Podazz A3967

Podazz A3967 EasyDriver Stepper Motor Driver Module Instruction Manual

Model: A3967

1. Introduction

The Podazz A3967 EasyDriver Stepper Motor Driver Module is designed for controlling stepper motors with ease. It integrates the A3967 driver chip, offering a user-friendly interface for various microcontroller applications, including Arduino. This module is capable of driving 4, 6, and 8-wire stepper motors and features adjustable current control and microstepping capabilities.

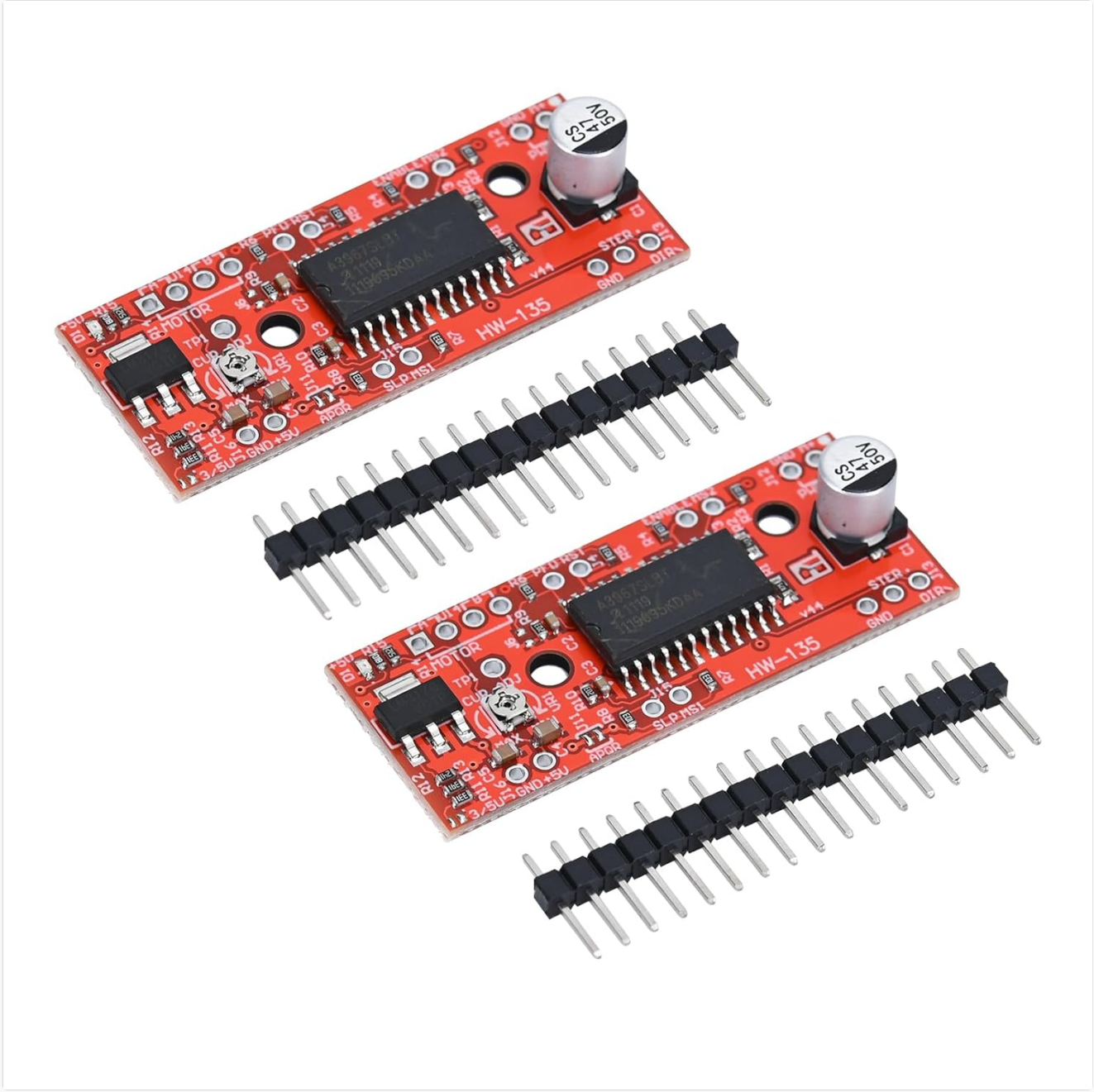

Image 1.1: Two Podazz A3967 EasyDriver Stepper Motor Driver Modules with pin headers. This image displays two Podazz A3967 EasyDriver Stepper Motor Driver Modules, each with its associated pin headers, ready for integration into electronic projects.

