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How to control a Stepper Motor with Arduino Motor Shield Rev3

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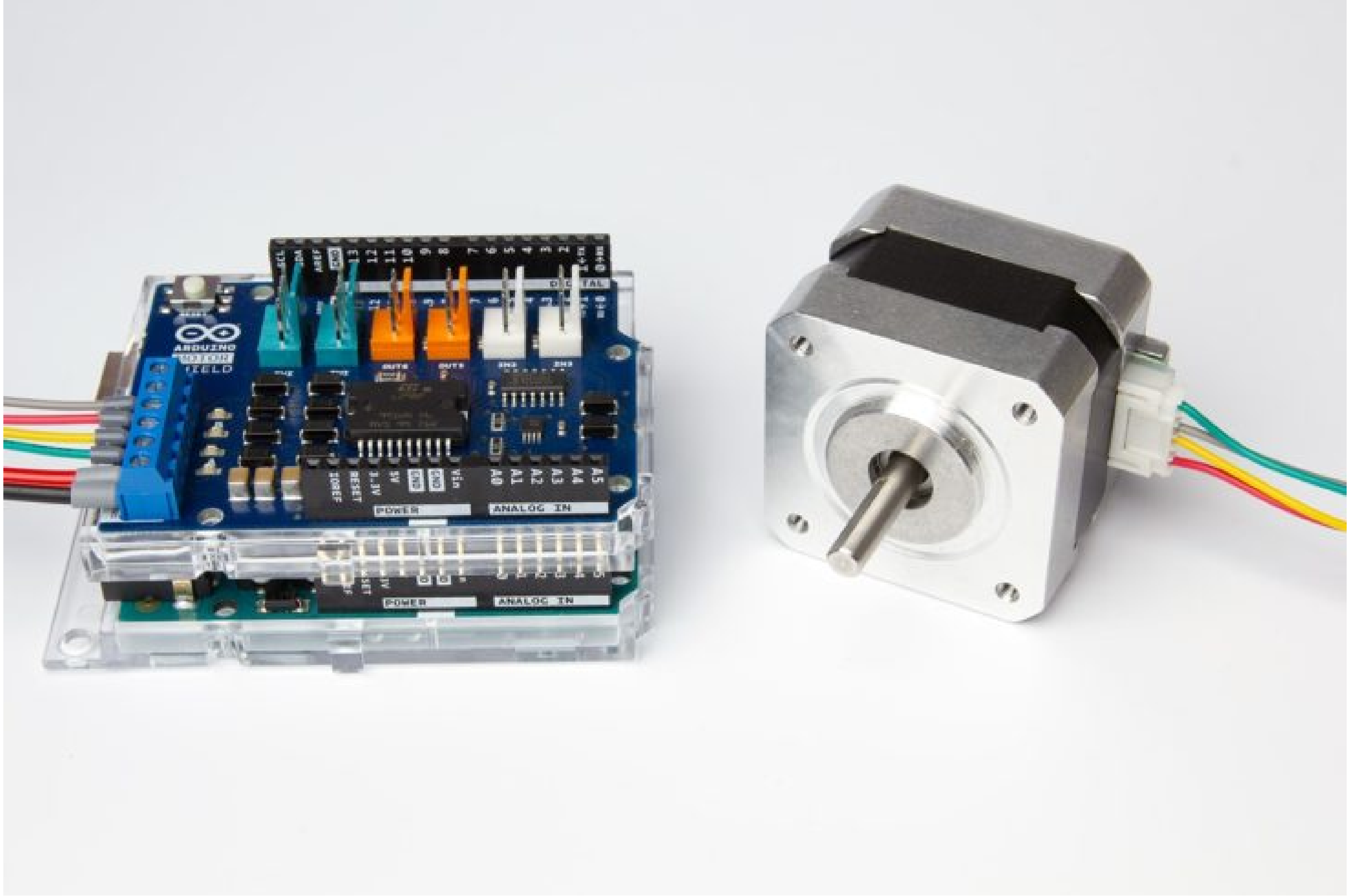

In this tutorial, you will learn how to control a stepper motor with the Arduino Motor Shield Rev3 (https://www.amazon.com/Arduino-A000079-Motor-Shield-12V/dp/B0084ZQF3O/ref=as_li_ss_tl?dchild=1&keywords=arduino+motor+shield+rev3&qid=1591346314&sr=8-

3&linkCode=ll1&tag=makerguides-20&linkId=ecf158a90f472cf1aff6ffd372c9da84&language=en_US). I have included a wiring diagram and many example codes.

