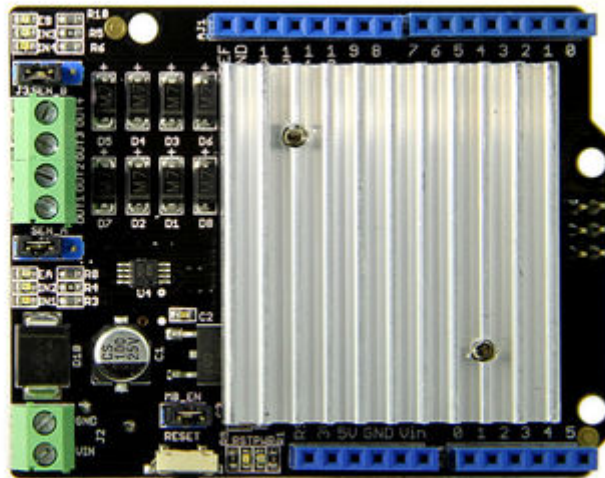


# Motor Shield V2.0

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The Motor Shield is a driver module for motors that allows you to use Arduino to control the working speed and direction of the motor. Based on the Dual Full-Bridge Drive Chip L2938, it is able to drive two DC motors or a step motor. The Motor Shield can either be powered directly by Arduino or by an external 5V~15V power supply via the DC jack. This module can be used for the development of micro robots and intelligent vehicles, etc.

