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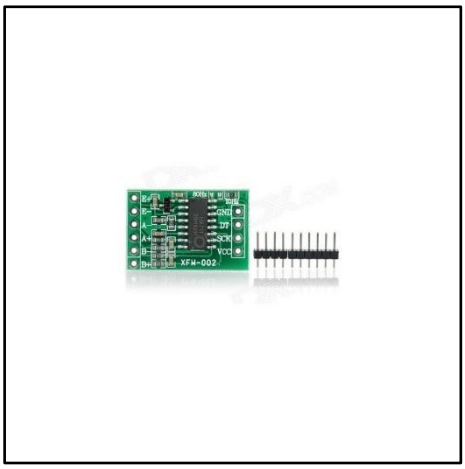
HX711 Dual Channel Weighing Sensor Module



Introduction:

This module uses 24 high precision A/D converter chip HX711. It is a specially designed for the high precision electronic scale design with two analog input channels. The internal integration of 128 times the programmable gain amplifier. The input circuit can be configured to provide a bridge type pressure bridge (such as pressure, weighing sensor mode). This model is an ideal high-precision, low-cost sampling front-end module.

Features:

- Two selectable differential input channels
- On-chip active low noise PGA with selectable gain of 32. 64 and 128
- On-chip power supply regulator for load-cell and ADC analog power supply
- On-chip oscillator requiring no external component with optional external crystal
- On-chip power-on-reset
- Simple digital control and serial interface: pin-driven controls. no programming needed
- Selectable 10SPS or 80SPS output data rate
- Simultaneous 50 and 60Hz supply rejection
- Current consumption including on-chip analog power supply regulator: normal operation < 1.5mA. power down < 1uA
- Operation supply voltage range: 2.6 ~ 5.5V

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Components Needed:

- HX711 Dual Channel Weighing Sensor Module
- Weight Sensor (Load Cell) 0-5000g 5kg
- Arduino Uno
- Jumper Wires
- Breadboard

Objectives:

In this experiment, we will weigh and monitor the data by using a HX711 Dual Channel Weighing Sensor Module.

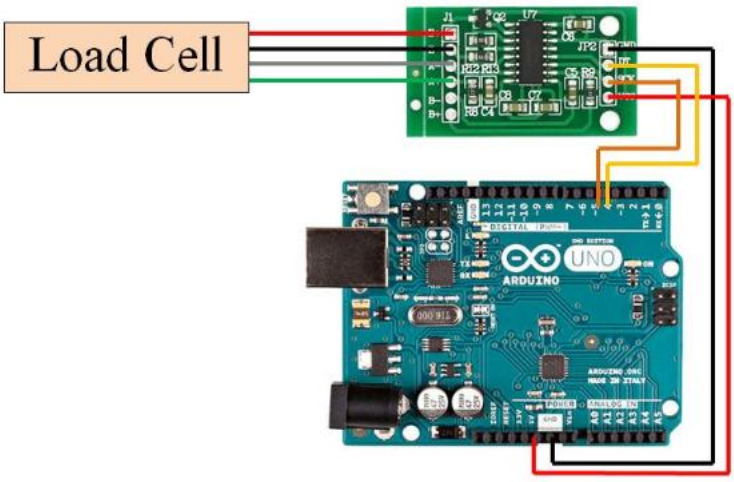
Pinout:

HX711	ARDUINO UNO
VCC	5V
GND	GND
SCK	D5
DT	D6

Load Cell	HX711
E+	RED
E-	BLACK
A+	WHITE
A-	GREEN

Procedure:

1. Connect the sensors and Arduino same as picture provided below.



2. Insert the following coding in the Arduino IDE (Copy & Paste). Connect the Arduino board to PC. Click Verify and Upload.

```
/*
 Setup your scale and start the sketch WITHOUT a weight on the scale
 Once readings are displayed place the weight on the scale
 Press +/- or a/z to adjust the calibration_factor until the output readings match the known
weight
 Arduino pin 5 -> HX711 CLK
 Arduino pin 6 -> HX711 DOUT
 Arduino pin 5V -> HX711 VCC
 Arduino pin GND -> HX711 GND
*/

#include "HX711.h"

HX711 scale(6, 5);

float calibration_factor = -375; // this calibration factor is adjusted according to my load cell
float units;
float ounces;

void setup() {
  Serial.begin(9600);
  Serial.println("HX711 calibration sketch");
  Serial.println("Remove all weight from scale");
  Serial.println("After readings begin, place known weight on scale");
  Serial.println("Press + or a to increase calibration factor");
  Serial.println("Press - or z to decrease calibration factor");

  scale.set_scale();
  scale.tare();  //Reset the scale to 0

  long zero_factor = scale.read_average(); //Get a baseline reading
  Serial.print("Zero factor: "); //This can be used to remove the need to tare the scale. Useful in
permanent scale projects.
  Serial.println(zero_factor);
}

void loop() {

  scale.set_scale(calibration_factor); //Adjust to this calibration factor

  Serial.print("Reading: ");
  units = scale.get_units(), 10;
  if (units < 0)
  {
    units = 0.00;
  }
  ounces = units * 0.035274;
  Serial.print(units);
  Serial.print(" grams");
```