First we take a look at an example that uses the Arduino Stepper library. This library is great for basic stepper motor control but doesn't have many extra features.

I highly recommend to also take a look at the example codes for the **AccelStepper library** at the end of this tutorial. This library is fairly easy to use and can greatly improve the performance of your hardware.

After each example, I break down the code into smaller section and explain how it works. You should have no problems modifying the code to suit your needs, but if you have any questions, just leave a comment below.

If you want to learn more about other (microstepping) drivers like the A4988 (https://amzn.to/2ZGp074), check out the articles below.

Other stepper motor tutorials:

- Control a stepper motor with L298N motor driver and Arduino (https://www.makerguides.com/l298n-stepper-motor-arduino-tutorial/)
- 28BYJ-48 Stepper Motor with ULN2003 Driver and Arduino Tutorial (https://www.makerguides.com/28byj-48-stepper-motor-arduino-tutorial/)
- How to control a stepper motor with A4988 driver and Arduino (https://www.makerguides.com/a4988-stepper-motor-driver-arduino-tutorial/)
- How to control a stepper motor with DRV8825 driver and Arduino (https://www.makerguides.com/drv8825-stepper-motor-driver-arduino-tutorial/)

Supplies

Hardware components

(https://amzn.to/31alM8w)	Arduino Motor Shield Rev3 (https://www.amazon.com/Ardu Motor-Shield-12V/dp/B0084ZQF3O/ref=as_li_ss_tl? dchild=1&keywords=arduino+motor+shield+rev3&qid=159 3&linkCode=ll1&tag=makerguides-20&linkId=ecf158a90f472cf1aff6ffd372c9da84&language=
(https://amzn.to/2A3tF3L)	NEMA 17 stepper motor (https://amzn.to/2A3tF3L)*
(https://amzn.to/374aJjX)	Arduino Uno Rev3 (https://amzn.to/374aJjX)
	Power supply (https://amzn.to/3055s81) (5-12 V)
	USB cable type A/B (https://amzn.to/34SBuXf)

In this tutorial I used a bipolar stepper motor with 4 wires. Try to find a stepper motor that can run at 5-12 V and doesn't exceed the 2 A current limit. This one (https://amzn.to/2A3tF3L) from Adafruit works great at 12 V and doesn't draw too much current (350 mA).

Software

Arduino IDE (https://www.arduino.cc/en/Main/Software)

Information about the Arduino Motor Shield Rev3

The Arduino Motor Shield Rev3 (https://www.amazon.com/Arduino-A000079-Motor-Shield-12V/dp/B0084ZQF3O/ref=as_li_ss_tl?dchild=1&keywords=arduino+motor+shield+rev3&qid=1591346314&sr=8-3&linkCode=ll1&tag=makerguides-20&linkId=ecf158a90f472cf1aff6ffd372c9da84&language=en_US) is built around the L298 dual full-bridge driver, made by STMicroelectronics. With the shield, you can drive DC motors, a stepper motor, relays, and solenoids. It comes with two separate channels, called A and B, that you can use to drive 2 DC motors, or 1 stepper motor when combined.

One thing that is very important to remember is that the L298 is a **constant voltage driver**. This means that the current draw depends on the relationship between the inductance and resistance (L/R) of the motor that you connect to it.

What this means for you, is that you need to be careful when selecting the stepper motor and power supply to use with this shield. **Not all stepper motors will work!** The shield's operating voltage is between 5 and 12 volts. Since the shield can supply a maximum of 2 amperes per channel, you need to find a stepper motor that can be used in this voltage range and doesn't exceed the maximum current rating. The motor I used for this tutorial draws around 1A at 5V. I also found this stepper motor from Adafruit that works great at 12V (https://amzn.to/31bbsxa) and only draws 350mA.