2. Key Features

- **User-Friendly Stepper Motor Driver:** Offers straightforward operation, compatible with any device delivering a 0-5V digital pulse (or 0-3.3V when SJ2 is bridged).
- **Wide Voltage Input Range:** Designed to handle a power supply voltage between 7V and 30V, suitable for various stepper motor voltage ratings.
- **Adjustable Voltage Regulation:** Features an onboard voltage regulator for the digital interface, selectable between 5V and 3.3V.
- **Simplified Motor Control Setup:** Enables precise and accurate motor control when connected to a 4-wire stepper motor and a microcontroller.
- **Versatile Motor Compatibility:** Capable of driving bi-polar motors, including 4, 6, or 8-wire stepper motors.

3. Specifications

Feature	Specification
Driver Chip	A3967
Model Number	A3967 (HW-135)
Power Input Range	7V - 30V
Current Control	150mA - 750mA (Adjustable via potentiometer)
Motor Subdivision	2, 4, 8 (Default: 8 subdivisions)
Compatible Motors	4, 6, 8-wire stepper motors
Onboard Voltage Regulator	3.3V or 5V selectable
Product Dimensions	2.4 x 2.4 x 0.12 inches (60.96 x 60.96 x 3.05 mm)
Item Weight	0.71 ounces (20.13 grams)

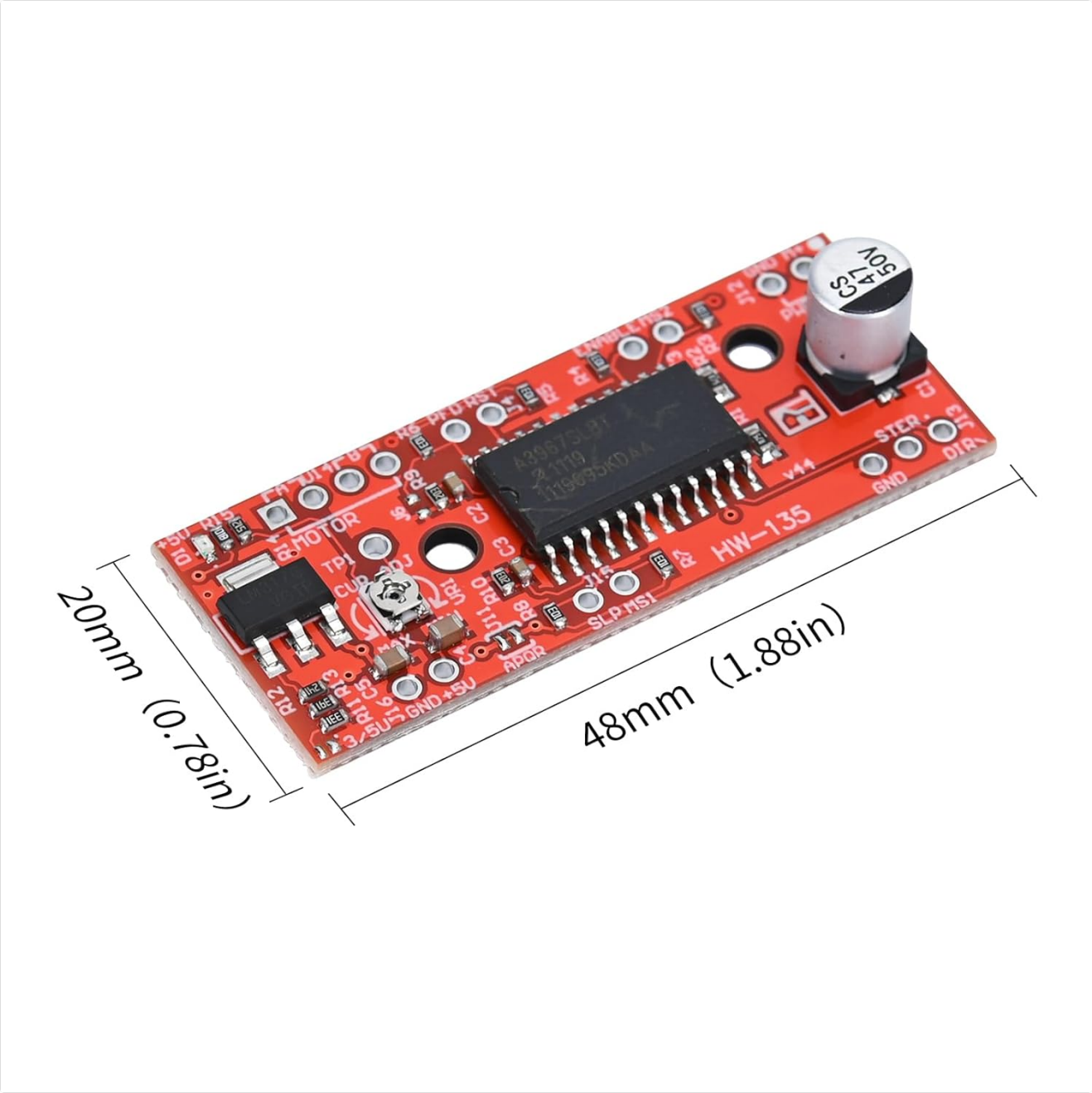

Image 3.1: Dimensions of the Podazz A3967 EasyDriver Stepper Motor Driver Module. This image illustrates the physical dimensions of the Podazz A3967 EasyDriver Stepper Motor Driver Module, showing a length of 48mm (1.88in) and a width of 20mm (0.78in).

