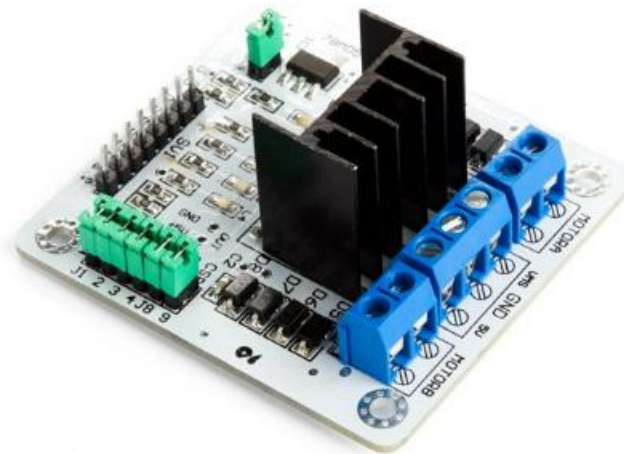


# MAKEVMA409

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## L298N DUAL BRIDGE DC STEPPER CONTROLLER BOARD



USER MANUAL



# USER MANUAL

## 1. Introduction

To all residents of the European Union

### Important environmental information about this product



This symbol on the device or the package indicates that disposal of the device after its lifecycle could harm the environment. Do not dispose of the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling. This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.

**■ If in doubt, contact your local waste disposal authorities.**

Please read the manual thoroughly before bringing this device into service. If the device was damaged in transit, do not install or use it and contact your dealer.

## 2. Safety Instructions



- This device can be used by children aged from 8 years and above, and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the device in a safe way and understand the hazards involved. Children shall not play with the device. Cleaning and user maintenance shall not be made by children without supervision.



- Indoor use only.  
Keep away from rain, moisture, splashing and dripping liquids.

## 3. General Guidelines



- Familiarise yourself with the functions of the device before actually using it.
- All modifications of the device are forbidden for safety reasons. Damage caused by user modifications to the device is not covered by the warranty.
- Only use the device for its intended purpose. Using the device in an unauthorised way will void the warranty.
- Damage caused by disregard of certain guidelines in this manual is not covered by the warranty and the dealer will not accept responsibility for any ensuing defects or problems.
- The dealers cannot be held responsible for any damage (extraordinary, incidental or indirect) – of any nature (financial, physical...) arising from the possession, use or failure of this product.
- Due to constant product improvements, the actual product appearance might differ from the shown images.
- Product images are for illustrative purposes only.
- Do not switch the device on immediately after it has been exposed to changes in temperature. Protect the device against damage by leaving it switched off until it has reached room temperature.
- Keep this manual for future reference.

## 4. What is Arduino®

Arduino® is an open-source prototyping platform based in easy-to-use hardware and software. Arduino® boards are able to read inputs – light-on sensor, a finger on a button or a Twitter message – and turn it into an output – activating of a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so, you use the Arduino programming language (based on Wiring) and the Arduino® software IDE (based on Processing).

Surf to [www.arduino.cc](http://www.arduino.cc) and [www.arduino.org](http://www.arduino.org) for more information.

## 5. Overview

### MAKEVMA409

This module allows full control of two DC motors or one stepper motor.

driver .....	L298N
driver power supply .....	+5 V to +35 V
driver output current (max.) .....	2 A
logic power output Vss .....	+5 V to +7 V (internal supply +5 V)
logic current.....	0-36 mA
controlling level .....	low: -0.3 V to 1.5 V, high: 2.3 V-Vss
enable signal level .....	low: -0.3 V to 1.5 V, high: 2.3 V-Vss
max. power.....	25 W
working temperature.....	-25 °C to +130 °C
dimensions .....	69 x 56 x 36 mm

## 6. Pin Layout

Pin Name	Description
MOTORA	motor 1
MOTORB	motor 2
VMS	5 VDC to 35 VDC
GND	ground
5V	power input for the logic circuit on the board
ENA	enable pin for motor 1
IN1	control pin motor 1
IN2	control pin motor 1
IN3	control pin motor 1
IN4	control pin motor 1
ENB	enable pin for motor 2
5V	5 V output
GND	ground
CSB	current test pin for motor 1; can be wired to a resistor for current testing or tied to a jumper to disable it
CSA	current test pin for motor 2; can be wired to a resistor for current testing or tied to a jumper to disable it
UR1	pull-up resistor
UR2	pull-up resistor
UR3	pull-up resistor
UR4	pull-up resistor
5V_EN	5 V source jumper; supplies power from the VMS port when the jumper is enabled; the power is supplied by the 5 V port when the jumper is disabled

## 7. Example

Connection.  
 IN1=====13  
 IN2=====12  
 IN3=====11  
 IN4=====10

### 7.1 2-Channel DC Motor

\*\*\*\*\*Code begin\*\*\*\*\*

```

int in1=13;
int in2=12;
int in3=11;
int in4=10;

int speedPinA=6;
int speedPinB=5;

void setup()
{
  pinMode(in1,OUTPUT);
  pinMode(in2,OUTPUT);
  pinMode(in3,OUTPUT);
  pinMode(in4,OUTPUT);

  digitalWrite(in1,HIGH);
  digitalWrite(in2,HIGH);
  digitalWrite(in3,HIGH);
  digitalWrite(in4,HIGH);
}
void loop()
{
  _mRight(in1,in2);
  _mRight(in3,in4);

  int n=analogRead(A0)/4;
  _mSetSpeed(speedPinA,n);
  _mSetSpeed(speedPinB,n);
}
void _mRight(int pin1,int pin2)
{
  digitalWrite(pin1,HIGH);
  digitalWrite(pin2,LOW);
}

```

```

}
void _mLeft(int pin1,int pin2)
{
  digitalWrite(pin1,LOW);
  digitalWrite(pin2,HIGH);
}
void _mStop(int pin1,int pin2)
{
  digitalWrite(pin1,HIGH);
  digitalWrite(pin2,HIGH);
}
void _mSetSpeed(int pinPWM,int SpeedValue
{
  analogWrite(pinPWM,SpeedValue);
}
*****Code begin*****

```

## 7.2 2-Phase Stepper Motor

Connection.  
 IN1=====8  
 IN2=====9  
 IN3=====10  
 IN4=====12

```

*****Code begin*****
#include <Stepper.h>

#define STEPS 100

Stepper stepper(STEPS, 8, 9, 10, 11);

int previous = 0;

void setup()
{
  stepper.setSpeed(90);
}

void loop()
{
  int val = analogRead(0);
  stepper.step(val - previous);
  previous = val;
}
*****Code End*****

```

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