If the motor you want to drive doesn't work with this shield, I recommend using a chopper drive instead. I wrote tutorials for the A4988 (https://www.makerguides.com/a4988-stepper-motor-driver-arduino-tutorial/) and DRV8825 (https://www.makerguides.com/drv8825-stepper-motor-driver-arduino-tutorial/) driver that work great with many stepper motors.

Arduino Motor Shield Rev3 Specifications

Operating voltage	5 V to 12 V
Motor controller	L298P, Drives 2 DC motors or 1 stepper motor
Max current	2A per channel or 4A max (with external power supply)
Current sensing	1.65V/A
Functions	Free running, stop and brake
Cost	Check price (https://www.amazon.com/Arduino-A000079-Motor-Shield-12V/dp/B0084ZQF3O/ref=as_li_ss_tl?dchild=1&keywords=arduino+motor+shield+rev3&qid=1591346314&sr=8-3&linkCode=ll1&tag=makerguides-20&linkId=ecf158a90f472cf1aff6ffd372c9da84&language=en_US)

For more information you can check out the datasheets here.

L298 Datasheet

Motor Shield Schematic

Input and Output

Function	Pins Channel A	Pins Channel B
Direction	D12	D13
PWM	D3	D11
Brake	D9	D8
Current sensing	A0	A1

Wiring – Connecting a stepper motor to the Arduino Motor Shield Rev3

The wiring diagram/schematic below shows you how to connect a stepper motor and power supply to the Arduino motor shield.

Wiring diagram for Arduino Motor Shield Rev3 with stepper motor.

The connections are also given in the table below.

Arduino Motor Shield Rev3 Connections

Arduino Motor Shield Rev3	Connection
Vin	5 – 12 V
GND	Power supply ground
A-	Coil 1 of the stepper motor
A+	Coil 1 of the stepper motor
B-	Coil 2 of the stepper motor
B+	Coil 2 of the stepper motor

Warning

It is possible to directly power the shield from the Arduino, but this is not recommended. When the stepper motor draws too much current, you can damage both the shield and the Arduino. I therefore recommend to use an external power supply for the motors.

To do this you have to cut the **Vin Connect jumper** on the back of the shield. After doing this you can power the Arduino separately with a USB cable or via the 5.5 mm DC power jack.

Cutting the Vin Connect jumper.

How to determine the stepper motor wiring?

If you can not find the datasheet of your stepper motor, it can be difficult to figure out which color wire goes where. I use the following trick to determine how to connect 4 wire bipolar stepper motors:

The only thing you need to identify is the two pairs of wires which are connected to the two coils of the motor. The wires from one coil get connected to A- and A+ and the other to B- and B+, the polarity doesn't matter.

To find the two wires from one coil, do the following with the motor disconnected:

1. Try to spin the shaft of the stepper motor by hand and notice how hard it is to turn.
2. Now pick a random pair of wires from the motor and touch the bare ends together.
3. Next, while holding the ends together, try to spin the shaft of the stepper motor again.

If you feel a lot of resistance, you have found a pair of wires from the same coil. If you can still spin the shaft freely, try another pair of wires. Now connect the two coils to the pins shown in the wiring diagram above.

(If it is still unclear, please leave a comment below, more info can also be found on the RepRap.org wiki (https://reprap.org/wiki/Stepper_wiring))

Basic Arduino example code for stepper motor and Arduino Motor Shield with Stepper.h library

You can upload the following example code to your Arduino using the Arduino IDE (https://www.arduino.cc/en/main/software).

