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**BETAFPV 00313-1102motor**

# BETAFPV 1102 18000KV Brushless Motor Instruction Manual

Model: **00313-1102motor** | Brand: **BETAFPV**

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## 1. INTRODUCTION

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This manual provides detailed instructions for the BETAFPV 1102 18000KV Brushless Motors. These motors are specifically designed for 1S brushless micro whoop drones, such as the Meteor75.

Understanding the proper installation, operation, and maintenance procedures will ensure optimal performance and longevity of your motors.



Image 1.1: Four BETA FPV 1102 18000KV Brushless Motors, showing their compact size and integrated wiring.

## 2. PRODUCT FEATURES

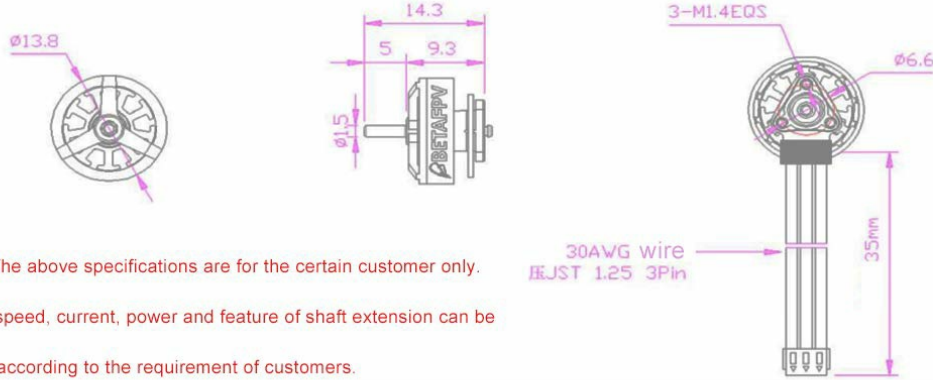
- **Compatibility:** Custom-designed for 1S brushless micro drones like the Meteor75, enabling approximately 5 minutes of flight time with a BT2.0 450mAh 1S battery.
- **Easy Repair:** Features lead wires soldered directly to the PCB, simplifying soldering and repair processes.
- **Enhanced Performance:** The 18000KV rating provides more power and potentially longer flight times compared to 1102 13500KV motors.
- **Lightweight Design:** Each motor weighs approximately 2.9g with the connector, minimizing overall drone weight.
- **Simplified Wiring:** All cable connectors are black, eliminating the need to differentiate between CW (clockwise) and CCW (counter-clockwise) motors for initial connection.
- **High Efficiency:** Delivers significant thrust for aggressive indoor FPV racing.

## 3. SPECIFICATIONS

Refer to the table below for detailed technical specifications of the 1102 18000KV Brushless Motors.

# P1102 - 18000KV

Specification			
Motor KV	18000	Maximum Current (A)	6.00
Internal Resistance (mΩ)	125	Maximum Power (W)	24.0
Stator Diameter(mm)	11	Overall Dimension (mm)	Φ13.8×14.3
Stator Height(mm)	2	Shaft Diameter (mm)	Φ1.5
No. of Stator Slots	9	Lead Wire Size	30AWG×35mm
No. of Rotor Poles	12	ESC	8A
Rotor Runout(mm)	≤0.1	Rated Voltage (V)	4.2 (1S)
Dynamic balance(mg)	≤10	Propeller (inch)	1.5-2.0



Notice: The above specifications are for the certain customer only.

Voltage, speed, current, power and feature of shaft extension can be adjusted according to the requirement of customers.

Load Performance									
Model	Propeller	Throttle (%)	Voltage (V)	Current (A)	Speed (RPM)	Input (W)	Thrust (g)	efficiency (g/w)	Coil temp. (°C)
P1102 18000KV	GF1635	10	4	0.3		1.20	1.53	1.28	
		20	4	0.5		2.00	4.32	2.16	
		30	4	0.9		3.60	9.40	2.61	
		40	4	1.4		5.60	13.64	2.44	
		50	4	1.9		7.60	19.86	2.61	
		60	4	2.5		10.00	24.65	2.47	
		70	4	3.1		12.40	30.24	2.44	
		80	4	3.8		15.20	36.58	2.41	
		90	4	4.8		19.20	43.31	2.26	
		100	4	6.0		24.00	50.33	2.10	

Image 3.1: Detailed specifications and load performance data for the P1102-18000KV motor.

