer. Online communities and forums dedicated to FPV racing and drone building can also be valuable resources for support and advice.