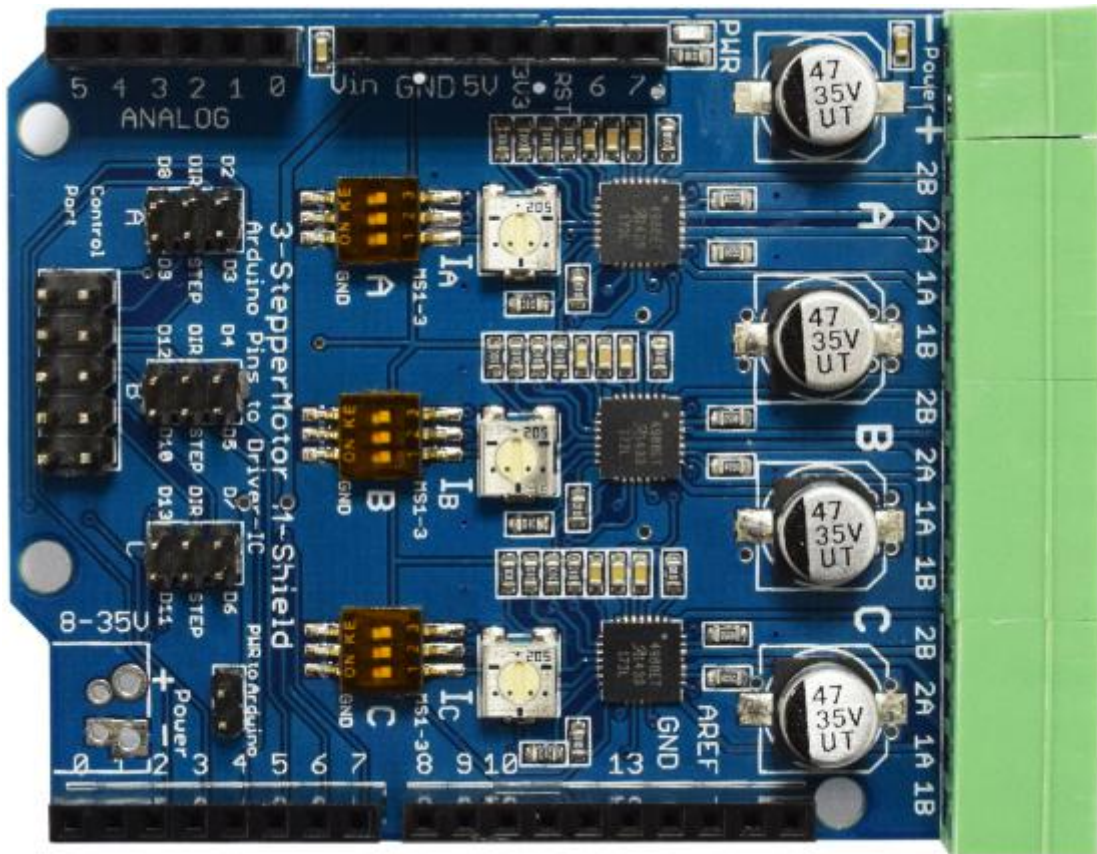# Stepper Motor Driver

User Manual

Introduction

This product is an **Arduino shield** which have **three parts** for Allegro's **A4988** DMOS Microstepping Driver with Translator and Overcurrent Protection; please read the A4988 datasheet carefully before using this product.

Every stepper motor driver lets you to operate bipolar stepper motors in full-, half-, quarter-, eighth-,and sixteenth-step modes, with an output drive capacity of up to 35 V and 2 A.The translator is the key to the easy implementation of the A4988.

Simply inputting one pulse on the STEP input drives the motor one microstep.

There are no phase sequence tables, high frequency control lines, or complex interfaces to program.

The A4988 interface is an ideal fit for applications where a complex microprocessor is unavailable or is overburdened.

Features

- Simple step and direction control interface.

- Five different step resolutions: full-step, half-step, quarter-step, eighth-step, and sixteenth-step.

- Adjustable current control lets you set the maximum current output with a potentiometer,which lets you use voltages above your stepper motor's rated voltage to achieve higher step rates.

- Intelligent chopping control that automatically selects the correct current decay mode,fast decay or slow decay.

