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> [Walfront Stepper Motor Driver \(Model NEMA\) Instruction Manual](#)

Walfront NEMA

Walfront Stepper Motor Driver (Model NEMA) Instruction Manual

Model: NEMA | Brand: Walfront

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of the Walfront Stepper Motor Driver. This module is designed to control 8, 11, 14, 16, and 17 series stepper motors, offering precise control with adjustable current and microstep settings. It features integrated protection mechanisms for enhanced reliability.

2. PRODUCT OVERVIEW

The Walfront Stepper Motor Driver is a robust controller module featuring a wide input voltage range of DC 9-42V and an adjustable output current from 0.5A to 4A. Key features include:

- **Adjustable Current:** Output current selectable from 0.5A to 4A.
- **Microstep Resolution:** Supports up to 32 microstep resolution for smooth motor operation.
- **Protection Features:** Includes overheat, overcurrent, short circuit, and input voltage anti-reverse protection.
- **Efficient Heat Dissipation:** Equipped with a large area heat sink to manage thermal performance.
- **Automatic Half Current:** Reduces heat generation during idle periods.



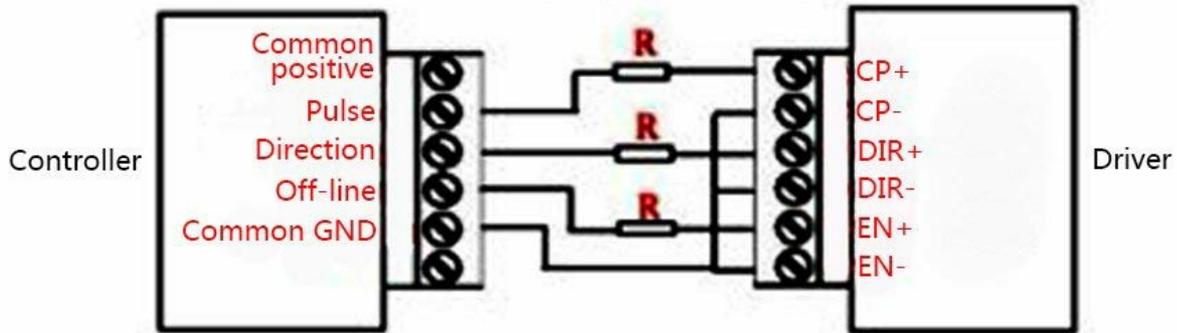
Parameter	Value
Input Voltage	DC 9-42V
Input Current	5A (recommended)
Output Current	0.5-4A
Maximum Power	160W
Microstep Resolution	1, 2/A, 2/B, 4, 8, 16, 32
Dimensions (Approx.)	9.5 x 7 x 2.7 cm (3.74 x 2.75 x 1.06 inches)
Weight (Approx.)	148g (4.16 ounces)
Protection Features	Overheat, Overcurrent, Short Circuit, Input Voltage Anti-Reverse

5. SETUP AND WIRING

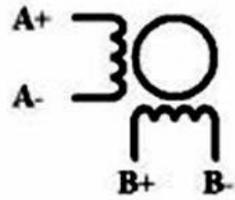
Before connecting the driver, ensure all power sources are disconnected. Refer to the wiring diagram below for proper connections.

5.1. Wiring Diagram

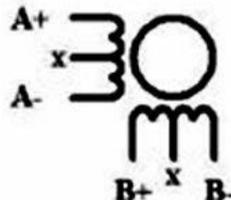
Note: EN end can not be connected



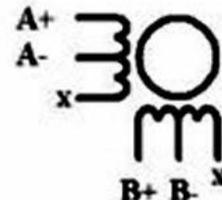
Wire diagram



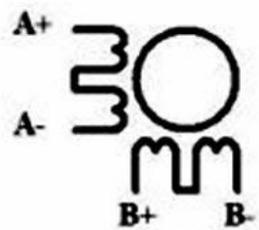
4 wire motor



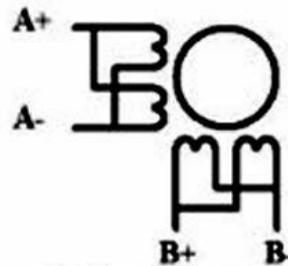
6 wire motor
High torque output



6 wire motor
High speed output



8 wire motor
High torque output



8 wire motor
High speed output

Figure 5.1: General wiring diagram showing connections between a controller and the stepper motor driver, and various stepper motor configurations (4-wire, 6-wire, 8-wire). Note: The EN (Enable) end should not be connected.

Terminal Descriptions:

- **VCC, GND:** Power input (DC 9-42V). VCC is positive, GND is negative.
- **A+, A-, B+, B-:** Stepper motor coil connections. Connect according to your motor's wiring.
- **PUL+(+5V), PUL-(PUL):** Pulse input. PUL+ connects to the positive pulse signal, PUL- to the negative pulse signal.
- **DIR+(+5V), DIR-(DIR):** Direction input. DIR+ connects to the positive direction signal, DIR- to the negative direction signal.
- **ENA+(+5V), ENA-(ENA):** Enable input. ENA+ connects to the positive enable signal, ENA- to the negative enable signal. **Note: The EN end should not be connected as per the diagram.**
- **PWR/ALARM:** Power/Alarm indicator.

Ensure all connections are secure and correctly polarized before applying power.

