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Walfront B07K3W3KMB

Walfront DC Brushless Motor Controller 12V-36V 500W 15A User Manual

Model: B07K3W3KMB

INTRODUCTION

This manual provides essential information for the safe and efficient operation of your Walfront DC Brushless Motor Controller. Please read these instructions carefully before installation and use to ensure proper functionality and to prevent damage.

SAFETY INFORMATION

- Ensure the power supply voltage is within the specified range (DC 12V-36V).
- Do not exceed the maximum operating current of 15A or driver power of 500W.
- Always disconnect power before making any wiring changes or performing maintenance.
- Proper heat dissipation is crucial. For power usage above 60W, an additional heatsink is required to prevent overheating and permanent damage.
- Observe correct polarity for power connections (VCC positive, GND negative).
- Handle the board with care to avoid electrostatic discharge.

PRODUCT OVERVIEW

The Walfront DC Brushless Motor Controller is designed for controlling DC brushless motors. It features stall protection, enable control, over-current protection, steering control, and speed control.



Figure 1: Top view of the Walfront DC Brushless Motor Controller board.

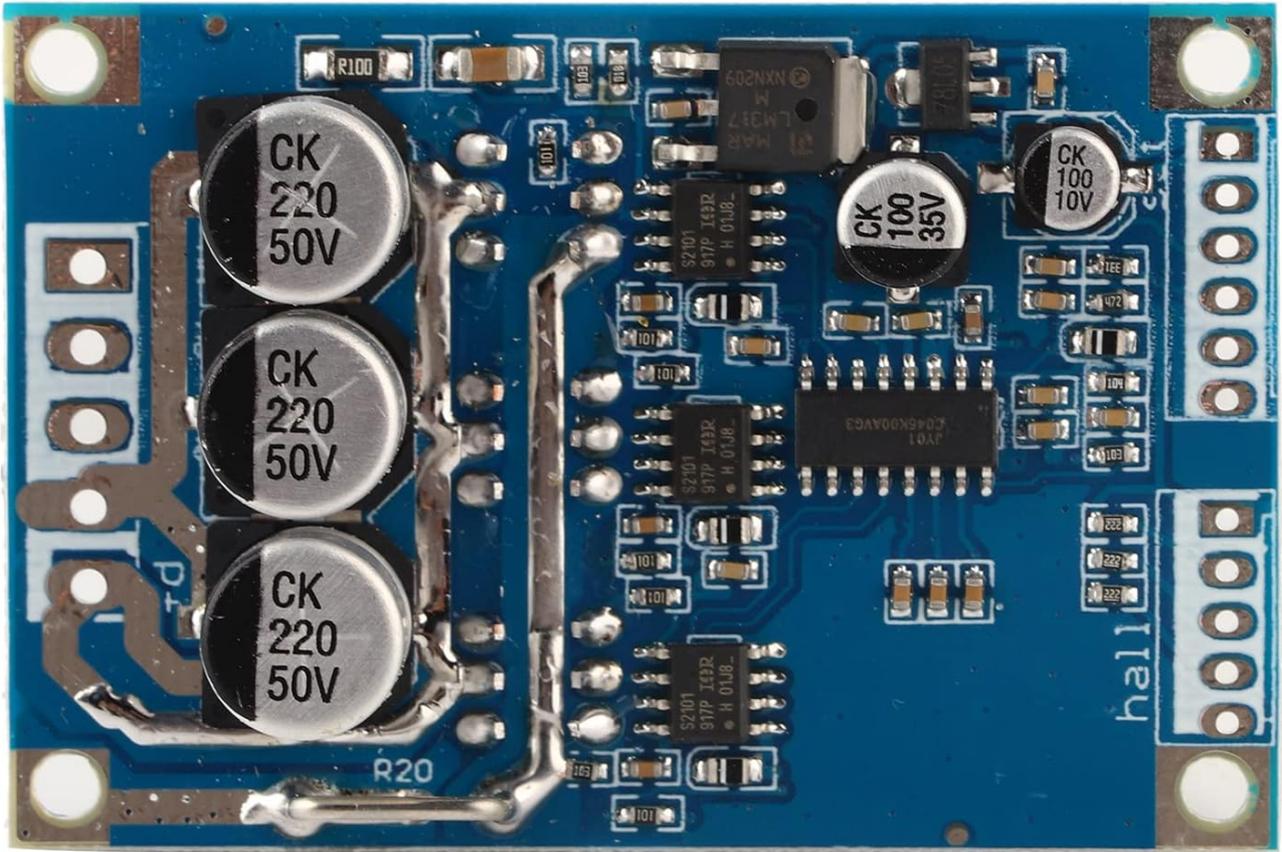


Figure 2: Detailed view of the controller board showing various electronic components.

SPECIFICATIONS

Parameter	Value
Operating Voltage	DC 12V-36V
Operating Current	≤15A
Driver Power	≤500W
Speed Voltage	0.1V-5V
Operating Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	90%RH

Stall Protection	Yes
Enable Control	Yes
Over-current Protection	Yes
Steering Control	Yes
Speed Control	Yes
Dimensions (L×W×H)	63mm × 42mm × 17mm
Fixing Hole Center Distance (Length)	57mm
Fixing Hole Center Distance (Width)	36.5mm

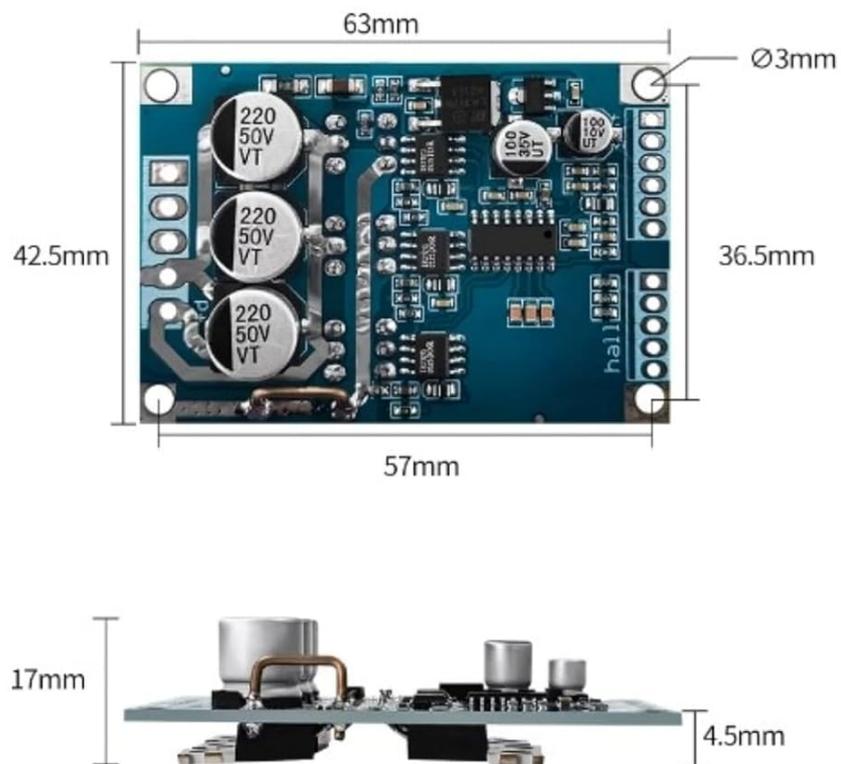


Figure 3: Physical dimensions and mounting hole measurements of the controller board.

SETUP AND WIRING

Careful wiring is essential for the correct operation of the motor controller. Refer to the diagram below for connection details.