## BETAFPV 1102 18000KV Motor Specifications

Attribute	Value
Motor KV	18000
Internal Resistance (mΩ)	125
Stator Diameter (mm)	11
Stator Height (mm)	2
No. of Stator Slots	9
No. of Rotor Poles	12
Rotor Runout (mm)	≤0.1
Dynamic Balance (mg)	≤10
Maximum Current (A)	6.00

Attribute	Value
Maximum Power (W)	24.0
Overall Dimension (mm)	Φ13.8×14.3
Shaft Diameter (mm)	Φ1.5
Lead Wire Size	30AWG×35mm
ESC	8A
Rated Voltage (V)	4.2 (1S)
Propeller (inch)	1.5-2.0
Product Dimensions	2.36 x 2.76 x 1.18 inches
Weight	0.1 ounces (approx. 2.9g per motor)

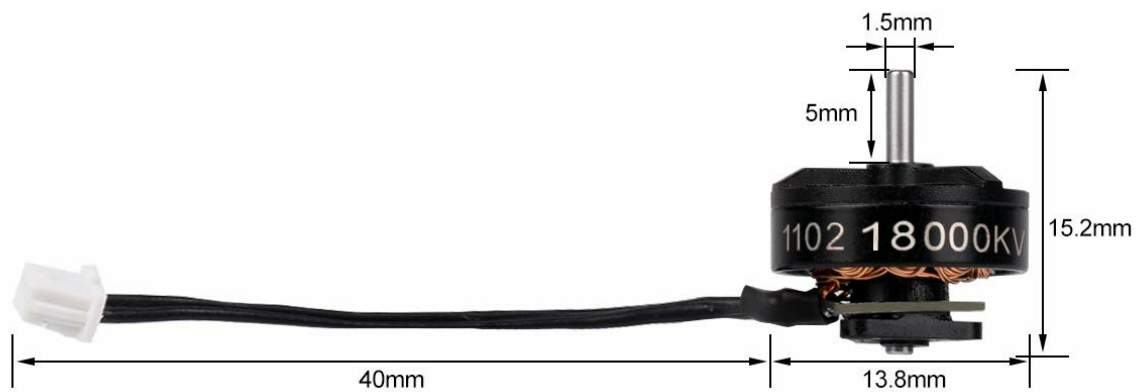


Image 3.2: Dimensional drawing of the 1102 18000KV motor, indicating key measurements for installation.



Image 3.3: The 1102 1800KV motor on a digital scale, confirming its lightweight design at 2.95 grams.

## 4. INSTALLATION AND SETUP

Proper installation is crucial for the performance and safety of your drone. Follow these steps carefully:

1. **Motor Mounting:** Securely attach each motor to the drone frame's motor mounts using appropriate screws. Ensure the screws are not too long, as they can damage the motor windings.
2. **Wiring Connection:** Connect the motor's lead wires to the Electronic Speed Controller (ESC) pads on your flight controller or dedicated ESC board. The 1102 1800KV motors feature black cable connectors, simplifying the wiring process as there is no need to distinguish between CW and CCW motors for initial connection.
3. **Soldering:** Carefully solder the motor wires to the designated pads. Ensure strong, clean solder joints to prevent intermittent connections or power loss during flight. The pre-soldered lead wires on the PCB facilitate easier soldering.
4. **Propeller Installation:** Once motors are mounted and wired, install the propellers. Ensure they are correctly oriented for thrust direction (typically, two propellers spin clockwise and two counter-clockwise).
5. **Flight Controller Configuration:** After physical installation, connect your flight controller to a computer and configure the motor outputs in your flight control software (e.g., Betaflight, EmuFlight).

