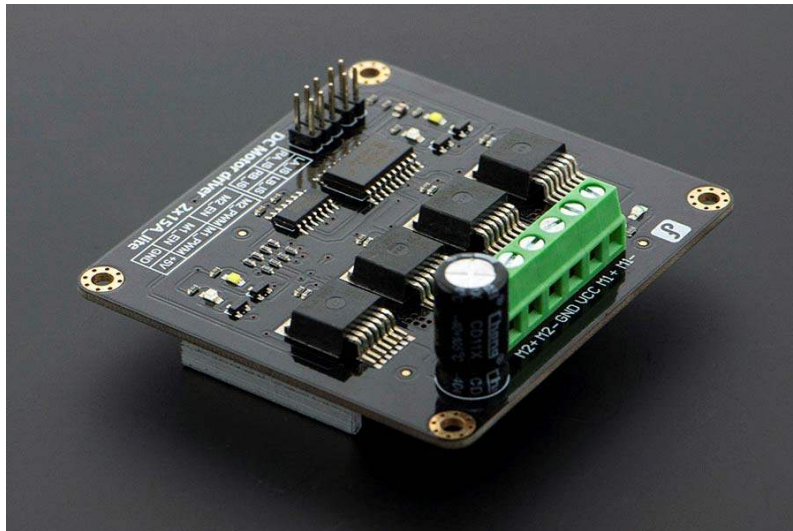




DC Motor Driver 2x15A Lite (SKU: DRI0018)

From Robot Wiki



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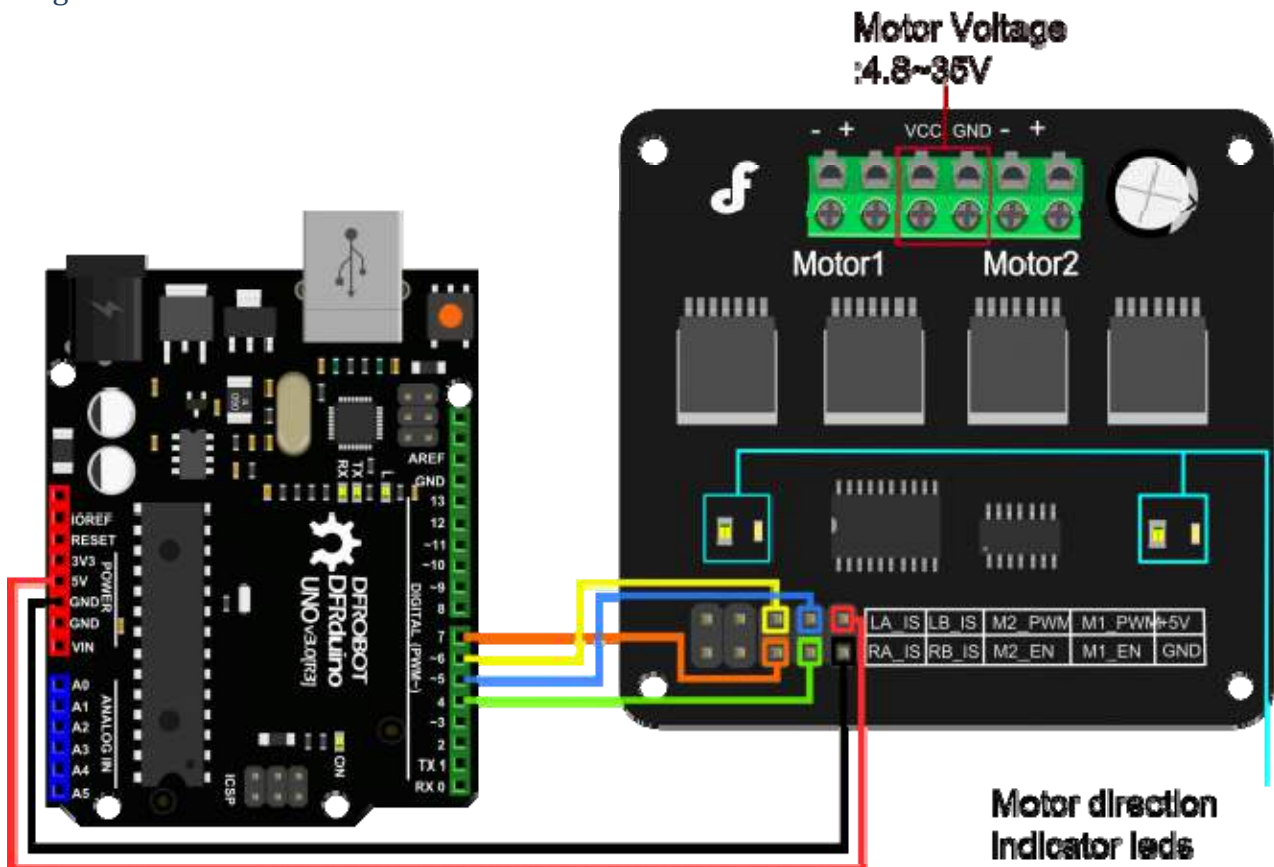
Introduction

