

ARDUINO CURRENT SENSOR AC 30A

Model:SCT-013-030

User Manual



Instructions:

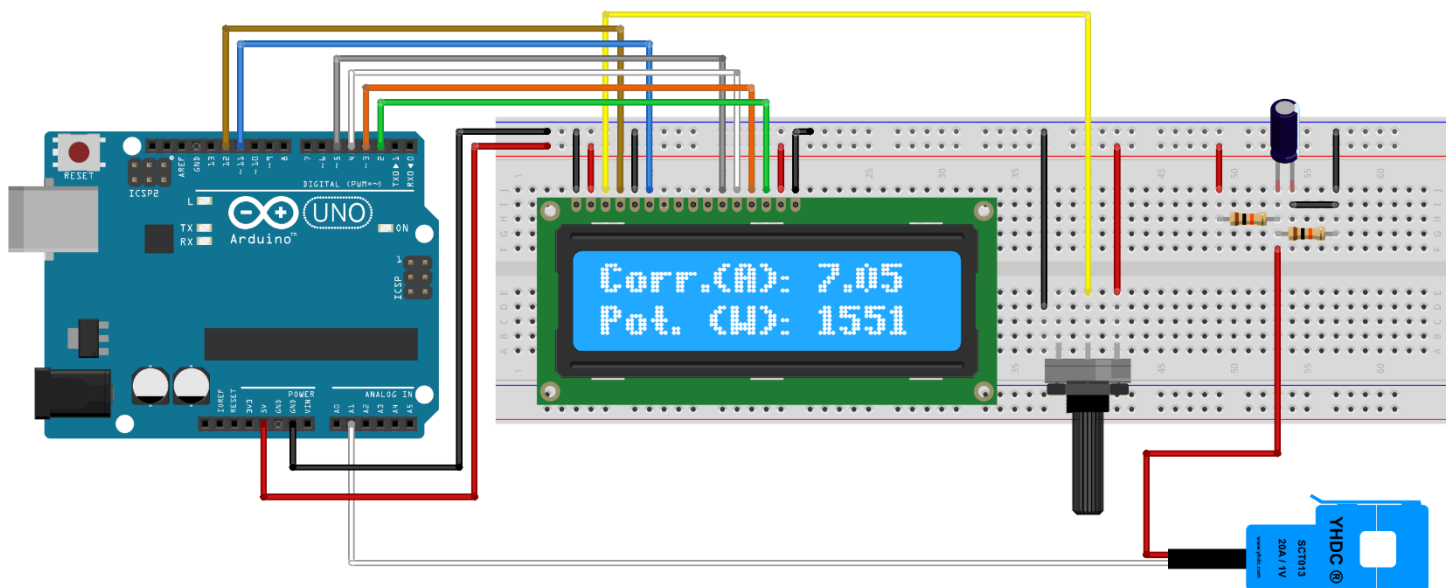
There are several examples for the use of the sensors **SCT-013 line** with Arduino. There is also much discussion regarding since found several different circuits and calculations that take into account internal resistance equipment, signal wavelength, and many other variables.

Here is a short way to do an electricity meter with Arduino, which approached quite the calculations made using the formula $I = P / E$ shown above.

We set up the circuit below using:

- 2 10 K resistors
- 1 uF capacitor 100
- 1 Display LCD 16 × 2
- 1 Potentiometer 10K for adjusting the display contrast

The SCT sensor comes with a P2 plug, you can connect to the Arduino using an adapter. If you prefer, remove the plug and use only two wires coming from the sensor:



We created the program based on information from the site **Open Energy Monitor** using the library **EmonLib** created by them and available in the software. Unzip the EmonLib folder and place it inside the Libraries folder Arduino IDE.

```
1  //Program : Electricity meter with Arduino and SCT- 013
2  // Based on the example program EmonLib library
3  // Loads libraries
4  #include "EmonLib.h"
5  #include <LiquidCrystal.h>
6
7  EnergyMonitor emon1;
8  LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
9
10 // Power consumption
11 int rede = 110.0;
12
13 // Pino do sensor SCT
14 int pino_sct = 1;
15
16 void setup()
17 {
18   lcd.begin(16, 2);
19   lcd.clear();
20   Serial.begin(9600);
21   //Pino, calibration - Cur Const= Ratio/BurdenR. 1800/62 = 29.
22   emon1.current(pino_sct, 29);
23   // Information initial display
24   lcd.setCursor(0,0);
25   lcd.print("Corr.(A):");
26   lcd.setCursor(0,1);
27   lcd.print("Pot. (W):");
28 }
29
30 void loop()
31 {
32   // Calculate current
33   double Irms = emon1.calcIrms(1480);
34   // shows the value of the current
35   Serial.print("Current : ");
36   Serial.print(Irms); // Irms
37   lcd.setCursor(10,0);
38   lcd.print(Irms);
39
40   // Calculates and displays
41   Serial.print(" Power : ");
42   Serial.println(Irms*rede);
43   lcd.setCursor(10,1);
44   lcd.print(" ");
45   lcd.setCursor(10,1);
46   lcd.print(Irms*rede,1);
47
48   delay(1000);
49 }
```

Set the mains voltage by changing the variable **network**. Change the variable **Pino_stc** to use any other (analog) input of the Arduino.

USING THE CURRENT METER:

The SCT 013-020-type sensor is considered "non-invasive". This means that, to measure current, do not need to make any changes to the circuit that we are measuring. Just open the sensor, wrap the wire and perform the measurement:

An important observation to perform the measurement is that the sensor must involve **ONLY ONE** of the wires, as the image above. If we put the two wires within the sensor, the values are canceled and the display will show the value 0 (zero), or some other incorrect value.

[How to open Software:](#)

- Enter to <http://www.ekt2.com/products/productdetails?ProductId=5B18A23E-9D71-42F1-B128-7F4A13BD4805>
- Press the icon to start the download