- Over-temperature thermal shutdown, under-voltage lockout, and crossover-current protection.
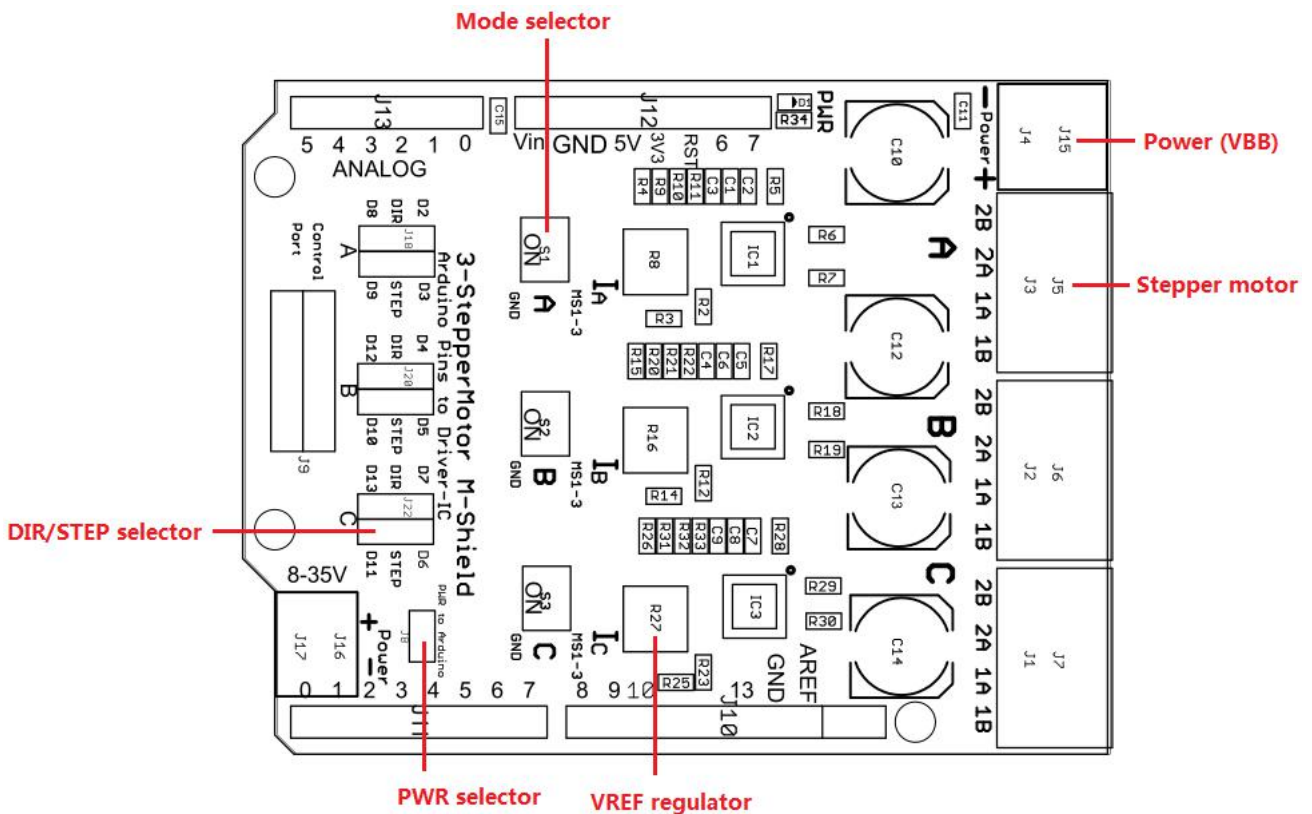
    Short-to-ground and shorted-load protection.

Warning:Connecting or disconnecting a stepper motor while the driver is powered can destroy the driver.

(More generally, rewiring anything while it is powered is asking for trouble.)

