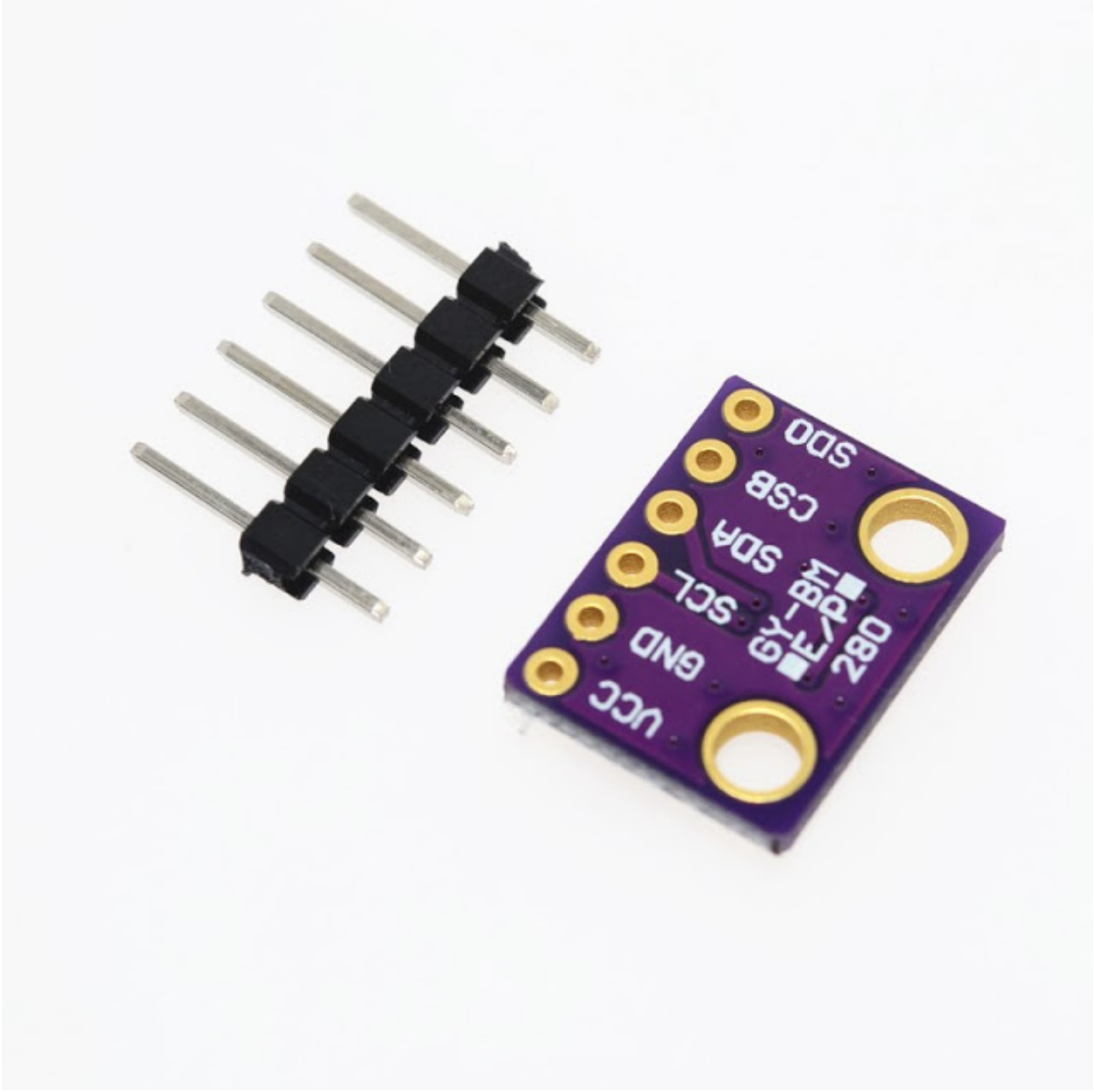
17th September 2016

Read temperature and barometric pressure from GY BMP 280 using Arduino

This sensor based on BMP 280 digital pressure sensor made by Bosch. You can find the complete datasheet here [https://www.bosch-sensortec.com/bst/products/all_products/bmp280] . This small sensor is quite impressive with it's accuracy. It claimed to be **±1 hPa** in measuring barometric pressure, **±1.0°C** in temperature measurement and **±1 meter** in altitude accuracy. Pretty impressive right ?