## Specifications

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Operating Voltage: 5V

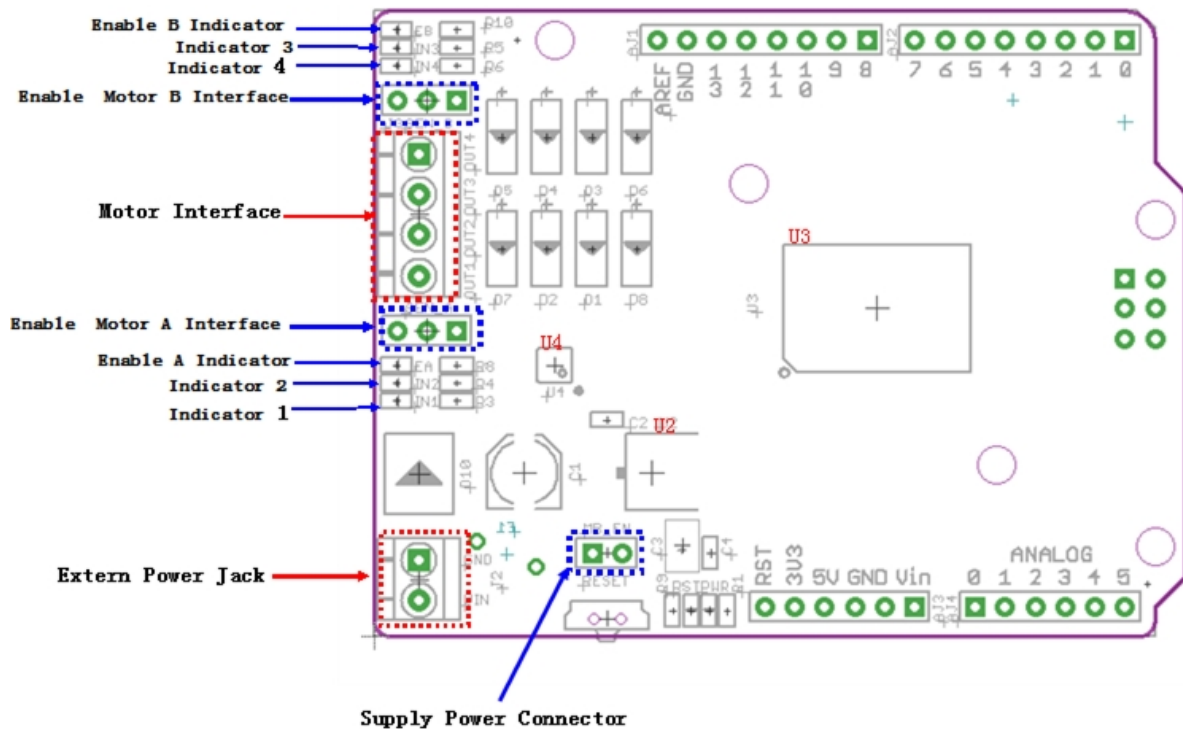
Motor Supply Voltage: 6 - 15V

Output Current(For Each Channel ): 1.6 - 2A

Output Duty Range: 0%~100%

## Interface

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**U2** : 78M05 IC, 0.5A three terminal positive voltage regulator 5V.

**U3** : L298 IC, Dual Full-Bridge Driver.

**U4** : LMV358 IC, Low Voltage, rail-to-rail output amplifier for the isolation between the LED and the signal.

**Power Jack:** Provide power to drive motor when the jumper MB\_EN inserted.

The purpose of "Supply Power Connector" is using the jumper cap to select USB or external power for driving the motor, But you must insert the jumper cap now. We will later be resolved the problem.

**Motor Interface** : Out 1 and Out 2(Out 3 and Out 4) connect Motor A(B) for DC Motor.

When driving a stepper motor, you need to connect relevant lines as follows (another set of pin names are printed on the back side of the board) :

Blue Line ←→ M1+

Pink Line ←→ M1-

Yellow Line ←→ M2-

Orange Line ←→ M2+

**Indicator 1, Indicator 4:** Red Indicator, lit when M1+(M2+) interface outputs positive voltage.

**Indicator 2, Indicator 3:** Green Indicator, lit when the motor spinning anticlockwise.

**Enable Motor A(B) Interface:** Connect left two interfaces with a jumper cap when driving the DC motor A(B).

**Extern Power Jack:** External Power supply for Motor Shield.

**Enable A Indicator** : TTL compatible enable Input of Motor A.

**Enable B Indicator** : TTL compatible enable Input of Motor B.

## Caution

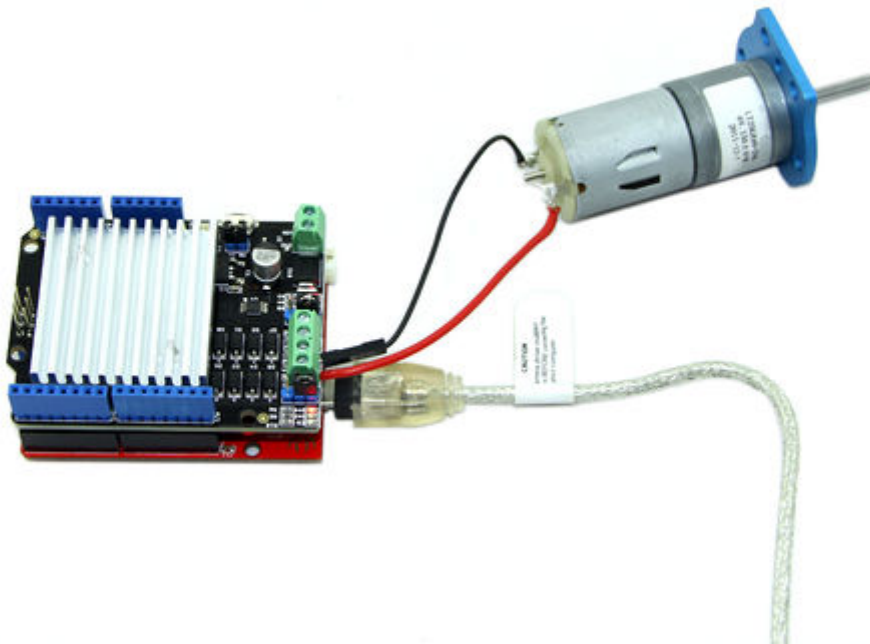
Do not touch the cooling ribs during working. Its temperature can reach up to 100 degrees in the case of full load operating.