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4. Setup and Connections

Follow these steps to properly connect your A3967 EasyDriver module:

1. **Power Supply Connection:**
    - Connect the positive terminal of your motor power supply (7-30V) to the**M1** pin.
    - Connect the negative terminal of your motor power supply to the**GND** pin.
    - Connect the 5V chip power supply to the dedicated**5V** pin.
2. **Stepper Motor Connection:** Connect the four wires of your stepper motor to the**A** and **B** output ports on the module. Refer to your motor's datasheet for correct coil pairing.
3. **Control Signal Connections:**

- Connect the **DIR** pin to a digital output pin on your microcontroller (e.g., Arduino Pin 2) to control the motor's direction.
- Connect the **STP** pin to another digital output pin on your microcontroller (e.g., Arduino Pin 3) to send step pulses.

4. **Microstepping Configuration:** The **MS1** and **MS2** pins control the motor subdivision (microstepping). The default setting is 8 subdivisions. Consult the A3967 datasheet for specific configurations if you need to change this.
5. **Voltage Regulator Selection:** The onboard voltage regulator can be set to 3.3V or 5V. If using a 3.3V logic level microcontroller, ensure SJ2 is short-circuited.

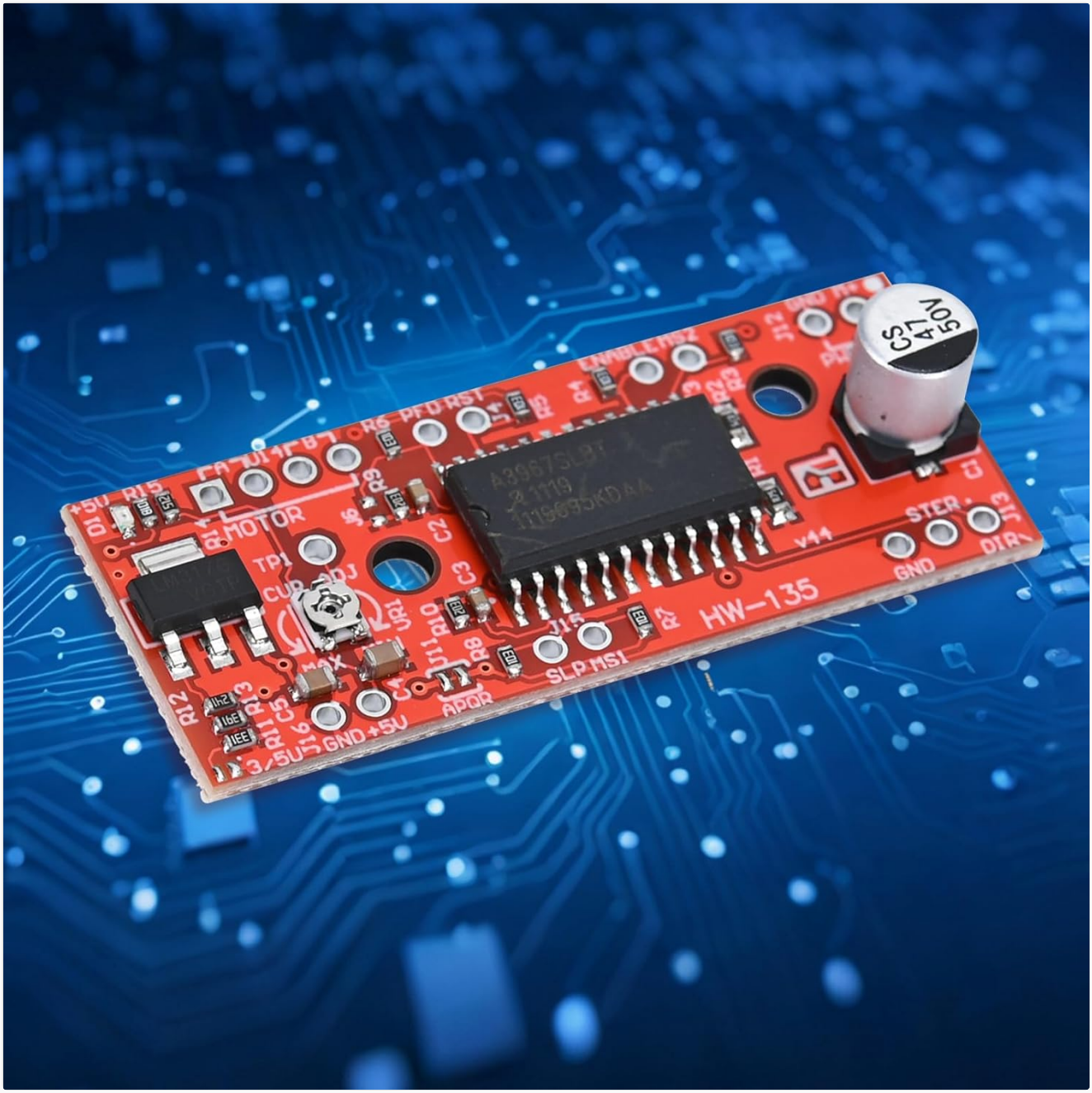

Image 4.1: Wiring diagram for the Podazz A3967 EasyDriver Stepper Motor Driver Module connected to an Arduino and a stepper motor. This diagram illustrates how to connect the Podazz A3967 EasyDriver Stepper Motor Driver Module to an Arduino board, a stepper motor, and a 12V power supply, showing the connections for DIR, STP, GND, M1, and motor coils A and B.

5. Operating Instructions

The A3967 EasyDriver module controls a stepper motor by receiving pulse signals from a microcontroller. Here's how to operate it:

1. **Direction Control:** To change the motor's rotation direction, set the logic level of the **DIR** pin (HIGH for one direction, LOW for the other). This should be done before sending step pulses.
2. **Step Control:** Send a pulse (HIGH then LOW) to the **STP** pin for each step you want the motor to take. The motor will move one step (or microstep, depending on MS1/MS2 configuration) for each pulse.
3. **Current Adjustment:** The module features an adjustable potentiometer (labeled **CUR ADJ** or similar) to set the motor current between 150mA and 750mA. Adjust this to match your stepper motor's rated current to prevent overheating and ensure optimal performance.
4. **Microstepping:** The **MS1** and **MS2** pins determine the microstepping resolution. By default, the module operates at 8 microsteps per full step. Refer to the A3967 datasheet for detailed control of these pins to achieve 2, 4, or 8 microsteps.

For precise control, ensure your microcontroller code generates accurate pulse timings and manages the DIR and STP pins correctly.

