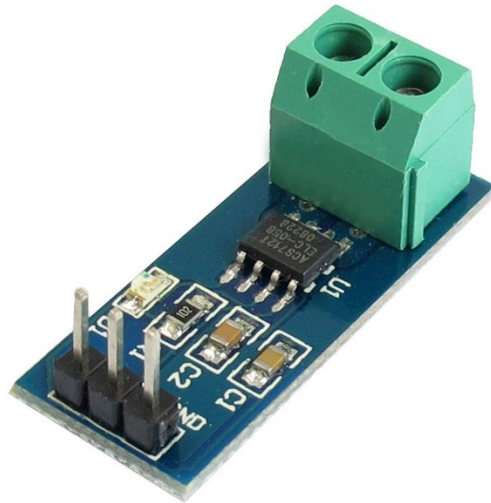


User Manual
For
ACS712 20A Range Current Sensor
Module for Arduino(ME067)



Description:

The Allegro® ACS712 provides economical and precise solutions for AC or DC current sensing in industrial, commercial, and communications systems. The device package allows for easy implementation by the customer. Typical applications include motor control, load detection and management, switched-mode power supplies, and overcurrent fault protection.

The device consists of a precise, low-offset, linear Hall sensor circuit with a copper conduction path located near the surface of the die. Applied current flowing through this copper conduction path generates a magnetic field which is sensed by the integrated Hall IC and converted into a proportional voltage. Device accuracy is optimized through the close proximity of the magnetic signal to the Hall transducer. A precise, proportional voltage is provided by the low-offset, chopper-stabilized BiCMOS Hall IC, which is programmed for accuracy after packaging.

The output of the device has a positive slope ($>V_{IOUT}(Q)$) when an increasing current flows through the primary copper conduction path (from pins 1 and 2, to pins 3 and 4), which is the path used for current sensing.

Specification

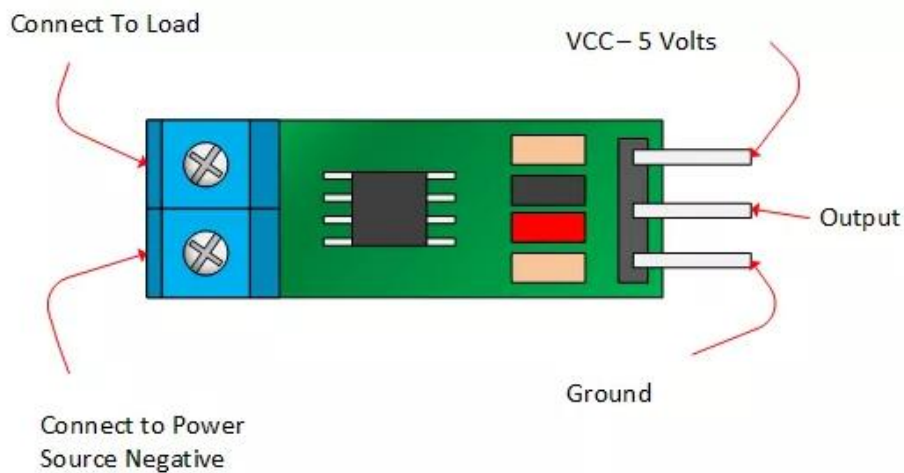
- Power supply: 5V
- Current Sensor Chip: (20A) ACS712ELC-20A
- Module can measure the $\pm 20A$ Current, corresponding to the analog output 100mV / A
- no detect current passed, the output voltage is $VCC / 2$

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This module has three ranges for different sensor chip:

	5A Module	20A Module	30A Module
Supply Voltage (VCC)	5Vdc Nominal	5Vdc Nominal	5Vdc Nominal
Measurement Range	-5 to +5 Amps	-20 to +20 Amps	-30 to +30 Amps
Voltage at 0A	VCC/2 (nominally 2.5Vdc)	VCC/2 (nominally 2.5Vdc)	VCC/2 (nominally 2.5VDC)
Scale Factor	185 mV per Amp	100 mV per Amp	66 mV per Amp
Chip	ACS712ELC-05A	ACS712ELC-10A	ACS712ELC-30A

Pinout:



Tutorial:

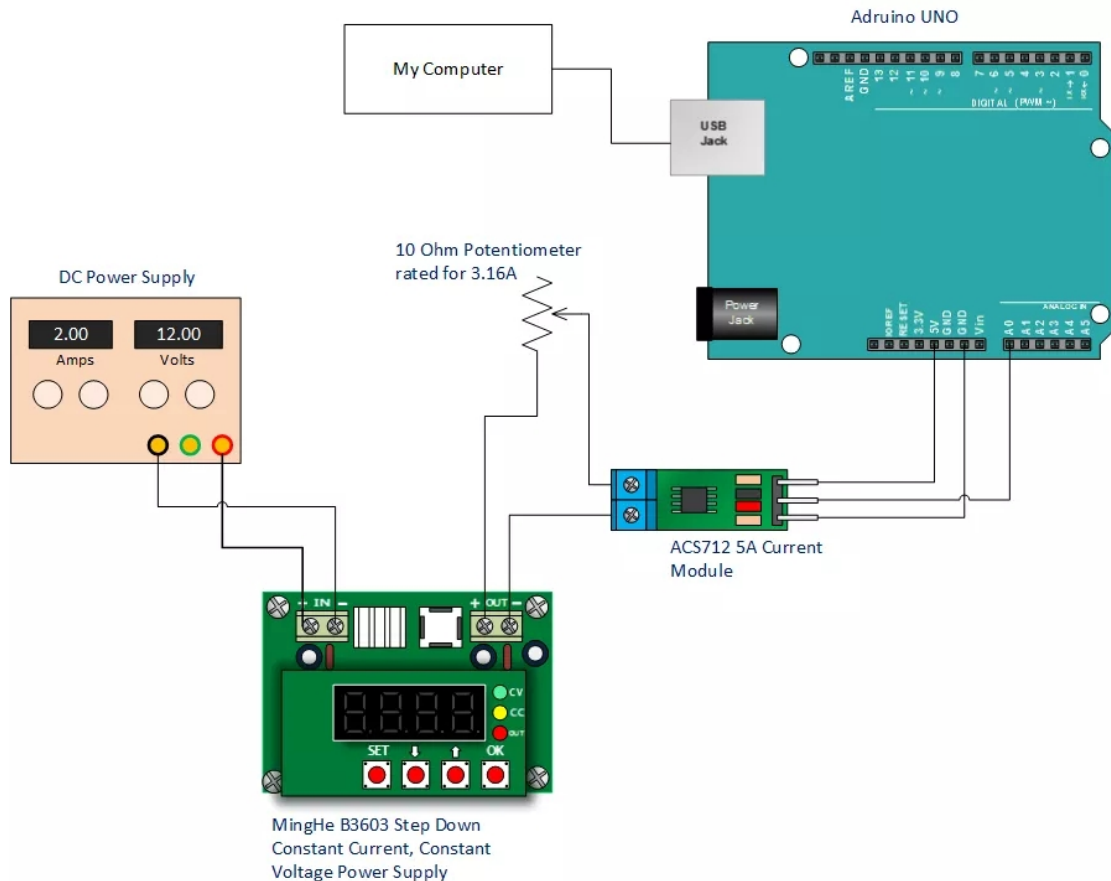
What You Will Need?

- An Arduino UNO
- An ACS712 Current Sensor Module
- A Load
- A Power Source
- A Bench Supply

The ACS712 Sample Project Schematic

The drawing below shows I hooked things up.

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You can copy and paste the code you see below.

***** Code Begin*****

```
/*  
Measuring Current Using ACS712  
*/  
const int analogIn = A0;  
int mVperAmp = 185; // use 100 for 20A Module and 66 for 30A Module  
int RawValue= 0;  
int ACSoffset = 2500;  
double Voltage = 0;  
double Amps = 0;  
  
void setup(){  
  Serial.begin(9600);  
}  
  
void loop(){  
  
  RawValue = analogRead(analogIn);  
  Voltage = (RawValue / 1024.0) * 5000; // Gets you mV  
  Amps = ((Voltage - ACSoffset) / mVperAmp);
```

```
Serial.print("Raw Value = " ); // shows pre-scaled value
Serial.print(RawValue);
Serial.print("\t mV = "); // shows the voltage measured
Serial.print(Voltage,3); // the '3' after voltage allows you to
display 3 digits after decimal point
Serial.print("\t Amps = "); // shows the voltage measured
Serial.println(Amps,3); // the '3' after voltage allows you to display
3 digits after decimal point
delay(2500);

}
***** Code End*****
```

Reference

<http://henrysbench.capnfatz.com/henrys-bench/arduino-current-measurements/acs712-current-sensor-user-manual/>