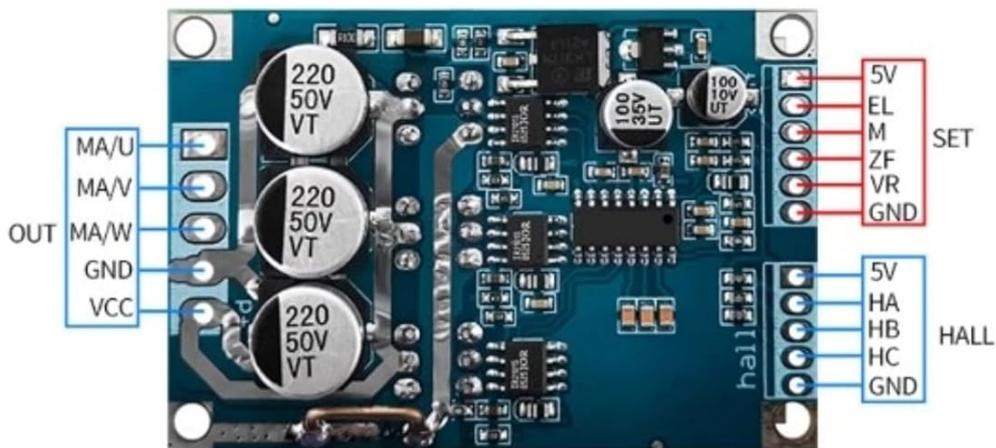


Figure 4: Wiring diagram showing connections for power, motor phases, Hall sensors, speed control, and steering control.

Control Terminal (SET) Wiring:

1. Motor Speed Control:

Speed can be controlled using a potentiometer or an MCU (Microcontroller Unit). For potentiometer control, connect the middle pin of the potentiometer to the VR speed port. Connect the other two ends of the potentiometer to the 5V and GND terminals. Higher voltage at the VR port results in faster motor speed.

2. Motor Steering Control:

Steering can be controlled via a switch or an MCU. Connect to GND in one direction, and to 5V in the opposite direction.

Important Note: Due to variations among motor manufacturers, the Hall sensor wire order may not always match the board's default sequence. It may be necessary to adjust the Hall line sequence. The motor driver board requires a DC 12V-36V power input, with VCC as the positive power supply and GND as the negative power supply.

OPERATING INSTRUCTIONS

Once properly wired, apply power within the specified voltage range. Use the connected potentiometer or MCU to adjust the motor speed. Toggle the steering control input (GND or 5V) to change the motor's direction of rotation.

The controller includes built-in protections for stall, over-current, and enables control for safe operation.

MAINTENANCE

- **Heat Dissipation:** If the motor power usage is less than 60W, an additional heatsink may not be required. However, for power usage exceeding 60W, it is mandatory to add a heatsink. The recommended cooling surface area should be greater than 200 square centimeters.
- **Insulation:** When adding a heatsink, it is advisable to use insulating films on both sides of the heatsink and apply thermal grease to improve heat transfer and prevent short circuits.
- **Cleaning:** Keep the board free from dust and debris. Use a soft, dry brush or compressed air for cleaning.
- **Inspection:** Periodically inspect all wiring connections for looseness or damage.

TROUBLESHOOTING

- **Motor Not Spinning:**
 - Check power supply connections and ensure voltage is within 12V-36V.
 - Verify all motor phase and Hall sensor connections are correct and secure. Remember to adjust Hall line order if necessary.
 - Ensure the speed control input (VR) is providing a valid voltage.
 - Check for any signs of over-current protection activation.
- **Motor Runs Erratically or with Low Power:**
 - Re-check Hall sensor wiring for correct sequence.
 - Ensure the motor is compatible with a sensor-based BLDC controller.
 - Verify the power supply can deliver sufficient current for the motor.
- **Controller Overheating:**
 - Ensure adequate ventilation.
 - If motor power exceeds 60W, confirm a heatsink is installed with proper thermal grease and insulation.
 - Reduce motor load if possible.

SUPPORT

For further assistance or technical support, please contact Walfront customer service through your purchase platform or visit the official Walfront store page.

Walfront Store: <https://www.amazon.com/stores/Walfront/page/FECAC109-E5D3-4C74-B6F1-3FA643B2EA7D>



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