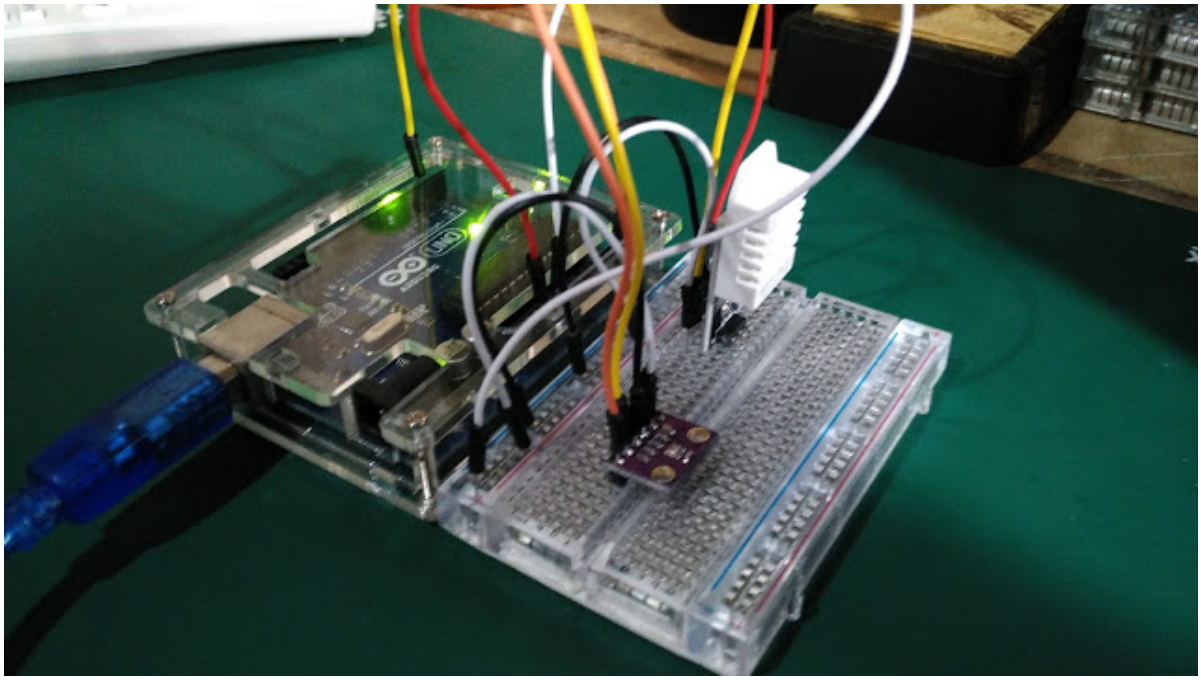
[]



This sensor support both I2C or SPI interface. The wiring for this sensor is simple. Note that this sensor require 3.3v, so if you use Arduino Uno, use the 3.3v pin.

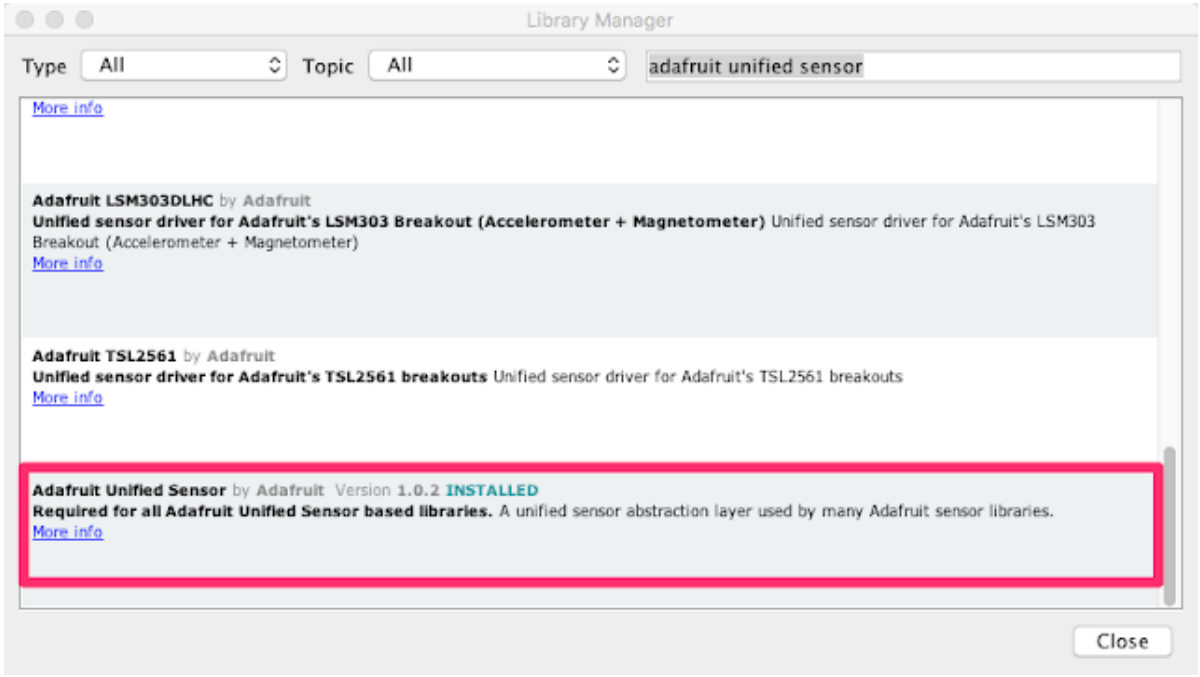
Wiring sensor and Arduino:

- **VCC <----> 3.3v**
- **GND <----> GND**
- **SCL/SCK <----> A5(Analog pin 5)**
- **SDA/SDI <----> A4(Analog pin 4)**

