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› RATTMMOTOR 600W Brushless Spindle Motor Kit User Manual

## RATTMMOTOR 600W Brushless Spindle Motor Kit

# RATTMMOTOR 600W Brushless Spindle Motor Kit User Manual

## 1. PRODUCT OVERVIEW

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This manual provides essential information for the safe and efficient operation of your RATTMMOTOR 600W Brushless Spindle Motor Kit. Please read it thoroughly before installation and use.

### Components Included

- 1 x 600W Air-Cooled Brushless Spindle Motor
- 1 x AC 110V Speed Motor Driver (NBD600)
- 1 x Control Panel
- 1 x Network Port Cable



Figure 1.1: RATTMMOTOR 600W Brushless Spindle Motor Kit components.

The brushless spindle driver is designed for economic engraving machines and is compatible with brushless DC motors. Utilizing updated DSP technology, the driver provides precise speed control and increased torque. Its independent, demountable panel design allows for flexible installation and convenient parameter adjustment, motor start/stop, and speed control.

## 2. SAFETY INFORMATION

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**WARNING:** Always read the user manual before operation. Risk of electrical shock. Wait 10 minutes after removing power before servicing to ensure capacitors are discharged.

- Ensure all wiring is correctly connected and secured before applying power.
- Verify that the power supply voltage matches the product specifications (110V AC).
- Do not operate the motor in wet or damp conditions.
- Keep hands and loose clothing away from moving parts during operation.
- Always wear appropriate personal protective equipment (PPE), such as safety glasses.
- In case of malfunction, immediately disconnect power and consult the troubleshooting section or qualified personnel.

## 3. SETUP AND INSTALLATION

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### Wiring the Driver

Proper wiring is crucial for safe and correct operation. Refer to the connection interface definition below and the provided video for guidance.

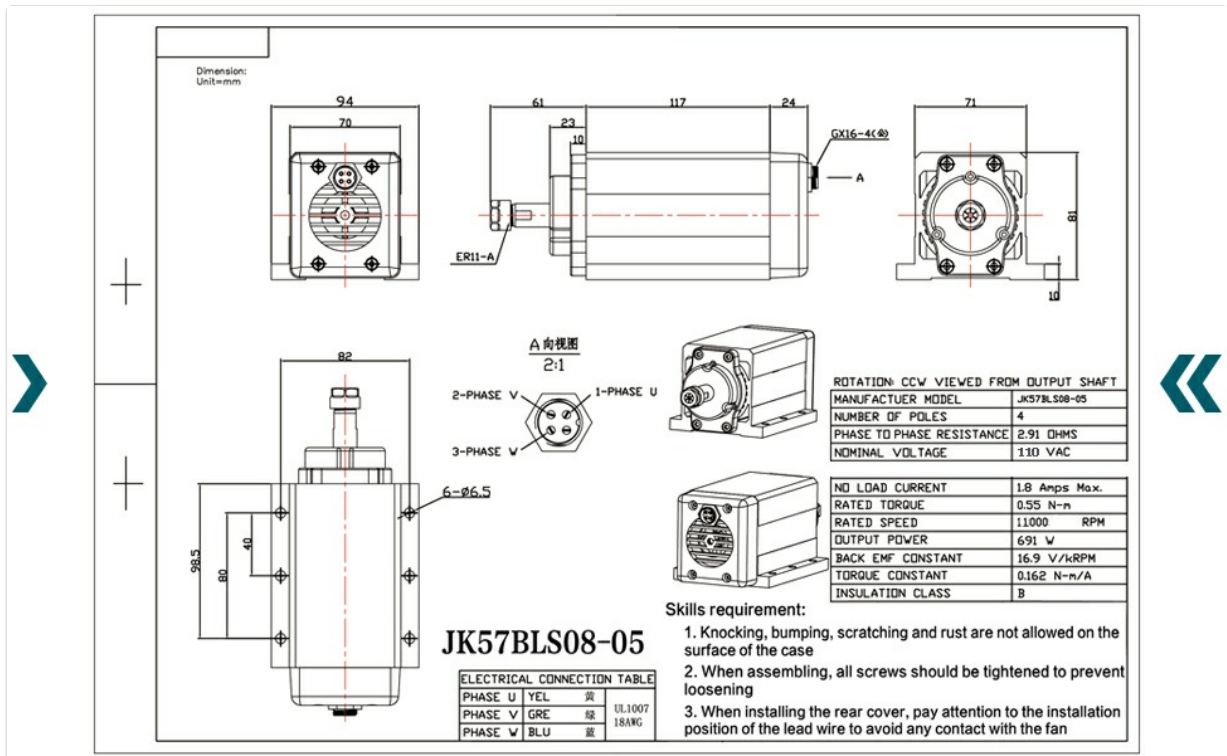


Figure 3.1: NBD600 Driver Connection Interface Definition.

