7A Dual DC Motor Driver SKU DRI0041

**SKU:DRI0041 (https://www.dfrobot.com/product-1534.html)**

Introduction

(https://www.dfrobot.com/
product-1534.html)

This is an ultra small dual **DC
motor driver** (https://
www.dfrobot.com/
product-1512.html) for space
limited projects. It features a
UVLO (Under Voltage Lock
Out) circuit, ESD protection,
and opto-isolated inputs. The
opto-isolated inputs prevent
motor power from damaging or interfering with your control circuit.
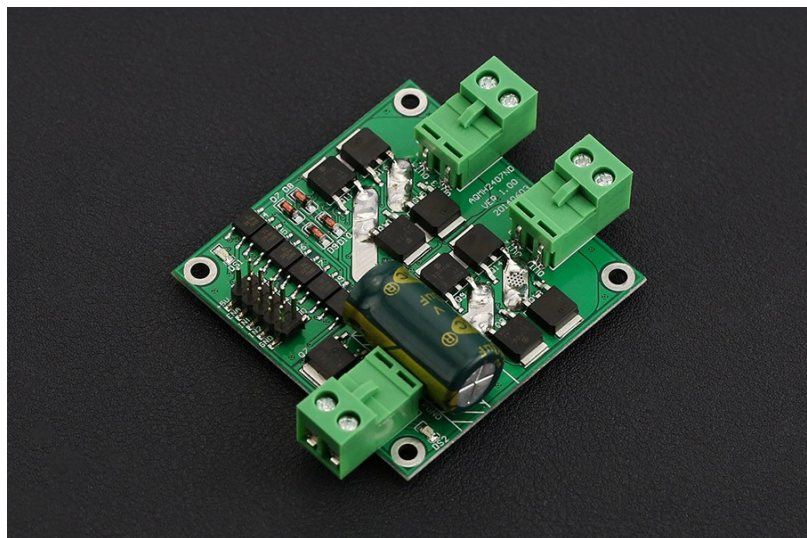
Specification
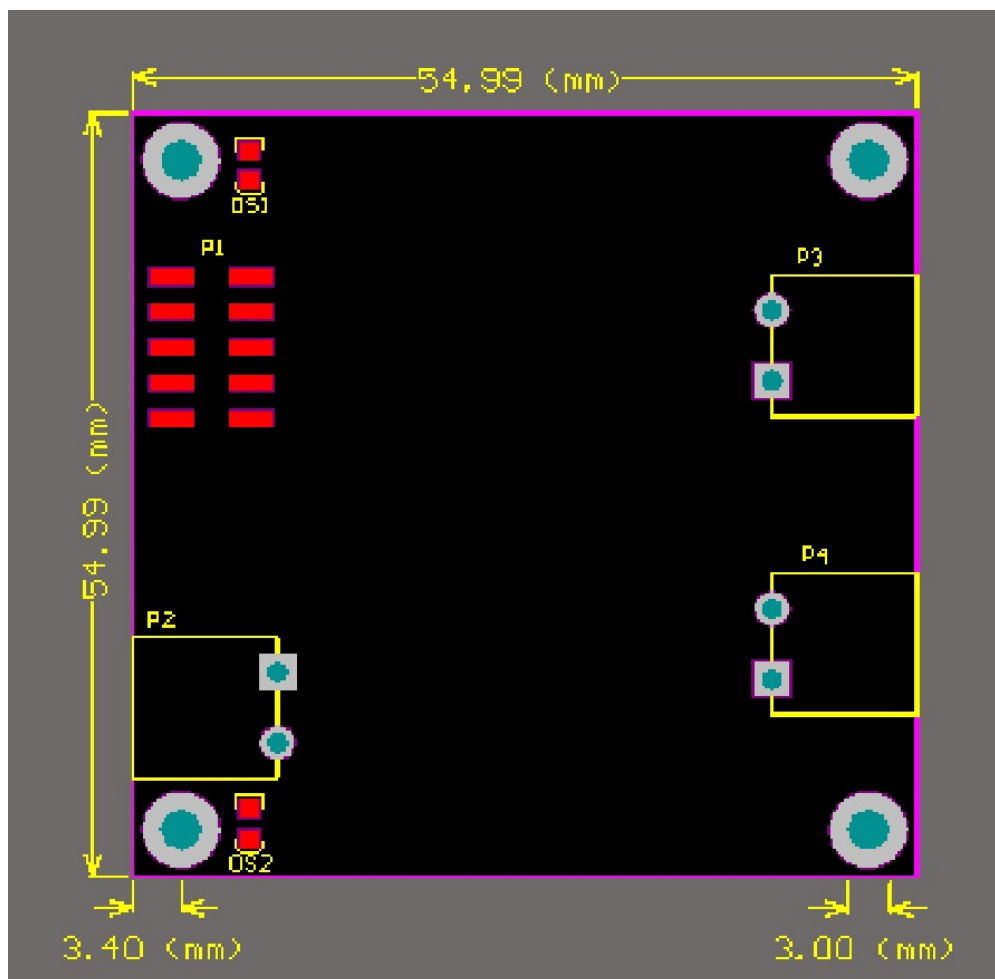
- Voltage supply: DC 7 ~ 24 V