This example uses the **Stepper.h library**, which should come pre-installed with the Arduino IDE. This sketch turns the stepper motor 1 revolution in one direction, pauses, and then turns 1 revolution in the other direction.

```
/* Example sketch to control a stepper motor with Arduino Motor Shield Rev3, Arduino UNO and Stepper.h library. More info: https://www.makerguides.com */

// Include the Stepper library:
#include <Stepper.h>

// Define number of steps per revolution:
const int stepsPerRevolution = 200;

// Give the motor control pins names:
#define pwmA 3
#define pwmB 11
#define brakeA 9
#define brakeB 8
#define dirA 12
#define dirB 13

// Initialize the stepper library on the motor shield:
Stepper myStepper = Stepper(stepsPerRevolution, dirA, dirB);

void setup() {
  // Set the PWM and brake pins so that the direction pins can be used to control the motor:
  pinMode(pwmA, OUTPUT);
  pinMode(pwmB, OUTPUT);
  pinMode(brakeA, OUTPUT);
  pinMode(brakeB, OUTPUT);

  digitalWrite(pwmA, HIGH);
  digitalWrite(pwmB, HIGH);
  digitalWrite(brakeA, LOW);
  digitalWrite(brakeB, LOW);

  // Set the motor speed (RPMs):
  myStepper.setSpeed(60);
}


void loop() {
  // Step one revolution in one direction:
  myStepper.step(200);

  delay(2000);

  //Step on revolution in the other direction:
  myStepper.step(-200);

  delay(2000);
}
```

Code explanation:

The sketch starts by including the Stepper.h Arduino library. More information about this library can be found on the Arduino website (https://www.arduino.cc/en/Reference/Stepper).

```
// Include the Stepper library:
#include <Stepper.h>
```

Next I defined how many steps the motor takes to rotate 1 revolution. In this example we will be using the motor in **full-step mode**. This means it takes 200 steps to rotate 360 degrees. You can change this value if you want if you are using a different type of stepper motor or setup.

```
// Define number of steps per revolution:
const int stepsPerRevolution = 200;
```

After this, we define the motor connections (see specifications and wiring diagram above).

The statement `#define` is used to give a name to a constant value. The compiler will replace any references to this constant with the defined value when the program is compiled. So everywhere you mention `pwmA`, the compiler will replace it with the value 3 when the program is compiled.

```
// Give the motor control pins names:
#define pwmA 3
#define pwmB 11
#define brakeA 9
#define brakeB 8
#define dirA 12
#define dirB 13
```

Next, you need to create a new instance of the Stepper class, which represents a particular stepper motor connected to the Arduino. For this we use the function `Stepper(steps, pin1, pin2)` where steps is the number of steps per revolution and pin1 and pin2 are the pins used to drive the stepper motor. In our case this are dirA and dirB.

```
// Initialize the stepper library on the motor shield:
Stepper myStepper = Stepper(stepsPerRevolution, dirA, dirB);
```

In this case I called the stepper motor 'myStepper' but you can use other names as well, like 'z_motor' or 'liftmotor' etc. `Stepper liftmotor = Stepper(stepsPerRevolution, dirA, dirB);` .

In the setup, we start by setting the brake and PWM pins as output with the function `pinMode()` . The PWM pins need to be set HIGH and the brake pins LOW with the function `digitalWrite()` .

```
  // Set the PWM and brake pins so that the direction pins can be used to control the motor:
  pinMode(pwmA, OUTPUT);
  pinMode(pwmB, OUTPUT);
  pinMode(brakeA, OUTPUT);
  pinMode(brakeB, OUTPUT);

  digitalWrite(pwmA, HIGH);
  digitalWrite(pwmB, HIGH);
  digitalWrite(brakeA, LOW);
  digitalWrite(brakeB, LOW);
```

You can set the speed of the motor in rpm with the function `setSpeed(rpm)` . I set it to 60, so we should see 1 revolution per second.

```
  // Set the motor speed (RPMs):
  myStepper.setSpeed(60);
```

In the loop section of code, we simply call the `step(steps)` function which turns the motor a specific number of steps at a speed determined by the `setSpeed(rpm)` function. Passing a negative number to this function reverses the spinning direction of the motor.

```
void loop() {
  // Step one revolution in one direction:
  myStepper.step(200);

  delay(2000);

  //Step on revolution in the other direction:
  myStepper.step(-200);

  delay(2000);
}
```

Note that the `step(steps)` function is **blocking**, this means it will wait until the motor has finished moving to pass control to the next line in your sketch.