Table 3.1: Connection Interface Definition

Mark	Definition
L	Live line (Supply 110VAC for NBD600M1)
N	Neutral line (Supply 220VAC for NBD600M2)
G	Connect to the earth
U	Brushless motor U phase
V	Brushless motor V phase
W	Brushless motor W phase
GND	Control signal common Ground
IN	Analog speed control input port
FG	Motor speed inspection output port
PWM	PWM speed control input port
RE	Motor counterclockwise rotate control signal port
FO	Motor clockwise rotate control signal port
X1	Multistage speed control port 1
X2	Multistage speed control port 2
X3	Multistage speed control port 3
A	Communication control 485-A

Mark	Definition
B	Communication control 485-B

Video 3.1: Demonstrates the wiring process for the RATTMMOTOR 600W Brushless Spindle Motor Kit, showing connections to the driver and motor.

### Motor and Driver Dimensions

Ensure adequate space and proper mounting for both the spindle motor and the driver. Refer to the dimension diagrams below for planning your installation.

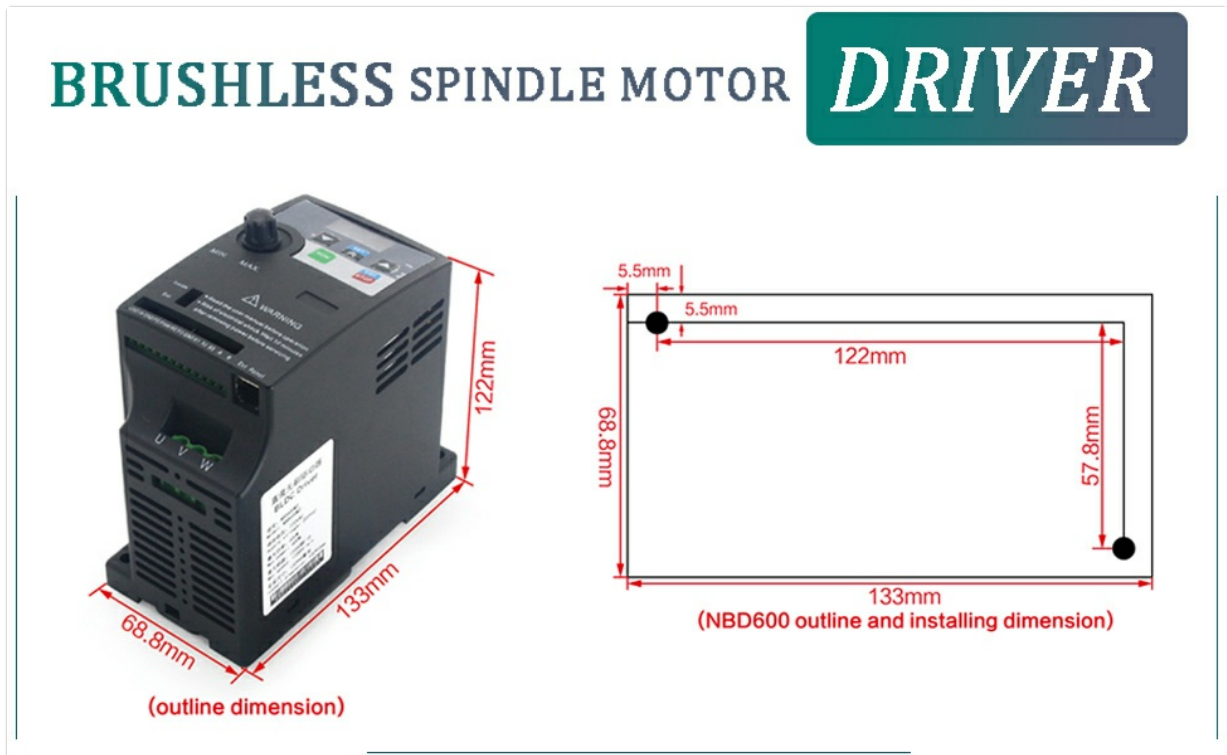
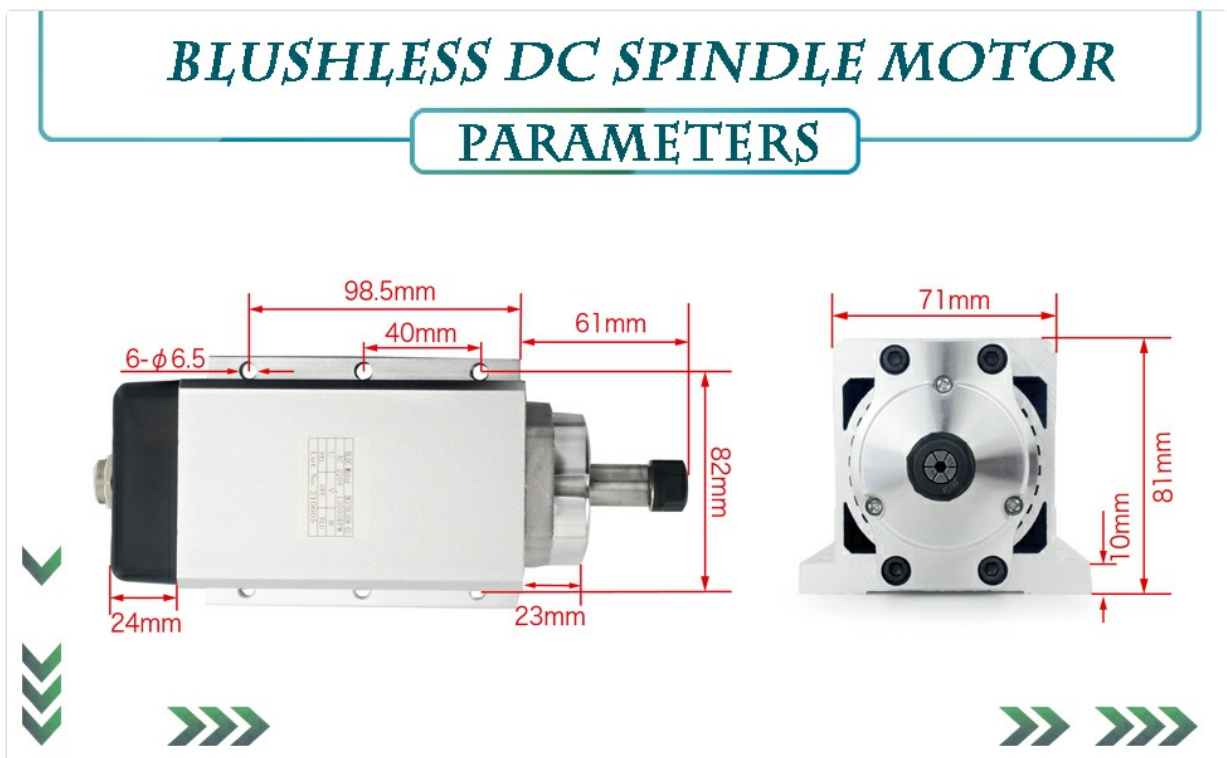