- Voltage supply limit: 6.5 ~ 27 V

- Control signal Level (Compatible 3.3V/5V)

    - High: DC 3.0 ~ 6.5 V

    - Low: DC0 ~ 0.8 V

- Output Channels: 2

- Control signal current: 3 ~ 11 mA (per input)

- Maximum continuous operating current: 7 A

- Peak current: 50 A

- Speed control: PWM

    - Minimum valid Pulse Width: 5 us

- Working Temperature: -25 ~ 85 °C

- Mounting Hole: M3

- Dimension (Length * Width * Height): 55 x 55(mm)/2.165 x 2.165(in)

- Weight: 32g

Board Overview
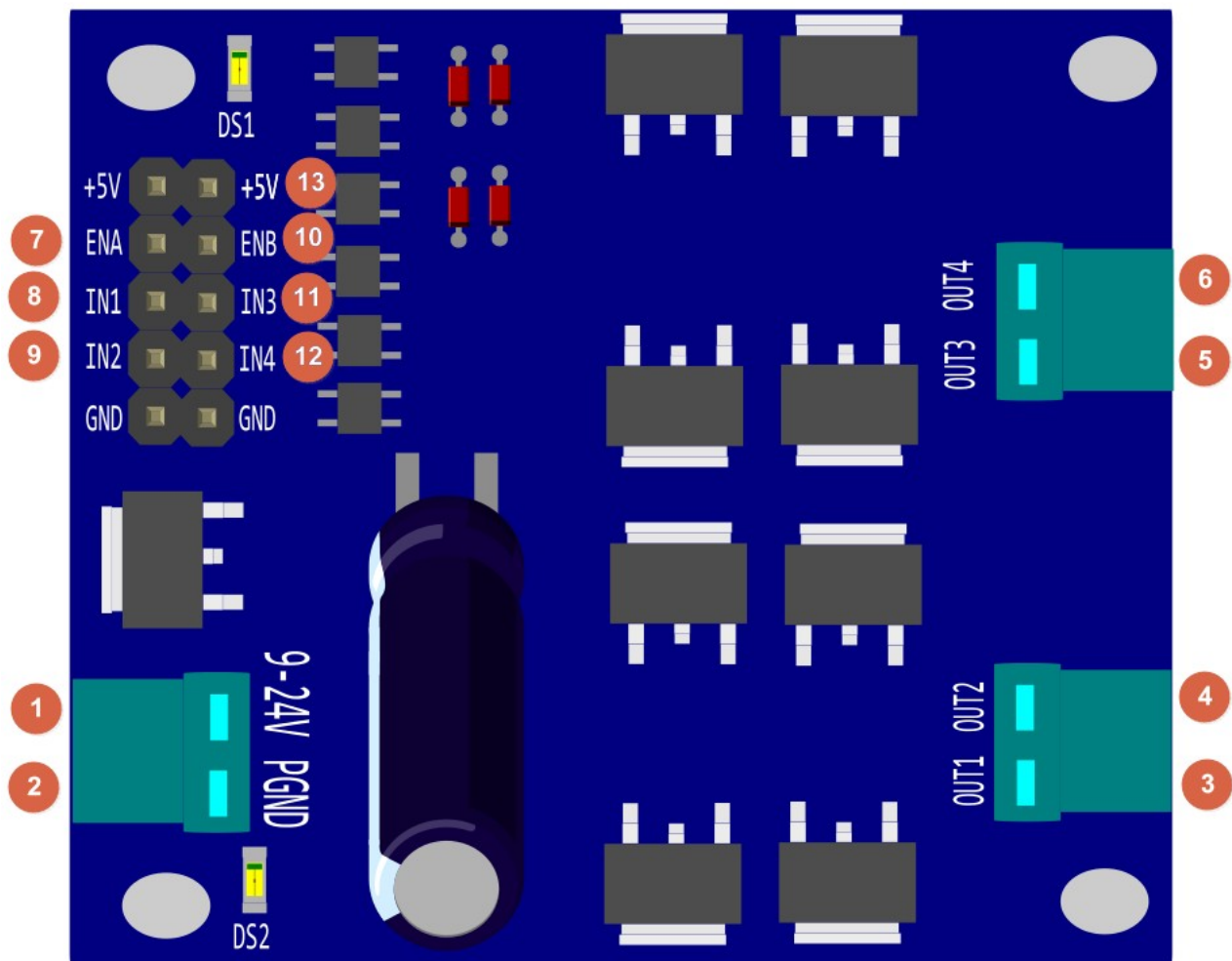
Num	Label	Description
1	9 - 24V	Power Supply, +
2	PGND	Power Supply, GND
3	OUT1	Motor1_+
4	OUT2	Motor1_-
5	OUT3	Motor2_+
6	OUT4	Motor2_-
7	ENA	Motor1 PWM
8	IN1	Motor1 control signal
9	IN2	Motor1 control signal
10	ENB	Motor2 PWM

| 11 | IN3 | Motor2 control signal |
| 12 | IN4 | Motor2 control signal |

Num	Label	Description
13	+5V	Voltage Reference Input, +5V OR 3.3V

Control Method

IN1	IN2	ENA/ ENB	Motor1/2 Behavior
0	0	x	Stop (brake)
1	1	x	Vacant
1	0	1	Forward 100%
0	1	1	Reverse 100%
1	0	PWM	Forward at PWM speed
0	1	PWM	Reverse at PWM speed

In this table

- IN1 & IN2: the control signal input to change the motor behavior
- "0": TTL_Low
- "1": TTL_High
- "x": Any TTL, and it is default TTL_Low while no PWM signal.
- "ENA/ ENB": PWM speed setting

Note:

IN1 & IN2

To protect your motor, before switching the motor drive direction, first BRAKE the motor by setting **IN1=0 & IN2=0**. This is especially important when the PWM is set to 100% (full speed). The suggested braking time is >0.1sec, depending on your motor.

+5V

This signal is a reference that must be set to the same power supply that your microcontroller operates on. Connect this to the 3.3v or 5v power supply used by the controller.

Tutorial

This tutorial will cover how to use PWM to control a motor using the shield. Do the wiring according to the Connection Diagram below, and then upload the sample code below to

the Arduino board. Here we use a **arduino UNO** (https://www.dfrobot.com/product-610.html) as the controller, you should see your motor run forward for 3 seconds and then run reverse for another 3 seconds and then repeat.

