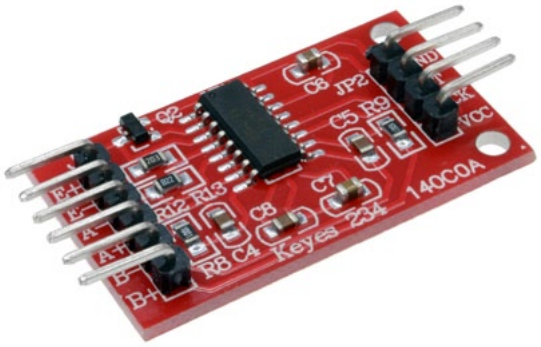
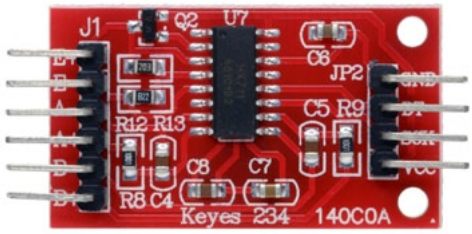
ARD 2 Arduino Compatibles

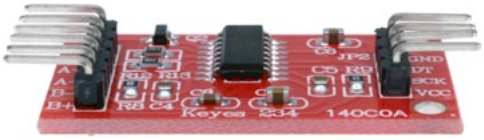
Controllers, Shields, Modules & Sensors

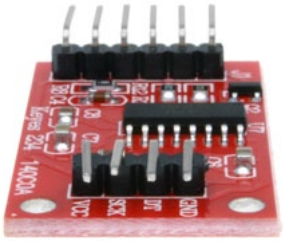
Load Cell Amplifier Module HX711 ARD2-2150

- **Measure weight by reading load cells**
- **Applications include DIY weighing scales**









Description

This Load Cell Amplifier uses an HX711 IC 24-bit ADC/amplifier, allowing you to easily read load cells to measure weight. By connecting the amplifier to your microcontroller you will be able to read the changes in the resistance of the load cell and with some calibration you'll be able to get very accurate weight measurements. This can be handy for creating your own industrial scale, process control, or simple presence detection.

The HX711 uses a two wire interface (Clock and Data) for communication. Any microcontroller's GPIO pins should work and numerous libraries have been written making it easy to read data from the HX711.

Specifications

Operating Voltage	2.6–5.5V
Operating Temperature	–40~+80°C
Current Consumption	Normal Operation: <1.5mA Power Down: <1uA
Dimensions	29mm x 17mm x 4mm

Pinout

Load Cell	Module	Arduino	Function
Red Wire	E+	–	Load Cell Connection
Black Wire	E–	–	Load Cell Connection
Green Wire	A–	–	Load Cell Connection
White Wire	A+	–	Load Cell Connection
–	GND	GND	Ground Connection
–	DT	D3	Data Output
–	SCK	D2	Clock Output
–	VCC	+5V	Power Supply

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Calibration Code

```
/*
 Example using the SparkFun HX711 breakout board with a scale
 By: Nathan Seidle
 SparkFun Electronics
 Date: November 19th, 2014
 License: This code is public domain but you buy me a beer if you use this and
we meet someday (Beerware license).

 This is the calibration sketch. Use it to determine the calibration_factor
that the main example uses. It also
 outputs the zero_factor useful for projects that have a permanent mass on the
scale in between power cycles.

 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
 Use this calibration_factor on the example sketch

 This example assumes pounds (lbs). If you prefer kilograms, change the
Serial.print(" lbs"); line to kg. The
 calibration factor will be significantly different but it will be linearly
related to lbs (1 lbs = 0.453592 kg).

 Your calibration factor may be very positive or very negative. It all depends
on the setup of your scale system
 and the direction the sensors deflect from zero state
 This example code uses bogde's excellent library: https://github.com/bogde/
HX711
 bogde's library is released under a GNU GENERAL PUBLIC LICENSE
 Arduino pin 2 -> HX711 CLK
 3 -> DOUT
 5V -> VCC
 GND -> GND

 Most any pin on the Arduino Uno will be compatible with DOUT/CLK.

 The HX711 board can be powered from 2.7V to 5V so the Arduino 5V power should
be fine.

*/

#include "HX711.h"

#define DOUT  3
#define CLK  2

HX711 scale(DOUT, CLK);

float calibration_factor = -7050; //-7050 worked for my 440lb max scale setup
```


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Calibration Code (cont.)

```
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: ");
  Serial.print(scale.get_units(), 1);
  Serial.print(" lbs"); //Change this to kg and re-adjust the calibration
factor if you follow SI units like a sane person
  Serial.print(" calibration_factor: ");
  Serial.print(calibration_factor);
  Serial.println();

  if(Serial.available())
  {
    char temp = Serial.read();
    if(temp == '+' || temp == 'a')
      calibration_factor += 10;
    else if(temp == '-' || temp == 'z')
      calibration_factor -= 10;
  }
}
```


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