Specifications

- Load Supply Voltage(VBB):   8-35V

- Logic Supply Voltage(VDD):   3.0-5.5V

- Reference Voltage: 5.5V

- Output On Resistance: 320-430mΩ @ each part

- Body Diode Forward Voltage: 1.2V   @ each part

- Output Current: $\pm$2A   @ each part

Interface

- Power '+':   8v-35v
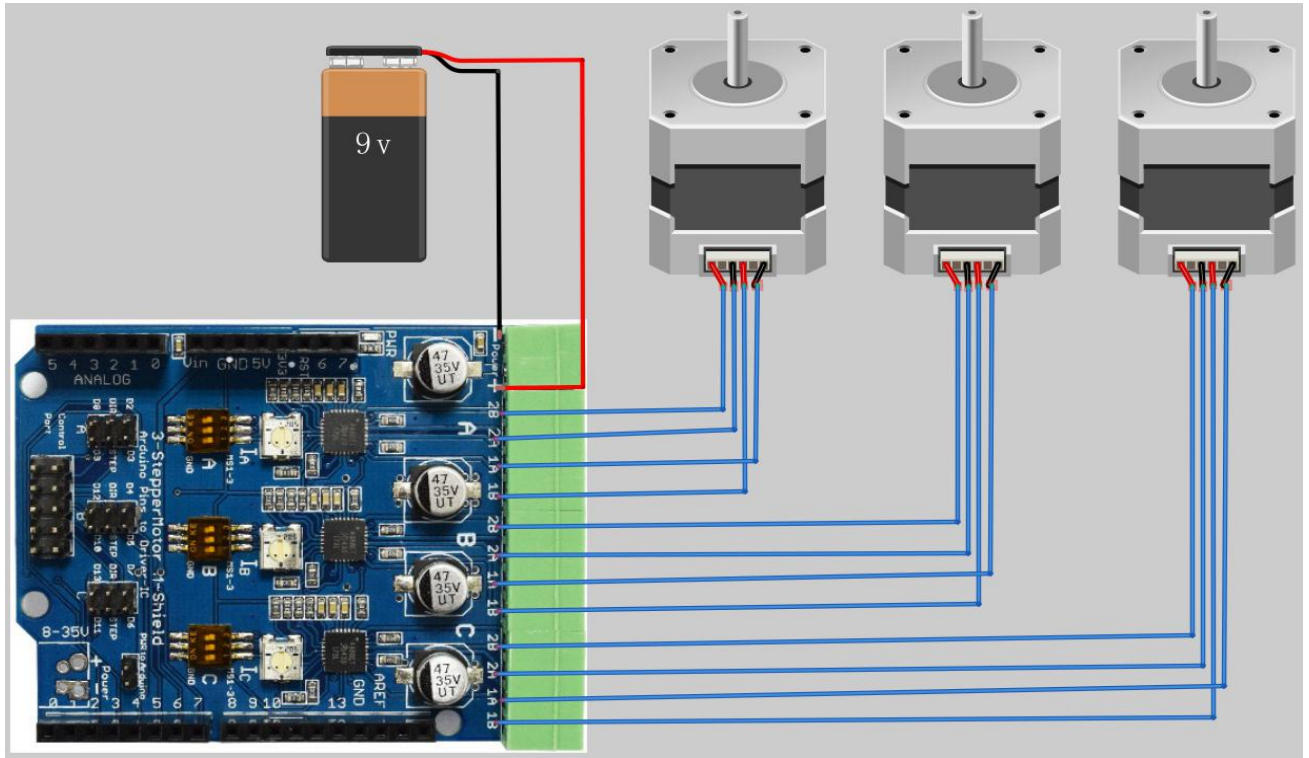
- Power '-':   GND

- 2B: Stepper motor's 2B

- 2A: Stepper motor's 2A

- 1B: Stepper motor's 1B

- 1A: Stepper motor's 1A

- Mode selector: MS1、MS2、MS3 (ON is connect to GND)

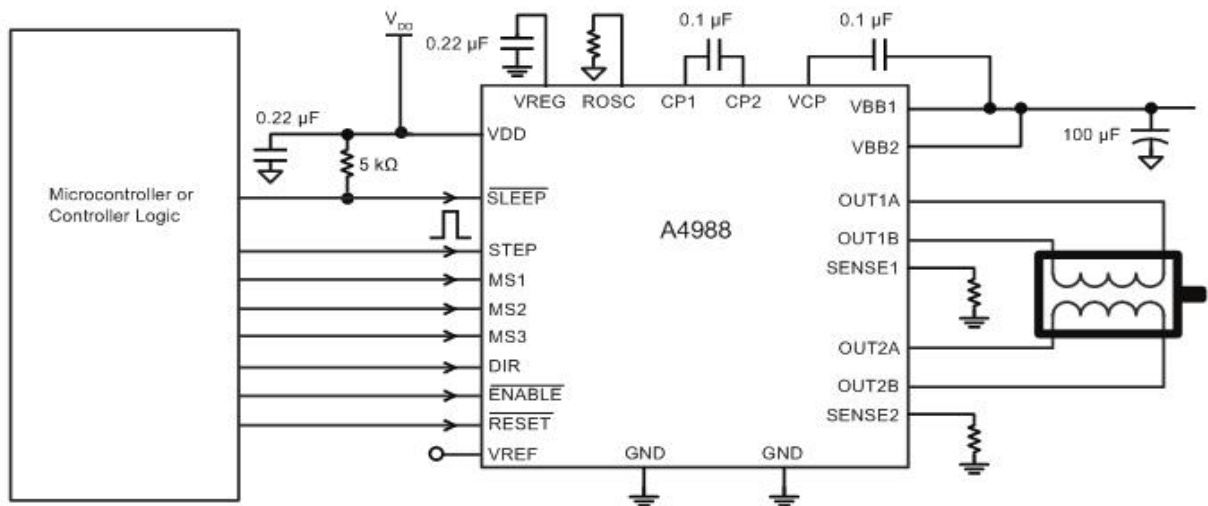| MS1	MS2	MS3	Microstep Resolution
L	L	L	Full Step
H	L	L	Half Step
L	H	L	Quarter Step
H	H	L	Eighth Step
H	H	H	Sixteenth Step