Requirements

- **Hardware**

    - 1 x DFRduino UNO (or similar)
    - 1 x This 7A Dual DC Motor Driver
    - 2 x DC Motor
    - 1 x Fuse@20A
    - Jumper wires

- **Software**

    - Arduino IDE (https://www.arduino.cc/en/Main/Software) Click to Download Arduino IDE from Arduino®.

Connection Diagram
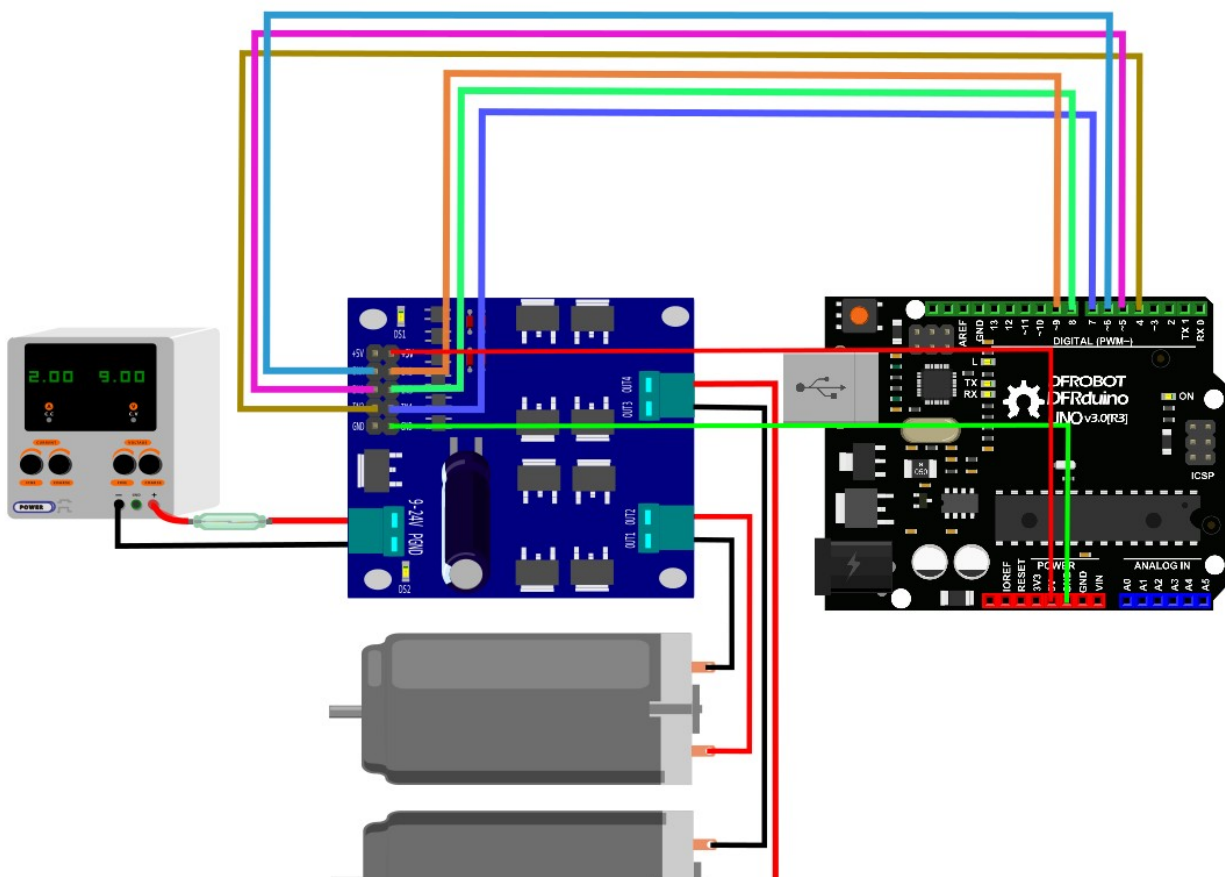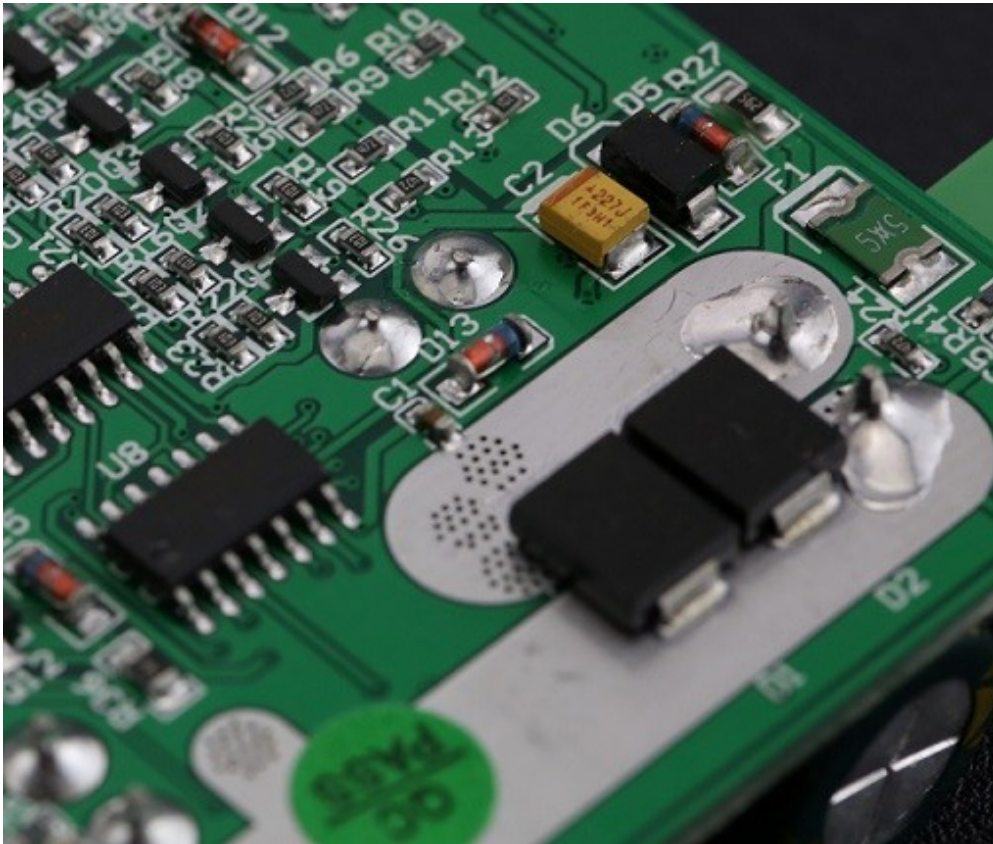
Facility Safety and the Personal Safety:
Please add a fuse@20A between the Power source and this shield.