Figure 3.2: JK57BLS08-05 Brushless Spindle Motor Dimensions.



## 4. OPERATING INSTRUCTIONS

### Control Panel Functions

The control panel allows for direct interaction with the motor driver. Familiarize yourself with the buttons and their functions.



Figure 4.1: Control Panel Definition.

Table 4.1: Control Panel Button Functions

No.	Mark	Definition	Description
1	RUN	Start	Press this button to run the motor.
2	ESC / STOP	Stop	Press this button to stop the motor or exit parameter setting.
3	▼	Reduce parameter	Decrease parameter value.
4	SET	Selection	Press once to enter parameter setting, hold to confirm selection.
5	▲	Increase parameter	Increase parameter value.
6	Speed control potentiometer	Motor speed adjustment (clockwise increases, counter-clockwise reduces).	
7	LED display	Displays parameter or motor running speed.	

## Parameter Setting and LED Display

1. Upon power-on, the buzzer will ring once, and the LED lights will illuminate, indicating the driver is in standby.
2. In standby status, press the SET button to enter the parameter setting page. Use the SET key to cycle through parameters (e.g., from P0 to P\*).
3. In the configuration page, press the ▲ or ▼ buttons to increase or decrease the parameter value. For example, if P0 is set to P1, it will change to P1.
4. After parameter setting, press the ESC button to exit the setting.
5. If no operation is performed for over 15 seconds in the first setting menu or the second setting menu, the system will automatically exit the setting display and return to standby status.
6. From the standby page, press the START button to run the motor. The LED display will show the motor speed. For example, if the LED displays 1020, the motor speed is 10200 R/Min. The LED's 4 decimal points will flash, indicating the motor is running.

Video 4.1: Demonstrates adjusting the speed of the RATTMOTOR 600W Brushless Spindle Motor using the rotary button on the control panel.