Example codes for Arduino Motor Shield and AccelStepper library

In the following three examples I will show you how you can control both the speed, the direction, and the number of steps the stepper motor should take. In these examples, I will be using the **AccelStepper library**.

The AccelStepper library written by Mike McCauley is an awesome library to use for your project. One of the advantages is that it supports acceleration and deceleration, but it has a lot of other nice functions too.

You can download the latest version of this library here (https://www.airspayce.com/mikem/arduino/AccelStepper/files.html) or click the button below.

AccelStepper-1.59.zip

You can install the library by going to **Sketch > Include Library > Add .ZIP Library...** in the Arduino IDE.

Another option is to navigate to **Tools > Manage Libraries...** or type Ctrl + Shift + I on Windows. The Library Manager will open and update the list of installed libraries.

You can search for ‘accelstepper‘ and look for the library by Mike McCauley. Select the latest version and then click Install.

1. Continuous rotation example code

The following sketch can be used to run one or more stepper motors continuously at a constant speed. (No acceleration or deceleration is used).

You can copy the code by clicking on the button in the top right corner of the code field.

```
/* Example sketch to control a stepper motor with Arduino Motor Shield Rev3, Arduino UNO and AccelStepper.h library: continuous rotation. More info: https://www.makerguides.com */

// Include the AccelStepper library:
#include <AccelStepper.h>

// Define number of steps per revolution:
const int stepsPerRevolution = 200;

// Give the motor control pins names:
#define pwmA 3
#define pwmB 11
#define brakeA 9
#define brakeB 8
#define dirA 12
#define dirB 13

// Define the AccelStepper interface type:
#define MotorInterfaceType 2

// Create a new instance of the AccelStepper class:
AccelStepper stepper = AccelStepper(MotorInterfaceType, dirA, dirB);

void setup() {
  // Set the PWM and brake pins so that the direction pins can be used to control the motor:
  pinMode(pwmA, OUTPUT);
  pinMode(pwmB, OUTPUT);
  pinMode(brakeA, OUTPUT);
  pinMode(brakeB, OUTPUT);

  digitalWrite(pwmA, HIGH);
  digitalWrite(pwmB, HIGH);
  digitalWrite(brakeA, LOW);
  digitalWrite(brakeB, LOW);

  // Set the maximum steps per second:
  stepper.setMaxSpeed(600);
}

void loop() {
  // Set the speed of the motor in steps per second:
  stepper.setSpeed(500);
  // Step the motor with constant speed as set by setSpeed():
  stepper.runSpeed();
}
```

How the code works:

Again the first step is to include the library with `#include <AccelStepper.h>` .

```
// Include the AccelStepper library:
#include <AccelStepper.h>
```

After specifying the connections like before, we need to define the motor interface type for the AccelStepper library. In this case we will be driving the stepper motor in full step mode, with two wires, so we set the mode to 2. You can find the other interface types here (https://www.airspayce.com/mikem/arduino/AccelStepper/classAccelStepper.html#a608b2395b64ac15451d16d0371fe13ce).

```
// Define the AccelStepper interface type:
#define MotorInterfaceType 2
```

Next, you need to create a new instance of the AccelStepper class with the appropriate motor interface type and connections.

In this case I called the stepper motor ‘stepper’ but you can use other names as well, like ‘z_motor’ or ‘liftmotor’ etc. `AccelStepper liftmotor = AccelStepper(MotorInterfaceType, dirA, dirB);` .

```
// Create a new instance of the AccelStepper class:
AccelStepper stepper = AccelStepper(MotorInterfaceType, dirA, dirB);
```

The setup section of the code is mostly the same as the previous example, but I also defined the maximum speed in steps/second. Speeds of more than 1000 steps per second can be unreliable, so I set it to 600 (you will have to experiment to see what the maximum speed is for your setup). Note that I specify the name of the stepper motor (‘stepper’), for which I want to define the maximum speed.

```
  // Set the maximum steps per second:
  stepper.setMaxSpeed(600);
```

In the loop section, we first set the speed that we want the motor to run at with the function `setSpeed()` . (you can also place this in the setup section of the code).