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6. Maintenance

The Podazz A3967 EasyDriver module is a robust electronic component requiring minimal maintenance. To ensure its longevity and reliable operation:

- **Keep Dry:** Avoid exposure to moisture or liquids.
- **Handle with Care:** Static electricity can damage electronic components. Use anti-static precautions when handling the module.
- **Cleanliness:** Keep the module free from dust and debris. Use a soft, dry brush or compressed air for cleaning if necessary.
- **Ventilation:** Ensure adequate airflow around the module, especially when operating at higher currents or voltages, to prevent overheating.

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7. Troubleshooting

If you encounter issues with your A3967 EasyDriver module, consider the following:

- **Motor Not Moving:**
  - Verify all power connections (motor power, 5V chip power) are correct and within the specified voltage range.
  - Check motor coil wiring to the A and B outputs. Incorrect wiring can prevent movement.
  - Ensure your microcontroller is sending pulses to the **STP** pin and the **DIR** pin is set to a valid logic level.
  - Adjust the current potentiometer (**CUR ADJ**). If the current is too low, the motor may not have enough torque to move.
- **Motor Overheating:**
  - Reduce the motor current using the **CUR ADJ** potentiometer.
  - Ensure the motor's rated current is not exceeded.
  - Provide adequate ventilation for the module and motor.

- **Erratic Movement or Skipping Steps:**
  - Check for loose connections or faulty wiring.
  - Ensure the power supply is stable and can provide sufficient current for the motor.
  - Verify the timing of your step pulses from the microcontroller. Very fast pulses might be missed.
  - Confirm the **MS1** and **MS2** pins are correctly configured for your desired microstepping mode.
- **No Power to Module:** Check the input voltage and ensure the power supply is functioning correctly.

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8. Warranty and Support

Podazz is committed to providing high-quality products and excellent customer service. Your A3967 EasyDriver Stepper Motor Driver Module comes with the following:

- **24-Month Warranty:** Enjoy an extended warranty period for peace of mind.
- **Lifetime After-Sales & Technical Support:** Our team is available to assist you with any technical questions or issues throughout the product's lifespan.
- **24-Hour Customer Service:** Expect quick replies and efficient support for all your inquiries.
- **30-Day Return Policy:** If you are not satisfied with your purchase, you may return it within 30 days for any reason.

For support, please visit the official Podazz store on Amazon or contact our customer service team directly.