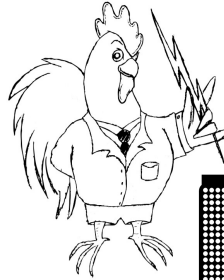


CW Electronx Dual Channel SmartFET Driver Board with Current Sensing

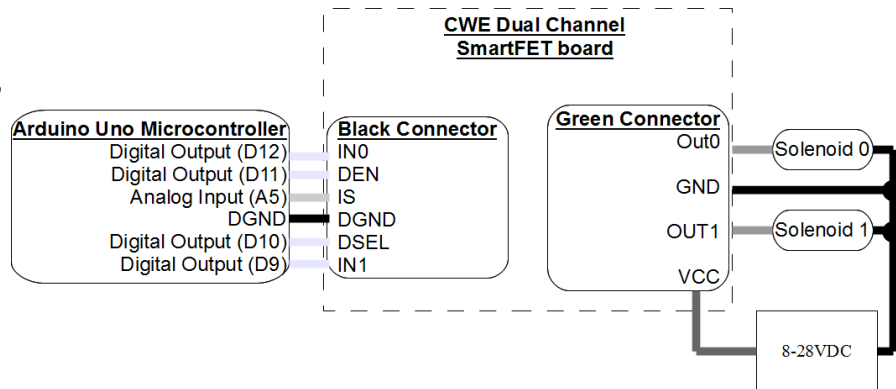
- ⤴ Dual Channel SmartFET, infineon BTS5020-2EKA
- ⤴ 8-28VDC, 5A, 3.3V/5V compatible logic inputs
- ⤴ Screw terminal connectors, 4 mounting holes designed for 2mm screws



Real Life Applications:

- ⤴ Proportional Solenoid Valve Control
- ⤴ LED Dimmer Control
- ⤴ PWM Drive

Example: Code/Diagram for
an Arduino Uno Running Two
Solenoids with Current
Sensing



```
/*  
This software is provided "as-is," without any express or implied warranty.  
In no event shall CW Electronx be held liable for any damages arising from the use of the software.  
*/
```

```
int IN0 = 12;  
int DEN = 11;  
int DSEL = 10;  
int IN1 = 9;  
int sensorValue;  
float voltage;  
float currentA;  
  
// the setup routine runs once when you press reset:  
void setup() {  
  // initialize serial communication at 38400 bits per second:  
  Serial.begin(38400);  
  // initialize the digital pin as an output.  
  pinMode(IN0, OUTPUT);  
  pinMode(DEN, OUTPUT);  
  pinMode(DSEL, OUTPUT);  
  pinMode(IN1, OUTPUT);  
}  
  
// the loop routine runs over and over again forever:  
void loop() {  
  //Analog Pin Enable Pin Set High to enable Current Sensing pin  
  digitalWrite(DEN,HIGH);  
  
  //Request Output0 to be ON / Request Output1 to be OFF  
  digitalWrite(IN0, HIGH); // turn the LED on (HIGH is the voltage level)  
  digitalWrite(IN1, LOW); // turn the LED off by making the voltage LOW  
  delay(1000); // wait for a second  
  
  //Read both of the current sensing  
  Serial.println("Output 0 ON");  
  // read the input on analog pin 5 (this case you are reading Output 0)  
  digitalWrite(DSEL,LOW);  
  sensorValue = analogRead(A5);  
  // Convert the analog reading (which goes from 0 - 1023) to a (0 - 5V):  
  voltage = sensorValue * (5.0 / 1023.0);  
  // IL = V*Is*IRatio/ Rs → IL = 5V * 3000A/mA * Is / 1k2  
  currentA = voltage / 1200.0 * 1000 * 3;  
  Serial.print("Out 0: ");  
  Serial.print(currentA);  
  Serial.println(" Amps");  
  
  // read the input on analog pin 5 (this case you are reading Output 0)  
  digitalWrite(DSEL,HIGH);  
  sensorValue = analogRead(A5);  
  // Convert the analog reading (which goes from 0 - 1023) to a (0 - 5V):
```

```
voltage = sensorValue * (5.0 / 1023.0);  
// IL = V*Is*IRatio/ Rs → IL = 5V * 3000A/mA * Is / 1k2  
currentA = voltage / 1200.0 * 1000 * 3;  
Serial.print("Out 1: ");  
Serial.print(currentA);  
Serial.println(" Amps");  
Serial.println("");  
  
// print out the value you read:  
// Serial.println(voltage);  
  
//Request Output0 to be OFF  
//Request Output1 to be OFF  
digitalWrite(IN0, LOW); // turn the LED off by making the voltage LOW  
digitalWrite(IN1, LOW); // turn the LED off by making the voltage LOW  
delay(500); // wait for a second  
  
//Request Output0 to be OFF / Request Output1 to be ON  
digitalWrite(IN0, LOW); // turn the LED on (HIGH is the voltage level)  
digitalWrite(IN1, HIGH); // turn the LED off by making the voltage LOW  
delay(1000); // wait for a second  
//Read both of the current sensing  
Serial.println("Output 1 ON");  
// read the input on analog pin 5 (this case you are reading Output 0)  
digitalWrite(DSEL,LOW);  
sensorValue = analogRead(A5);  
// Convert the analog reading (which goes from 0 - 1023) to a (0 - 5V):  
voltage = sensorValue * (5.0 / 1023.0);  
// IL = V*Is*IRatio/ Rs → IL = 5V * 3000A/mA * Is / 1k2  
currentA = voltage / 1200.0 * 1000 * 3;  
Serial.print("Out 0: ");  
Serial.print(currentA);  
Serial.println(" Amps");  
Serial.println("");  
  
// read the input on analog pin 5 (this case you are reading Output 0)  
digitalWrite(DSEL,HIGH);  
sensorValue = analogRead(A5);  
// Convert the analog reading (which goes from 0 - 1023) to a (0 - 5V):  
voltage = sensorValue * (5.0 / 1023.0);  
// IL = V*Is*IRatio/ Rs → IL = 5V * 3000A/mA * Is / 1k2  
currentA = voltage / 1200.0 * 1000 * 3;  
Serial.print("Out 1: ");  
Serial.print(currentA);  
Serial.println(" Amps");  
Serial.println("");  
  
//Request Output0 to be OFF / Request Output1 to be OFF  
digitalWrite(IN0, LOW); // turn the LED off by making the voltage LOW  
digitalWrite(IN1, LOW); // turn the LED off by making the voltage LOW  
delay(500); // wait for a second  
}
```

SKU: Arduino_2SmartFET

<http://www.cwelectronx.com/>

UPC: 766194296703