The function `stepper.runSpeed()` polls the motor and when a step is due it executes 1 step. This depends on the set speed and the time since the last step. If you want to change the direction of the motor, you can set a negative speed: `stepper.setSpeed(-400);` turns the motor the other way.

```
void loop() {
  // Set the speed of the motor in steps per second:
  stepper.setSpeed(500);
  // Step the motor with constant speed as set by setSpeed():
  stepper.runSpeed();
}
```

2. Sketch to control the number of steps or revolutions

With the following sketch, you can control both the speed, direction, and the number of steps/revolutions. No acceleration or deceleration is used.

In this case, the stepper motor turns 1 revolution clockwise with 400 steps/sec, then turns 1 revolution counterclockwise at 200 steps/sec, and lastly turns 3 revolutions clockwise at 600 steps/sec.

```
/* Example sketch to control a stepper motor with Arduino Motor Shield Rev3, Arduino UNO and AccelStepper.h library: number of steps or revolutions. More info: https://www.makerguides.com */

// Include the AccelStepper library:
#include <AccelStepper.h>

// Define number of steps per revolution:
const int stepsPerRevolution = 200;

// Give the motor control pins names:
#define pwmA 3
#define pwmB 11
#define brakeA 9
#define brakeB 8
#define dirA 12
#define dirB 13

// Define the AccelStepper interface type:
#define MotorInterfaceType 2

// Create a new instance of the AccelStepper class:
AccelStepper stepper = AccelStepper(MotorInterfaceType, dirA, dirB);

void setup() {
  // Set the PWM and brake pins so that the direction pins can be used to control the motor:
  pinMode(pwmA, OUTPUT);
  pinMode(pwmB, OUTPUT);
  pinMode(brakeA, OUTPUT);
  pinMode(brakeB, OUTPUT);

  digitalWrite(pwmA, HIGH);
  digitalWrite(pwmB, HIGH);
  digitalWrite(brakeA, LOW);
  digitalWrite(brakeB, LOW);

  // Set the maximum steps per second:
  stepper.setMaxSpeed(600);
}

void loop() {
  // Set the current position to 0:
  stepper.setCurrentPosition(0);

  // Run the motor forward at 400 steps/second until the motor reaches 200 steps (1 revolution):
  while (stepper.currentPosition() != 200) {
    stepper.setSpeed(400);
    stepper.runSpeed();
  }

  delay(1000);

  // Reset the position to 0:
  stepper.setCurrentPosition(0);

  // Run the motor backwards at 200 steps/second until the motor reaches -200 steps (1 revolution):
  while (stepper.currentPosition() != -200) {
    stepper.setSpeed(-200);
    stepper.runSpeed();
  }

  delay(1000);

  // Reset the position to 0:
  stepper.setCurrentPosition(0);

  // Run the motor forward at 600 steps/second until the motor reaches 600 steps (3 revolutions):
  while (stepper.currentPosition() != 600) {
    stepper.setSpeed(600);
    stepper.runSpeed();
  }

  delay(3000);
}
```

Code explanation:

The first part of the code up to the loop() section is exactly the same as in the previous example.

In the loop I make use of a while loop (https://www.arduino.cc/reference/en/language/structure/control-structure/while/) in combination with the `currentPosition()` function. First, I set the current position of the stepper motor to zero with `stepper.setCurrentPosition(0)` .

```
  // Set the current position to 0:
  stepper.setCurrentPosition(0);
```

Next we make use of the while loop. A while loop will loop continuously, and infinitely, until the expression inside the parenthesis, () becomes false. So in this case I check if the current position of the stepper motor is not equal to 200 steps (!= means: is not equal to). While this is not the case, we run the stepper motor at a constant speed as set by `setSpeed()` .

```
  // Run the motor forward at 400 steps/second until the motor reaches 200 steps (1 revolution):
  while (stepper.currentPosition() != 200) {
    stepper.setSpeed(400);
    stepper.runSpeed();
  }
```

In the rest of the loop, we do exactly the same, just with a different speed and target position.