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## 5. SPECIFICATIONS

### Spindle Motor Parameters (Model: JK57BLS08-05)

- **Actual Power:** Can reach 750W (Rated: 600W)
- **Voltage:** 110V
- **Speed:** Up to 11000 RPM
- **Rated Current:** 1.8A
- **Torque:** 0.55 N.m
- **Insulation Class:** B
- **Poles:** 4
- **Phase to Phase Resistance:** 2.91 OHMS
- **Material:** Stainless Steel
- **Collet Type:** ER11

### DC Motor Driver Parameters (Model: NBD600)

- **Maximum Driving Power:** 600W
- **Voltage Range:** 100VAC~120VAC
- **Control Module:** DSP (Digital Signal Processor)
- **Input Signal:** TTL compatible
- **Protection:** Internal overvoltage, overcurrent, and locked rotor check
- **Debugging Methods:** Built-in panel potentiometer, external panel potentiometer, external voltage signal, external PWM signal, and 485 communication.
- **Features:** No current flow when not in operation, speed test port for actual speed verification.

### Driver Parameter Descriptions

The driver offers various parameters for fine-tuning performance. Below is a table detailing these

parameters.

**Parameter setting and LED display**

- 1、 When power on buzzer “DI—”rings one time, and LED lights up, driver standby. . . .
- 2、 At the status of Standby, Press SET button and enter into parameter setting page, In the configuration page, press the set key to cycle to switch parameters. From P0 to \*.
- 3、 In the configuration page, press  $\uparrow$  to increase the parameter value and press  $\downarrow$  to decrease the parameter value. For example at P1-0 Press $\uparrow$ , it will be chaged to P1-1.
- 4、 After parameter setting, press ESC button to esc the setting .
- 5、 At the first setting menu or the second setting menu,if without any operation over 15 seconds,system will exit from the setting display,and enter into standby status.
- 6、 At the standby page,press START button motor start to run, LED display the motor speed,real speed=display speed\*10.For example,when LED display 1020,then the motor speed is 10200 R/Min.The LED 4 r adixpoints take turns to flash,shows the motor run properly.

No.	Mark	Definition	Description
1		Start	Press this button motor run
2		Stop	Press this button motor stop working/ or Exit parameter setting
3		Reduce parameter	Parameter downpage or reduce parameter
4		Selection	Press once the button and enter into parameter term,keep pressing button, exit from current parameter term
5		Increase parameter	Parameter uppage or increase parameter
6		Speed control potentiometer	Motor speed adjust,CW increase speed,CCW reduce speed
7		LED display	Display parameter or motor running speed

Figure 5.1: NBD600 Driver Parameter Descriptions.

## 6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your spindle motor kit.

- **Cleaning:** Keep the motor and driver free from dust, debris, and moisture. Use a soft, dry cloth for cleaning. Avoid using solvents or abrasive cleaners.
- **Connection Checks:** Periodically inspect all electrical connections for tightness and signs of wear or damage. Loose connections can lead to intermittent operation or electrical hazards.
- **Ventilation:** Ensure the driver's ventilation openings are clear and unobstructed to prevent overheating.
- **Motor Inspection:** Check the spindle motor for any unusual noises, vibrations, or excessive heat during operation. Address any issues promptly.
- **Collet Maintenance:** Regularly clean the ER11 collet and nut to ensure proper tool gripping and to prevent runout.

## 7. TROUBLESHOOTING

This section addresses common issues you might encounter. For problems not listed here, contact customer support.

### Common Issues and Solutions

- **Motor Not Spinning:**

- Check power connections (L, N, G) to the driver.
  - Verify motor phase connections (U, V, W) are correct and secure.
  - Ensure the 'RUN' button has been pressed on the control panel.
  - Check for error codes on the LED display (e.g., Er01, Er03, Er06, Er09 indicate wiring or motor issues).
  - Confirm that the speed control potentiometer is not set to minimum.
- **Incorrect Speed or No Speed Control:**
    - Verify parameter P0 (Speed control mode) is set correctly for your desired control method (e.g., panel potentiometer, external voltage, PWM).
    - If using the panel potentiometer, ensure it is functioning correctly.
    - If using external control, check the input signal (IN, PWM) and associated wiring.
- **Excessive Noise or Vibration:**
    - Ensure the motor is securely mounted.
    - Check for any obstructions or foreign objects near the motor or spindle.
    - Inspect the collet and tool for proper seating and balance.
- **Overheating:**
    - Ensure adequate ventilation around the motor and driver.
    - Check for excessive load on the motor.
    - Verify ambient temperature is within operating limits.

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## 8. WARRANTY AND SUPPORT

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RATTMMOTOR products are manufactured to high-quality standards. For warranty information, technical support, or service inquiries, please contact your retailer or the manufacturer directly. Keep your purchase receipt as proof of purchase.

For further assistance, please visit the [RATTMMOTOR Store on Amazon](#).

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