Installation Tips

The back of the driver board has some large bare traces. It is important to make sure that these do not get shorted out against conductive surfaces of your project. Please measure carefully and if needed, apply 1mm of non-conductive epoxy to protect the board.

Pluggable Connector

The connectors are designed to be pluggable. This allows you to attach wires with male or female terminations.
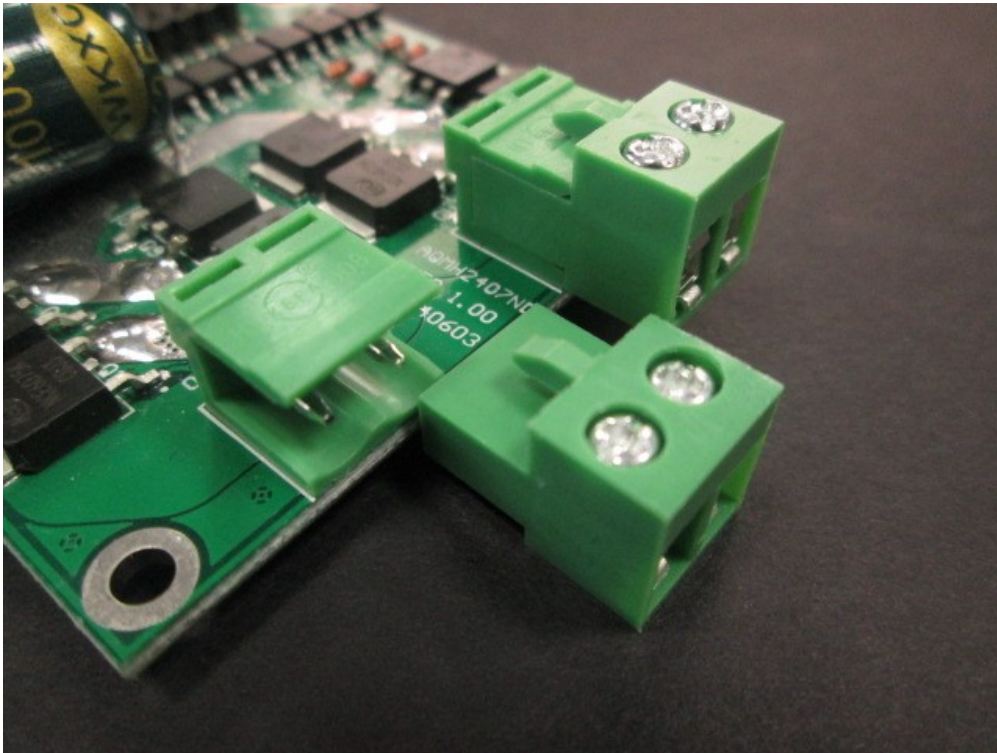
Sample Code

```
/*
* @file Motor driver DRI0042_Test.ino
* @brief DRI0042_Test.ino  Motor control program
*
* control motor positive inversion
*
* @author bernie.chen@dfrobot.com
* @version  V1.0
* @date  2016-8-10
*/
const int IN1=5;
const int IN2=4;
const int ENA=6;

const int IN3=8;
const int IN4=7;
const int ENB=9;

void setup() {
    pinMode(IN1, OUTPUT);
    pinMode(IN2, OUTPUT);
    pinMode(ENA, OUTPUT);

    pinMode(IN4, OUTPUT);
    pinMode(IN3, OUTPUT);
    pinMode(ENB, OUTPUT);
}

void loop() {
 Motor1_Brake();
 Motor2_Brake();
 delay(100);
 Motor1_Forward(200);
 Motor2_Forward(200);
 delay(1000);
 Motor1_Brake();
 Motor2_Brake();
 delay(100);
```

```
 Motor1_Backward(200);
 Motor2_Backward(200);
 delay(1000);
}

void Motor1_Forward(int Speed)
{
    digitalWrite(IN1,HIGH);
    digitalWrite(IN2,LOW);
    analogWrite(ENA,Speed);
}

void Motor1_Backward(int Speed)
{
    digitalWrite(IN1,LOW);
    digitalWrite(IN2,HIGH);
    analogWrite(ENA,Speed);
}
void Motor1_Brake()
{
    digitalWrite(IN1,LOW);
    digitalWrite(IN2,LOW);
}
void Motor2_Forward(int Speed)
{
    digitalWrite(IN3,HIGH);
    digitalWrite(IN4,LOW);
    analogWrite(ENB,Speed);
}

void Motor2_Backward(int Speed)
{
    digitalWrite(IN3,LOW);
    digitalWrite(IN4,HIGH);
    analogWrite(ENB,Speed);
}
void Motor2_Brake()
{
    digitalWrite(IN3,LOW);
    digitalWrite(IN4,LOW);
}
```

FAQ

For any questions, advice or cool ideas to share, please visit the **DFRobot Forum** (https://

www.dfrobot.com/forum/).

More Documents

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