3. Acceleration and deceleration example code

In this example we will look at one of the main features of the AccelStepper library: adding acceleration and deceleration.

With the following sketch you can add acceleration and deceleration to the movements of the stepper motor, without any complicated coding. The first section of this sketch is the same as in example 1, but the setup and the loop are different.

The motor will run five revolutions back and forth with a speed of 200 steps per second and an acceleration of 50 steps/second^2.

```
/* Example sketch to control a stepper motor with Arduino Motor Shield Rev3, Arduino UNO
```

```
and AccelStepper.h library: acceleration and deceleration More info: https://www.makerguides.com */

// Include the AccelStepper library:
#include <AccelStepper.h>

// Define number of steps per revolution:
const int stepsPerRevolution = 200;

// Give the motor control pins names:
#define pwmA 3
#define pwmB 11
#define brakeA 9
#define brakeB 8
#define dirA 12
#define dirB 13

// Define the AccelStepper interface type:
#define MotorInterfaceType 2

// Create a new instance of the AccelStepper class:
AccelStepper stepper = AccelStepper(MotorInterfaceType, dirA, dirB);

void setup() {
  // Set the PWM and brake pins so that the direction pins can be used to control the motor:
  pinMode(pwmA, OUTPUT);
  pinMode(pwmB, OUTPUT);
  pinMode(brakeA, OUTPUT);
  pinMode(brakeB, OUTPUT);

  digitalWrite(pwmA, HIGH);
  digitalWrite(pwmB, HIGH);
  digitalWrite(brakeA, LOW);
  digitalWrite(brakeB, LOW);

  // Set the maximum steps per second:
  stepper.setMaxSpeed(200);
  // Set the maximum acceleration in steps per second^2:
  stepper.setAcceleration(50);
}

void loop() {
  // Set target position:
  stepper.moveTo(1000);
  // Run to position with set speed and acceleration:
  stepper.runToPosition();

  delay(1000);

  // Move back to original position:
  stepper.moveTo(0);
  // Run to position with set speed and acceleration:
  stepper.runToPosition();

  delay(1000);
}
```

How the code works:

In the setup, besides the maximum speed, we need to define the acceleration/deceleration. For this we use the function `setAcceleration()` .

```
  // Set the maximum steps per second:
  stepper.setMaxSpeed(200);
  // Set the maximum acceleration in steps per second^2:
  stepper.setAcceleration(50);
```

In the loop section of the code, I used a different way to let the motor rotate a predefined number of steps. First I set the target position with the function `moveTo()` . Next, we simply use the function `runToPosition()` to let the motor run to the target position with the set speed and acceleration. The motor will decelerate before reaching the target position.

```
  // Set target position:
  stepper.moveTo(1000);
  // Run to position with set speed and acceleration:
  stepper.runToPosition();
```

Finally, we set the new target position back to the 0, so that we return to the origin.

Conclusion

In this article, I have shown you how you can control a stepper motor with the Arduino Motor Shield Rev3. We have looked at 4 examples, using both the Stepper and AccelStepper library. I hope you found it useful and informative. If you did, **please share it with a friend** that also likes electronics!

I would love to know what projects you plan on building (or have already built) with this Arduino Motor Shield. If you have any questions, suggestions, or if you think that things are missing in this tutorial, **please leave a comment down below**.

Note that comments are held for moderation to prevent spam.

Beginner

2 SHARES

What to read next?

LM35 analog temperature sensor with Arduino tutorial (https://www.makerguides.com/lm35-arduino-tutorial/)

TMP36 analog temperature sensor with Arduino tutorial (https://www.makerguides.com/tmp36-arduino-tutorial/)

Arduino Nano Board Guide (Pinout, Specifications, Comparison) (https://www.makerguides.com/arduino-nano/)

The complete guide for DS18B20 digital temperature sensors with Arduino (https://www.makerguides.com/ds18b20-arduino-tutorial/)

How to use an IR receiver and remote with Arduino (https://www.makerguides.com/ir-receiver-remote-arduino-tutorial/)