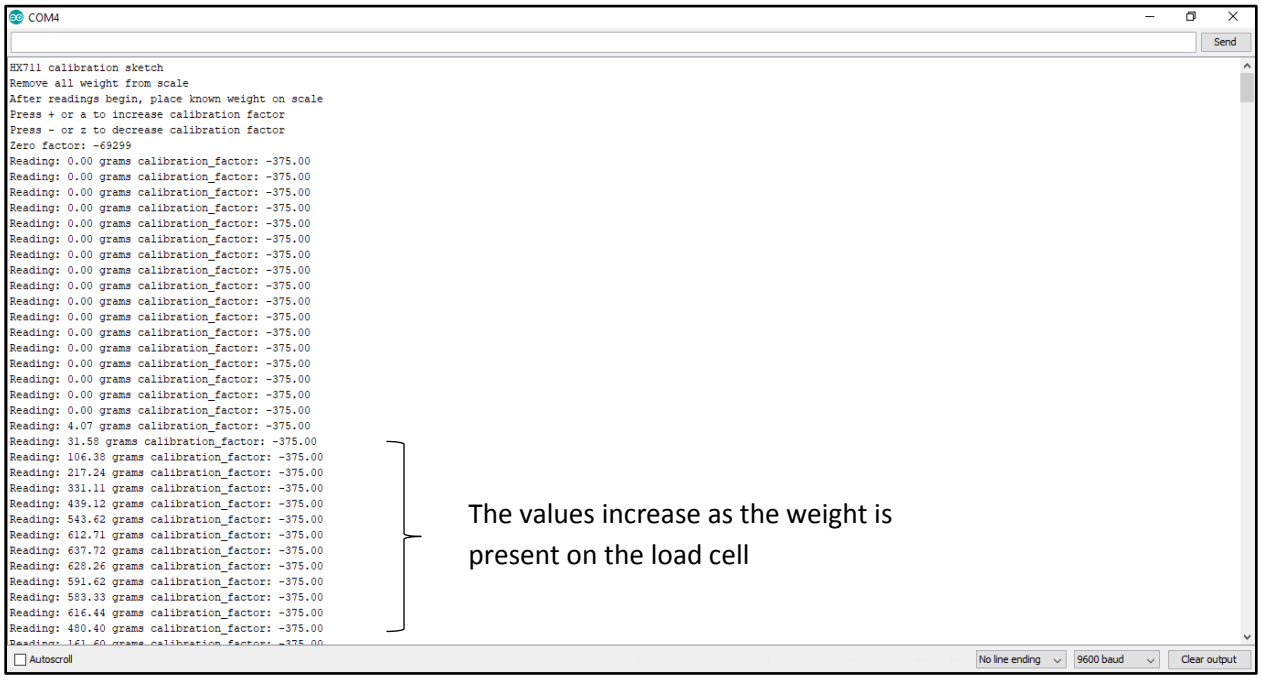
```
            Serial.print(" calibration_factor: ");
            Serial.print(calibration_factor);
            Serial.println();

            if(Serial.available())
            {
              char temp = Serial.read();
              if(temp == '+' || temp == 'a')
                calibration_factor += 1;
              else if(temp == '-' || temp == 'z')
                calibration_factor -= 1;
            }
}
```

3. Since in some code, the libraries needed are not included in Arduino, so you need to add them before compiling. Unzip the downloaded file. Copy the folders under the Library folder to the libraries folder in Arduino (if you cannot find the path in Arduino, open Arduino IDE, click File ->Preferences, and you can see the path in the Browse box, as shown in the following diagram). Compile the program.

4. Upload the sketch to the Arduino Uno board

5. Open the serial monitor to observe the result as shown below.



The values increase as the weight is present on the load cell