This DC Motor Driver can be used in 4WD mobile robot platforms, Combat robots, smart car competition, to drive pumps, electric fans, conveyors, etc... This module uses 4 high-performance & high-current driver chips——BTS7960 with the function of current short, over temperature, over voltage protection. You can control 2 motors with only 4 digital IO at the same time. Dual 15A@13.8V max output current, good responsiveness & braking performance. Four indicator leds are provided for easy and convenient debugging without motors. This DC Motor Driver module is directly compatible with Arduino.

Specification

- Input Voltage:4.8-35V
- Maximum output current:15A@13.8V per channel
- Peak output current:20A@13.8V per channel
- PWM capability:up to 25 kHz
- Interfaces:4 digital IO(2 PWM output include)
- Driving mode:Dual high-power H-bridge driver
- Other specifications:
 - Galvanic isolation to protect the microcontroller
 - Dual current detection diagnostic functions
 - Short circuit, overheating, over-voltage protection
- Size:73x68x14mm
- **For applications of more than 15A per channel**
 - Fast switching might damage the board, best to smooth it by software
 - Avoid higher rating motors, and use lower PWM whenever possible

Tutorial Diagram



DC Motor Driver 2x15A diagram

LA_IS, LB_IS, RA_IS & RB_IS is for current sense and diagnosis.

In normal operation, the IS pin outputs a LOW level. In a fault condition, it will output a HIGH level. The following code will show you how to do.

- LA_IS and RA_IS is used for Motor1.
- LB_IS and RB_IS is used for Motor2.

Sample Code

PWM mode

```
/*
/*
# This Sample code is for testing the DC Motor Driver 2x15A_lite module.

# Editor : Phoebe
# Date   : 2012.11.6
# Ver    : 0.1
# Product: DC Motor Driver 2x15A_lite
# SKU    : DRI0018

# Description:
# Drive 2 motors with this DC Motor Driver module

# Hardwares:
1. Arduino UNO
2. DC Motor Driver 2x15A_lite
3. DC motors x2

#Steps:
1.Connect the M1_PWM & M2_PWM to UNO digital 5 & 6
2.Connect the M1_EN & M2_EN to UNO digital 4 & 7
3.Connect +5V & GND to UNO 5V & GND
```

```

# Function for current sense and diagnosis,if you want to use
please connect the IS pins to Arduino
Connect LA_IS and RA_IS to UNO digital 2 at the same time
Connect LB_IS and RB_IS to UNO digital 3 at the same time
*/

int E1 = 5;      //M1 Speed Control
int E2 = 6;      //M2 Speed Control
int M1 = 4;      //M1 Direction Control
int M2 = 7;      //M2 Direction Control
int counter=0;

void stop(void)          //Stop
{
    digitalWrite(E1,0);
    digitalWrite(M1,LOW);
    digitalWrite(E2,0);
    digitalWrite(M2,LOW);
}

void advance(char a,char b)      //Move forward
{
    analogWrite (E1,a);      //PWM Speed Control
    digitalWrite(M1,HIGH);
    analogWrite (E2,b);
    digitalWrite(M2,HIGH);
}

void back_off (char a,char b)    //Move backward
{
    analogWrite (E1,a);
    digitalWrite(M1,LOW);
    analogWrite (E2,b);
    digitalWrite(M2,LOW);
}

void turn_L (char a,char b)      //Turn Left