Calibrate ESCs if necessary.



**2.95g**

Weighs 2.95g/pc with connector

Image 4.1: Wiring diagram for the 1102 18000KV motor, illustrating the 3-pin connector and wire length.



Image 4.2: A BETA FPV Meteor75 drone, demonstrating the type of micro whoop drone these motors are designed for.

## 5. OPERATING INSTRUCTIONS

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These motors are designed for high-performance FPV micro drones. Once installed and configured, operate your drone according to its flight controller and radio transmitter instructions. The 18000KV rating provides significant thrust for agile and aggressive flight characteristics, particularly suitable for indoor FPV racing.

- **Battery Compatibility:** For optimal performance and flight time, use 1S LiPo batteries, such as the BETA FPV BT2.0 450mAh 1S battery.
- **Propeller Choice:** Use propellers within the recommended range of 1.5-2.0 inches for best efficiency and thrust.
- **Flight Environment:** While powerful, these motors are best suited for micro drones intended for indoor or calm outdoor environments.

## 6. MAINTENANCE

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Regular maintenance helps extend the lifespan of your brushless motors:

- **Inspection:** Periodically inspect motors for any signs of damage, such as bent shafts, loose wires, or debris lodged in the motor bell.
- **Cleaning:** Keep motors clean from dust, dirt, and small debris, which can affect performance and cause wear. Use compressed air or a soft brush.
- **Bearing Check:** Gently spin the motor bell by hand. It should spin smoothly without any grinding or excessive play. Worn bearings can lead to vibrations and reduced efficiency.
- **Wire Integrity:** Check all wire connections for fraying or loose solder joints. Re-solder if necessary.
- **Post-Crash Inspection:** After any crash, thoroughly inspect all motors for damage before flying again.

## 7. TROUBLESHOOTING

If you encounter issues with your motors, consider the following:

- **Motor Not Spinning/Stuttering:**
  - Check all three motor wires for secure connections to the ESC. Re-solder if any joint is loose or cold.
  - Inspect for physical obstructions (e.g., hair, debris) in the motor bell.
  - Verify ESC calibration and motor output settings in your flight controller software.
  - A burnt-out motor or ESC can cause this; check for visible damage or unusual smells.
- **Excessive Vibration/Noise:**
  - Check for bent motor shafts or damaged propellers. Replace if necessary.
  - Ensure motors are securely mounted to the frame.
  - Worn motor bearings can cause noise and vibration; consider replacing the motor.
- **Reduced Thrust/Flight Time:**
  - Ensure your battery is fully charged and healthy.
  - Check for propeller damage or incorrect orientation.
  - Verify that the drone's weight is within acceptable limits for the motors.

## 8. SAFETY INFORMATION

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Always prioritize safety when working with FPV drone components:

- **Propeller Safety:** Always remove propellers before performing any maintenance or configuration on your drone. Spinning propellers can cause serious injury.
- **Battery Handling:** Use caution when handling LiPo batteries. Do not overcharge, over-discharge, or puncture them. Store them in a safe, fireproof location.
- **Soldering Safety:** Use proper ventilation and safety gear (e.g., safety glasses) when soldering. Be aware of hot components.
- **Electrical Safety:** Avoid short circuits. Ensure all connections are correct before applying power.
- **Age Recommendation:** This product is recommended for users 16 years and up due to the technical nature and potential hazards involved with FPV drones.

## 9. WARRANTY AND SUPPORT

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BETA FPV products are designed for quality and performance. For specific warranty details, please refer to the official BETA FPV website or contact their customer support directly. While this product does not come with an explicit manufacturer's warranty duration in this document, BETA FPV offers support for their products.

For further assistance, technical support, or to explore other BETA FPV products, please visit the official BETA FPV store or website:

- [BETA FPV Amazon Store](#)
- [Official BETA FPV Website](#) (Please note: external link, content may vary)



Image 9.1: The BETA FPV brand logo.

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