Comments

pierluigi belpassi says
February 18, 2021 at 6:53 pm (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-7032)

I wanted to thank you
I am not an expert in programming, but your tutorial is well explained even for beginners like me. I followed your guide to drive a Nema 17 Stepper Motor Bipolar 1.8 deg 26Ncm (36.8oz.in) 0.4A 12V 42x42x34mm 4 Wires (17HS13-0404S)

through the Arduino Motor Shield rev 3 board by powering it separately; in the Arduino Uno board I loaded the first sketch that you indicated for the alternate rotation provided in the Stepper library. h. Everything works perfectly, but now the most interesting process will come: to rotate the motor alternately every 30 minutes.
… to be continued
Thank you
PB

Reply

Felicia says
October 13, 2020 at 10:40 pm (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-4170)

Thank you for the tutorial! Any suggestions for connecting the wires to the motor shield? currently trying to connect my motor shield to a power source and the wires keep falling out. Thanks!

Reply

Benne de Bakker says
October 14, 2020 at 11:51 am (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-4180)

Hi Felicia,

I usually install wire ferrules on the end of stranded wires when I need to connect them to screw terminals (you can see this in the intro image). You can buy a set including the crimping tool for ~25 USD on Amazon, e.g. https://amzn.to/3ds9S0S (https://amzn.to/3ds9S0S).

You could also install male Dupont connectors or solder some breadboard jumper cables to the end of your wires.

Benne

Reply

Felicia says
October 15, 2020 at 10:45 pm (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-4197)

Thank you for the response Benne! I also figured out that tightening the screws on the terminal will keep the wire in place, if that's helpful to anyone else!

Reply

Felix says
July 14, 2020 at 10:41 am (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-3243)

Dear Benne, Thanks you for this guide! I tried to use the Arduino Motorshield Rev3 with a Nema17 Pancake Motor, but it overheats after the first turn. My powersupply tells me it pulls 4.5Amps. I used A4988 where I can adjust the Vref and it works great.
Is there a way to adjust Vref on the Arduini shield? Or somehow limit the Amps the shield delievers? Your help is greatly appreciated, I am looking far and wide for an answer to this...
Felix

Reply

Benne de Bakker says
July 14, 2020 at 1:50 pm (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-3245)

Hi Felix,

Unfortunately, this is not possible. I would try to use a power supply with a lower voltage which will reduce the current draw of the motor (you can also check the datasheet for the voltage rating of the stepper motor). I think the lowest voltage that you can use with the shield is 5 V.

The motor still might draw too much current, in which case your only option is to use a different motor. Adafruit sells a NEMA 17 that works at 12 V and only draws 350 mA (https://amzn.to/2WiLCqw), but I don't have a good source for pancake-style motors at the moment.

Benne

Reply

Jonathan Adams says
September 26, 2019 at 11:26 am (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-645)

Hey, this a great, well-presented tutorial. Just wondering if you think it would be possible to us the rev3 motor shield to control the acceleration/deceleration of two stepper motors. Any information on this would be greatly appreciated.

Reply

Benne de Bakker says
September 26, 2019 at 12:22 pm (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-647)

Hi Jonathan,

Unfortunately, this is not possible. Both outputs of the shield (A and B) are needed to control one stepper motor. You could use an L293D motor shield (https://amzn.to/2nvWbrV) (which has 4 outputs, so you can control 2 stepper motors). Alternatively, you could use a CNC shield (https://amzn.to/2m0ka1M) with A4899, DRV8825, or TMC2208 drivers. I have already written tutorials for the A4988 and DRV8825 and a tutorial for Trinamic drivers will be posted soon.

Benne

Reply

Taylor says
March 24, 2020 at 8:09 pm (https://www.makerguides.com/arduino-motor-shield-stepper-motor-tutorial/#comment-2159)

Love your tutorials! Glad I have found them! I have some spare parts (RAMPS 1.4 and 4xTMC2208) from a 3D printer that I would love to repurpose into something like a motorized camera slider. Looking forward to your upcoming tutorials.

Reply

Trackbacks

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