```

```

{
  analogWrite (E1,a);
  digitalWrite(M1,LOW);
  analogWrite (E2,b);
  digitalWrite(M2,HIGH);
}

void turn_R (char a,char b)           //Turn Right
{
  analogWrite (E1,a);
  digitalWrite(M1,HIGH);
  analogWrite (E2,b);
  digitalWrite(M2,LOW);
}

void current_sense()                 // current sense and diagnosis
{
  int val1=digitalRead(2);
  int val2=digitalRead(3);
  if(val1==HIGH || val2==HIGH){
    counter++;
    if(counter==3){
      counter=0;
      Serial.println("Warning");
    }
  }
}

void setup(void)
{
  int i;
  for(i=4;i<=7;i++)
    pinMode(i, OUTPUT);
  Serial.begin(19200);           //Set Baud Rate
  Serial.println("Run keyboard control");
  digitalWrite(E1,LOW);
}

```

```

digitalWrite(E2,LOW);
pinMode(2,INPUT);
pinMode(3,INPUT);
}

void loop(void)
{
  /*
   static unsigned long timePoint = 0;    // current sense and diagnosis,if yo
   u want to use this
   if(millis() - timePoint > 1000){      //function,please show it & don't f
   orget to connect the IS pins to Arduino
   current_sense();
   timePoint = millis();
   }
  */
  if(Serial.available()){
    char val = Serial.read();
    if(val != -1)
    {
      switch(val)
      {
        case 'w'://Move Forward
          advance (255,255);    //move forward in max speed
          break;
        case 's'://Move Backward
          back_off (255,255);    //move back in max speed
          break;
        case 'a'://Turn Left
          turn_L (100,100);
          break;
        case 'd'://Turn Right
          turn_R (100,100);
          break;

```

```

    case 'z':
        Serial.println("Hello");
        break;
    case 'x':
        stop();
        break;
    }
}
else stop();
}

```

}

PLL mode

DRI0018 motor drive also support PLL control mode.Data is as follows:

"PLL mode"	
pin	function
4	motor 1 enable control
5	motor 1 direction control
6	motor 2 direction control
7	motor 2 enable control

Demo data :

```
//Standard DLL Speed control

int E1 = 4;    //M1 Speed Control
int E2 = 7;    //M2 Speed Control
int M1 = 5;    //M1 Direction Control
int M2 = 6;    //M1 Direction Control

//When m1p/m2p is 127, it stops the motor
//when m1p/m2p is 255, it gives the maximum speed for one direction
//When m1p/m2p is 0, it gives the maximum speed for reverse direction

void DriveMotorP(byte m1p, byte m2p)//Drive Motor Power Mode
{

    digitalWrite(E1, HIGH);
    analogWrite(M1, (m1p));

    digitalWrite(E2, HIGH);
    analogWrite(M2, (m2p));

}

void setup(void) {
    int i;
    for(i=4;i<=7;i++)
        pinMode(i, OUTPUT);
    Serial.begin(19200);    //Set Baud Rate
}

void loop(void) {
    if(Serial.available()){
        char val = Serial.read();
```



```
if(val!=-1){
  switch(val){
    case 'w'://Move Forward
      DriveMotorP(0xff,0xff); // Max speed
      break;
    case 'x'://Move Backward
      DriveMotorP(0x00,0x00);
      ; // Max speed
      break;
    case 's'://Stop
      DriveMotorP(0x7f,0x7f);
      break;
  }
}
}
```

```
}
```

data function : input “w”, “x”, “s” : motor will have corresponding reaction.

Trouble shooting

More question and cool idea, visit [DFRobot Forum](#)