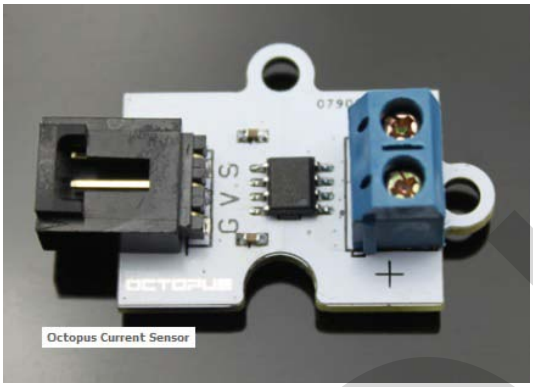
Current Sensor



1. 사양

1.1. Description

Current Sensor는 current의 크기를 detecting 하기 위해 사용하며, ACS712 current sensor chip을 사용하는 sensor module이다. ACS712ELC-30A chip을 사용하며, 아날로그 출력(Sensitivity)은 66mA / V 이다.

1.2. Feature

Use Chip: ACS712ELC-30A
Measuring range: ± 30A
Analog output: 66mA / V
When current is not detected, the output voltage is VCC / 2
Power supply needs: 5V
Interface type: Analog
Pin Definition: 1-Signal 2-VCC 3-GND
Fast response and High sensitivity
Simple drive circuit
Stable and long life

1.3. 구성

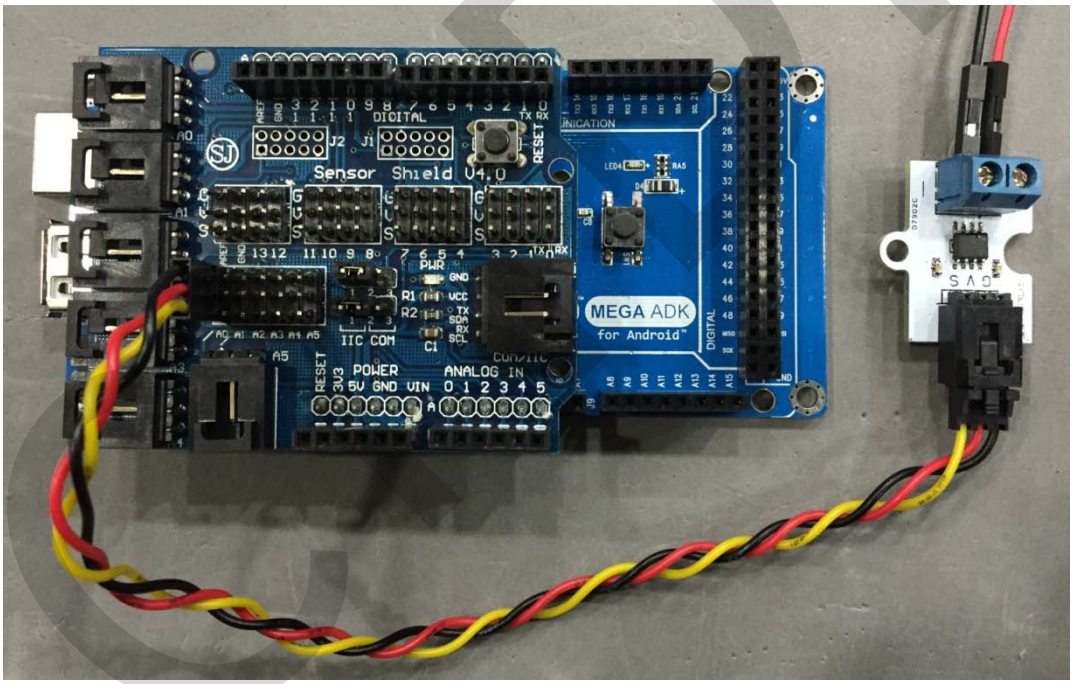
1 x Current Sensor

1 x Analog Sensor Cable

2. User Guide

2.1. 결선

모듈의 결선은 다음과 같다.



Module	Sensor Shield	Current Sensor
Pin	S(A0)	S
Pin	V	V
Pin	G	G

모듈의 장치 및 회로에 대한 상세한 내용은 데이터시트 및 회로도를 참고한다.

2.2. 예제프로그램

Current 센서로부터 센싱한 값을 읽어 계산한 전류 값을 시리얼 모니터를 통해 표시한다.

- CurrentSensor_Example.ino

```
/*
  Analog input, analog output, serial output

  Reads an analog input pin, maps the result to a range from 0 to 255
  and uses the result to set the pulsewidth modulation (PWM) of an output pin.
  Also prints the results to the serial monitor.

  The circuit:
  - potentiometer connected to analog pin 0.
     Center pin of the potentiometer goes to the analog pin.
     side pins of the potentiometer go to +5V and ground
  - LED connected from digital pin 9 to ground
*/

const int analogInPin = A0;   // Analog input pin that the potentiometer is attached to
const int analogOutPin = 9; // Analog output pin that the LED is attached to

float sensorValue = 0;            // value read from the port
int outputValue = 0;           // value output to the PWM (analog out)

void setup() {
   // initialize serial communications at 9600 bps:
   Serial.begin(9600);
}

void loop() {
   // read the analog in value:
   sensorValue = analogRead(analogInPin);
```

Current Sensor

```
  // map it to the range of the analog out:
  outputValue = map(sensorValue, 0, 1023, 0, 255);

  // change the analog out value:
  analogWrite(analogOutPin, outputValue);
  sensorValue=((sensorValue-506)*5/1024/0.066);   // 506 is ADC Value of 0A.

  // print the results to the serial monitor:
  Serial.print("sensor = " );
  Serial.print(sensorValue);              // Sensed Current Value

  // wait 2 milliseconds before the next loop
  // for the analog-to-digital converter to settle
  // after the last reading:
  delay(2);
}
```