6. OPERATING INSTRUCTIONS

The Walfront Stepper Motor Driver's operating parameters are configured using the onboard DIP switches. These switches control the output current and microstep resolution.

6.1. Setting Microstep Resolution

The microstep resolution is set using DIP switches SW1, SW2, and SW3. Refer to the table below and the product image for switch positions.



Figure 6.1: Top view of the stepper motor driver showing the DIP switches and their corresponding tables for microstep resolution and current settings.

Microstep	Pulses/Rev (200 steps/rev motor)	SW1	SW2	SW3
NC	NC	ON	ON	ON
1	200	ON	ON	OFF
2/A	400	ON	OFF	ON

Microstep	Pulses/Rev (200 steps/rev motor)	SW1	SW2	SW3
2/B	400	ON	OFF	OFF
4	800	OFF	ON	ON
8	1600	OFF	ON	OFF
16	3200	OFF	OFF	ON
32	6400	OFF	OFF	OFF

6.2. Setting Output Current

The output current (peak current) is set using DIP switches SW4, SW5, and SW6. Refer to the table below and the product image for switch positions.

Current (A)	Peak Current (A)	SW4	SW5	SW6
0.5	0.7	ON	ON	ON
1.0	1.2	ON	ON	OFF
1.5	1.7	ON	OFF	ON
2.0	2.2	ON	OFF	OFF
2.5	2.7	OFF	ON	ON
2.8	3.0	OFF	ON	OFF
3.0	3.2	OFF	OFF	ON
3.5	4.0	OFF	OFF	OFF

Important: Always adjust DIP switch settings when the power is disconnected to prevent damage to the driver or motor.

7. MAINTENANCE

The Walfront Stepper Motor Driver is designed for reliable operation with minimal maintenance. Follow these guidelines to ensure longevity:

- Keep the driver clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- Ensure adequate airflow around the heat sink to prevent overheating.
- Periodically check all wiring connections for tightness and signs of wear or corrosion.
- Avoid exposing the device to excessive moisture or extreme temperatures.

8. TROUBLESHOOTING

If you encounter issues with your stepper motor driver, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Motor not moving or erratic movement	Incorrect wiring; insufficient power; incorrect current/microstep settings; faulty motor.	Check all wiring against the diagram. Verify power supply voltage and current. Review DIP switch settings for current and microstep. Test motor independently if possible.
Driver overheating	Insufficient ventilation; excessive load; incorrect current setting.	Ensure proper airflow around the heat sink. Reduce motor load. Verify the output current setting is appropriate for the motor.
Motor makes noise but doesn't turn	Motor phase wiring incorrect; motor stalled.	Double-check motor coil connections (A+, A-, B+, B-). Ensure the motor is not mechanically obstructed.
No power indicator light	No power input; reverse polarity; faulty driver.	Check power supply connection and voltage. Verify correct input polarity. If issues persist, the driver may be faulty.

9. WARRANTY AND SUPPORT

Walfront products are manufactured to high-quality standards. For warranty information or technical support, please contact your retailer or the Walfront customer service department. Keep your purchase receipt for warranty claims. For further assistance, please visit the [Walfront Store on Amazon](#).



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Related Documents - NEMA

	<p>ZK-SMC02 CNC Stepper Motor Driver User Manual</p> <p>Detailed guide for the ZK-SMC02 CNC Stepper Motor Driver, covering its description, features, parameters, setting methods, work modes, applications, and package contents. This document provides comprehensive information for operating and integrating the ZK-SMC02 with stepper motors.</p>
	<p>American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design</p> <p>This guide provides an overview of American motor circuit design based on methods outlined in the NEC, focusing on standards, configurations, and ratings for motor circuit design.</p>

	<p>PowerFlex 70 AC Drives, Frames A-E: Product Information and Specifications</p> <p>Detailed product information, specifications, and selection guide for Allen-Bradley PowerFlex 70 AC Drives, covering frames A through E. Includes electrical ratings, input protection devices, wiring guidelines, and mounting clearances.</p>
	<p>Thomson Stepper Motor Linear Actuators: Pre-Engineered Motorized Lead Screw Assemblies</p> <p>Explore Thomson's comprehensive range of Stepper Motor Linear Actuators, featuring pre-engineered motorized lead screw assemblies designed for precision applications. This document details MLS (rotating screw) and MLN (rotating nut) configurations, Taper-Lock technology advantages, detailed specifications, sizing and selection guidelines, ordering keys, application examples, nut and lead screw options, encoder specifications, customization possibilities, wiring information, and a glossary.</p>
	<p>Schneider Electric Stepper Motors: 1.8° 2-Phase Motors</p> <p>Comprehensive guide to Schneider Electric's 1.8° 2-phase stepper motors, covering product overview, characteristics, performance data, part numbers, dimensions, and accessories like encoders. Includes technical specifications and speed-torque curves for various NEMA frame sizes (14, 17, 23, 34).</p>
	<p>Adalet Explosionproof Motor Control Enclosures: Circuit Breakers, Disconnects, and Motor Starters</p> <p>Comprehensive catalog detailing Adalet's explosionproof motor control enclosures, including XCB circuit breakers and disconnect switches, and XMS/XCBS motor starters. Features, materials, design options, certifications, dimensions, and ordering information are provided for industrial hazardous environments.</p>

Documents - Walfront – NEMA

no relevant documents