## Demonstration

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### Demo 1: Drive DC Motor

Connect DC motor to the motor shield Output Pins M1+& M1-(M2+& M2-), if you are using a 4-wire stepper motor, make sure the 4 Pins are correctly connected (Reference the section 'Interface'). And connect the drive voltage to the power supply terminals.



**As the jumper MB\_EN inserted and the motor shield connect the Extern power interface, Arduino can be powered by the Extern power via a voltage regulator 78M05.**

Install the library we provide in the Resources section into Arduino libraries file and find the example "DCMotorDemo" by the path: File->Example->MotorDrive->DCMotorDemo.

This demo enables the motor rotate in one direction for 2 sec, take a break for 1 sec and rotate in the reverse direction for 2 sec.

```
DCMotorDemo | Arduino 1.0.1
File Edit Sketch Tools Help
DCMotorDemo
void loop()
{
    motordriver.goForward();
    delay(2000);
    motordriver.stop();
    delay(1000);
    motordriver.goBackward();
    delay(2000);
    motordriver.stop();
    delay(1000);
    motordriver.goLeft();
    delay(2000);
    motordriver.stop();
    delay(1000);
    motordriver.goRight();
    delay(2000);
    motordriver.stop();
    delay(1000);
}
25 Arduino Nano w/ ATmega168 on COM28
```

## Demo 2: Drive a Stepper Motor

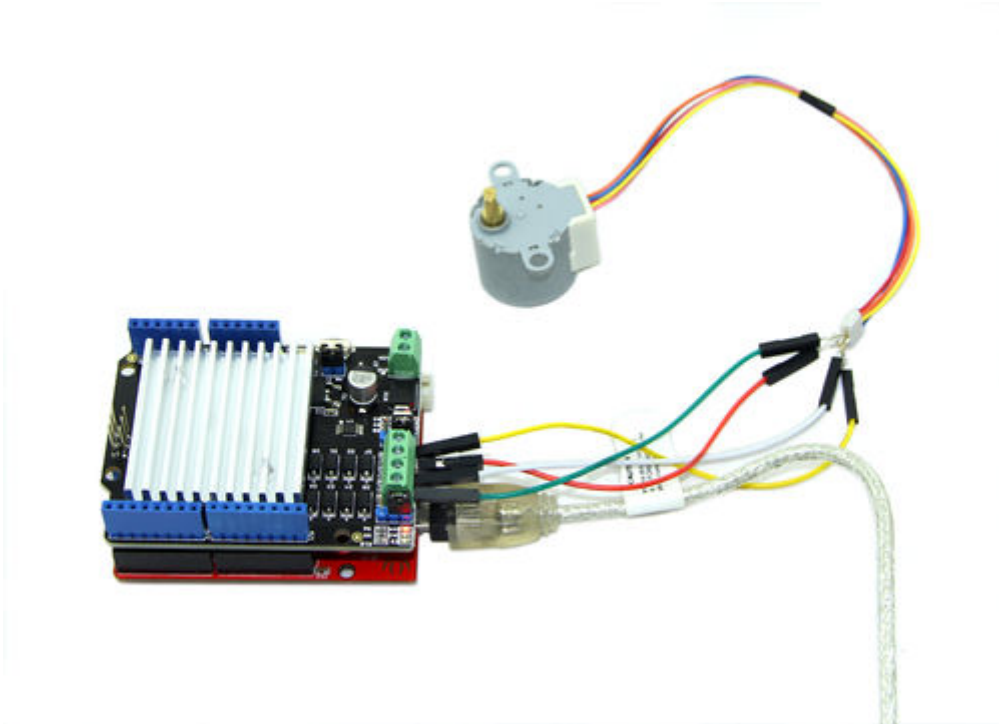
In this demo, we use the stepper motor-[24BYJ48](#).

Connect it to Motor Shield, make sure the 4 control Pins are correctly connected as shown below.



Cable of Stepper Motor

Interface of Motor Shield



Open the demo "StepperMotorDemo" by the path: File->Example->StepperMotorDemo->StepperMotorDemo.

You can redefine the rotation speed parameter "stepperMotor.speed = 25;" to any value you want.