- PWR selector: Connect the power from arduino to module

- DIR/STEP selector: Connect the DIR/STEP to Dx or Dx

- VREF regulator: Adjust the PWM current limitation:

  a.Clockwise to go MAX

  b.Anticlockwise to go MIN

User manual

1. Connection:

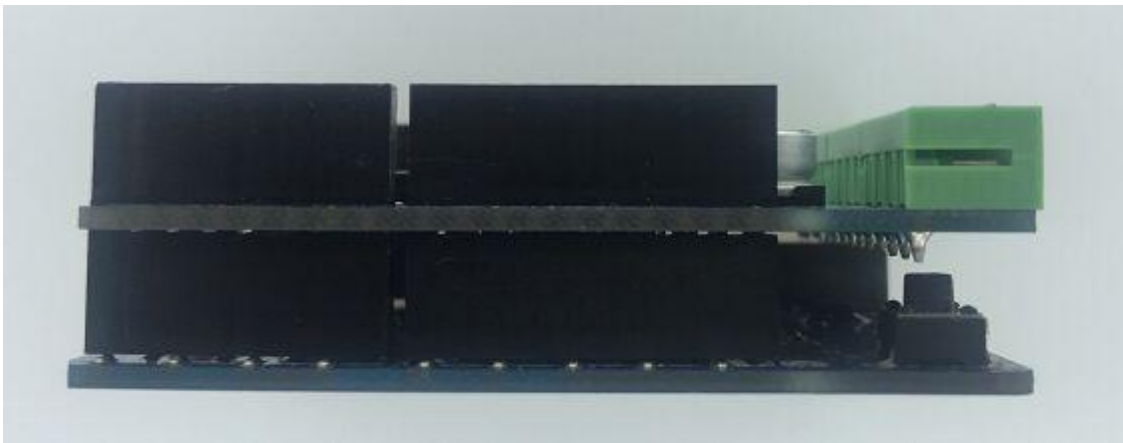## Typical Application Diagram

2. Run Stepper driver demo

3. In Full step mode ,the Stepper will turns 8 circles positive and 40 circles contrary.

Notice

1. As the standard Arduino is using USB Type B connector, it will touch the output connector of 3-step motor driver board. But our smart-duino is using micro USB will not having this issue.
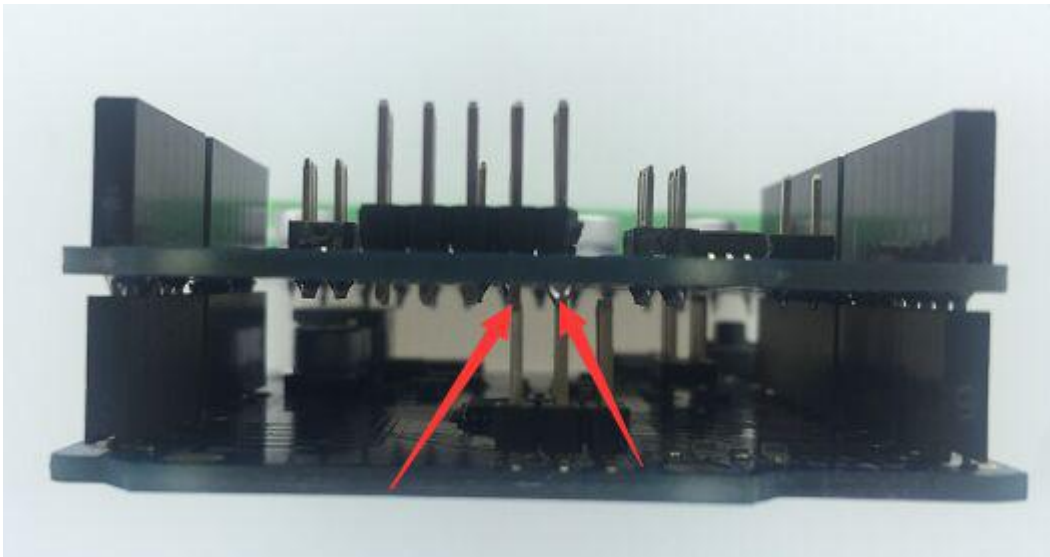
With SMDUINO:

With Arduino UNO:

2. The additional output of 3-step motor driver board will touch the ISP connector of the Arduino Board, we will send you one 2x5pin male header and you can choose solder it or not by yourself.

With male header:

Without male header: