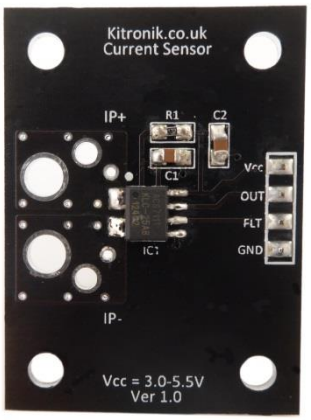
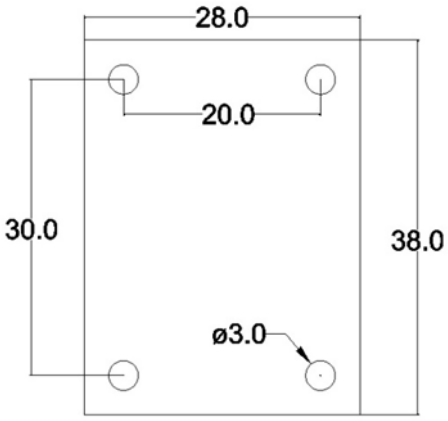
Current Sensor Breakout - 5107

Circuit Overview

This circuit uses the ACS711 and can be used to measure currents ranging from -25A to 25A. The current you are measuring is routed into the pad labelled IP+ and back out of IP-. The IC then outputs the reading as an analogue signal between 0.3V and Vcc-0.3V to the OUT pin. The sensor works by utilising the Hall Effect so it must be kept away from strong magnets if it is to function correctly.





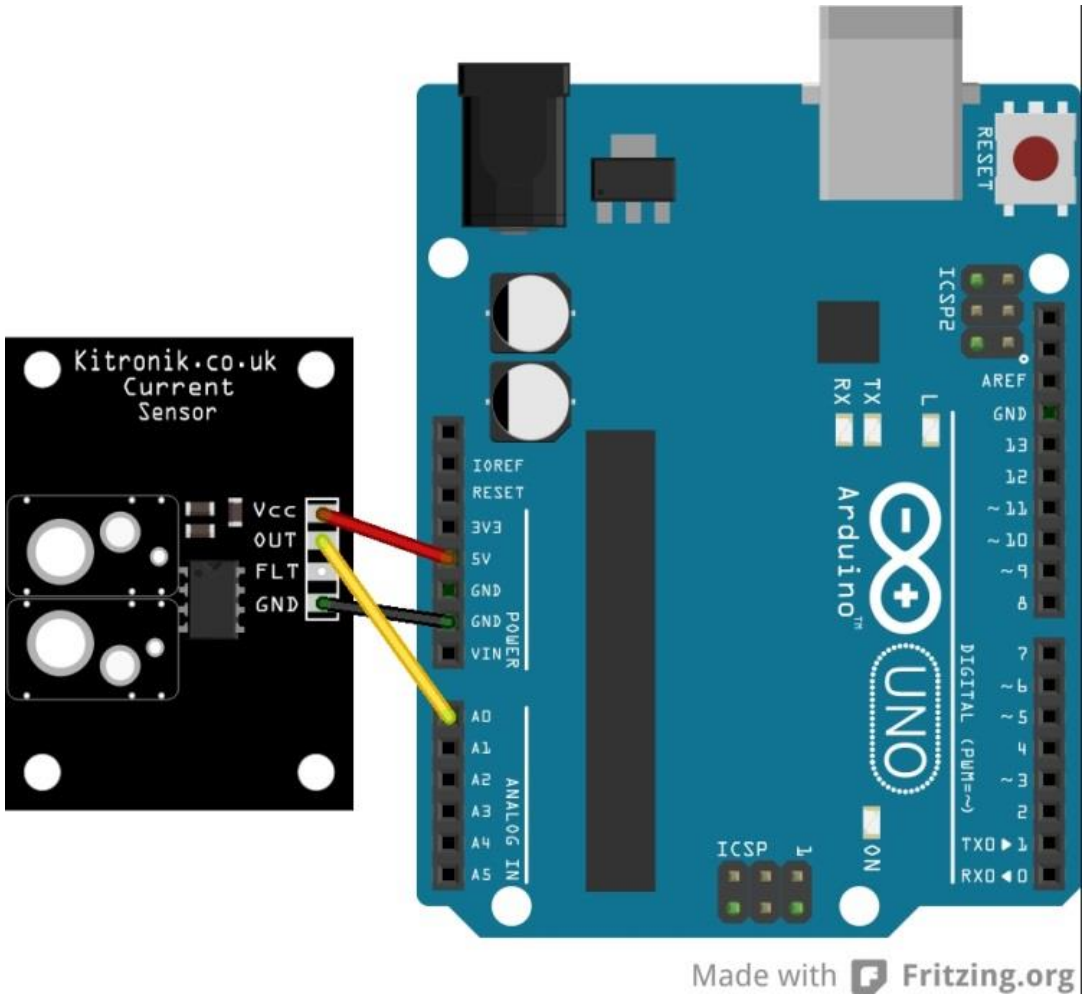
Electrical Characteristics

	Min	Typical	Max
Supply Voltage	3 V	3.3V-5.5V	7V
VOUT output	0.3V	-	Vcc-0.3V
Current Consumption	-	4mA	5.5mA
Current Measurement Range	-25A		25A
Sensitivity (Over Full Scale)	-	55 mV/A	-
Overcurrent Transient Tolerance	-	-	100A, single pulse, 100ms
Normal Operating Ambient Temperature	-40C	-	125C
Max Total Error			+/-4%
Working Voltage for Basic Isolation			100V VAC Peak or VDC

Pinout

Vcc	Supply Voltage	3 to7V
OUT	Analogue Out	0.3V to (Vcc-0.3V)
GND	Ground	0V
IP+	Current sensing pins +	-25 to 25A
IP-	Current sensing pins -	-25 to 25A
FLT	Fault Pin	Overcurrent fault; active low

Arduino Schematic



This board is very simple to connect to the Arduino. To begin measuring current with the current sensor connect the pins on the breakout board to your Arduino as described in the table below.

Arduino Connections

Current Sensor Board	Arduino
Vcc	5V
OUT	A0
FLT	No Connection
GND	GND

Arduino Sketch

The sketch below can be copied directly into the Arduino IDE and is available as a download from the website. It defines a simple function called `getcurrent();` when it runs it simply converts the analogue output of the current sensor IC to a current value in Amperes.

```
float current = 0; //current in Amperes
int rawcurrent = 0; //ADC Voltage at the sensor's output during read
const int sensorpin = A0;
int offset = 0; //ADC voltage at the sensors's output before current is applied

void setup()
{
 Serial.begin(9600);
 offset = analogRead(A0);
}

void loop()
{
  getcurrent();
  delay(500);
  Serial.print("Current = ");
  Serial.print(current);
  Serial.println("A");
}

float getcurrent()
{
rawcurrent = analogRead(A0);
current = ((rawcurrent-offset)*0.023);
return current;
}
```