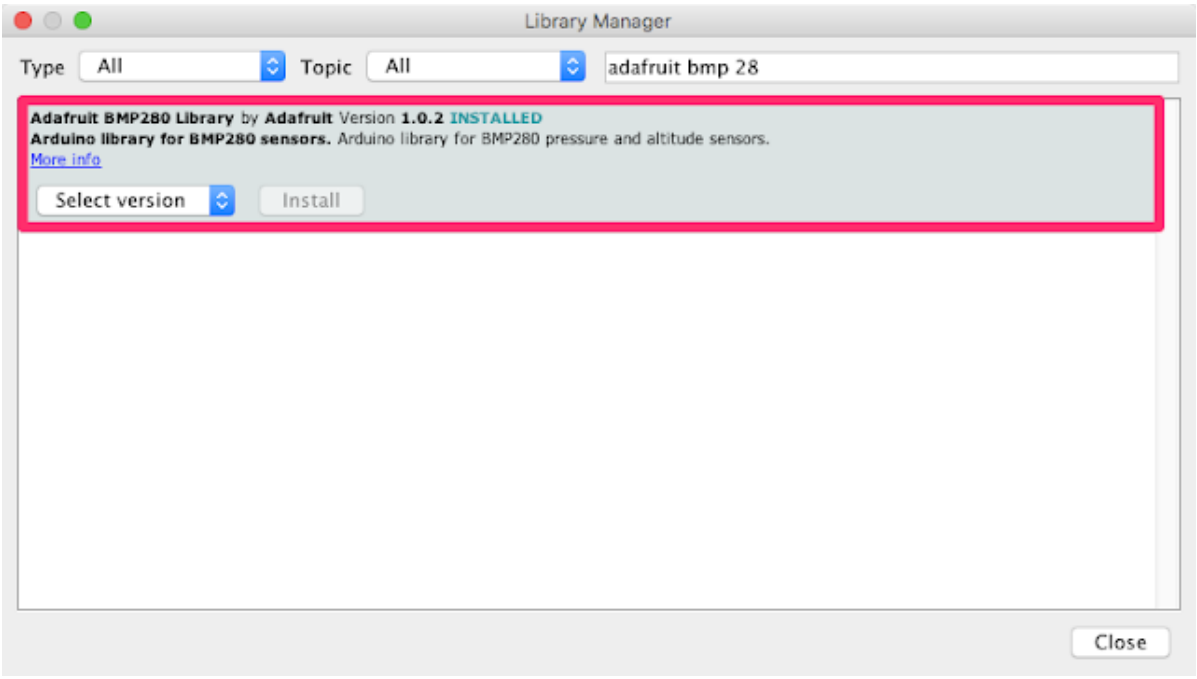


Install following library from Arduino IDE.

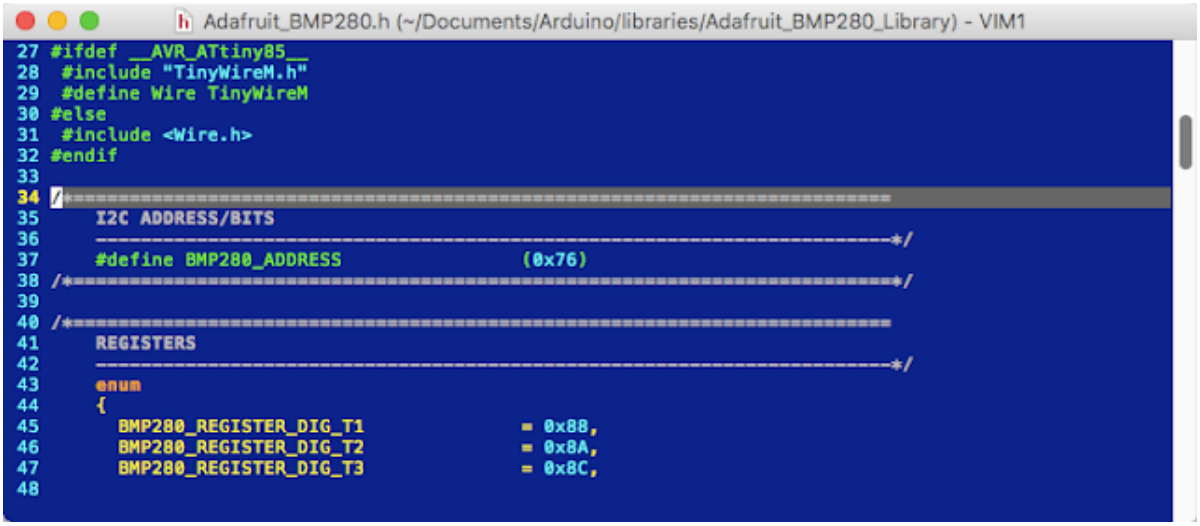
Adafruit Unified Sensors (https://github.com/adafruit/Adafruit_Sensor [https://github.com/adafruit/Adafruit_Sensor])



Adafruit BMP 280 Library (https://github.com/adafruit/Adafruit_BMP280_Library [https://github.com/adafruit/Adafruit_BMP280_Library])

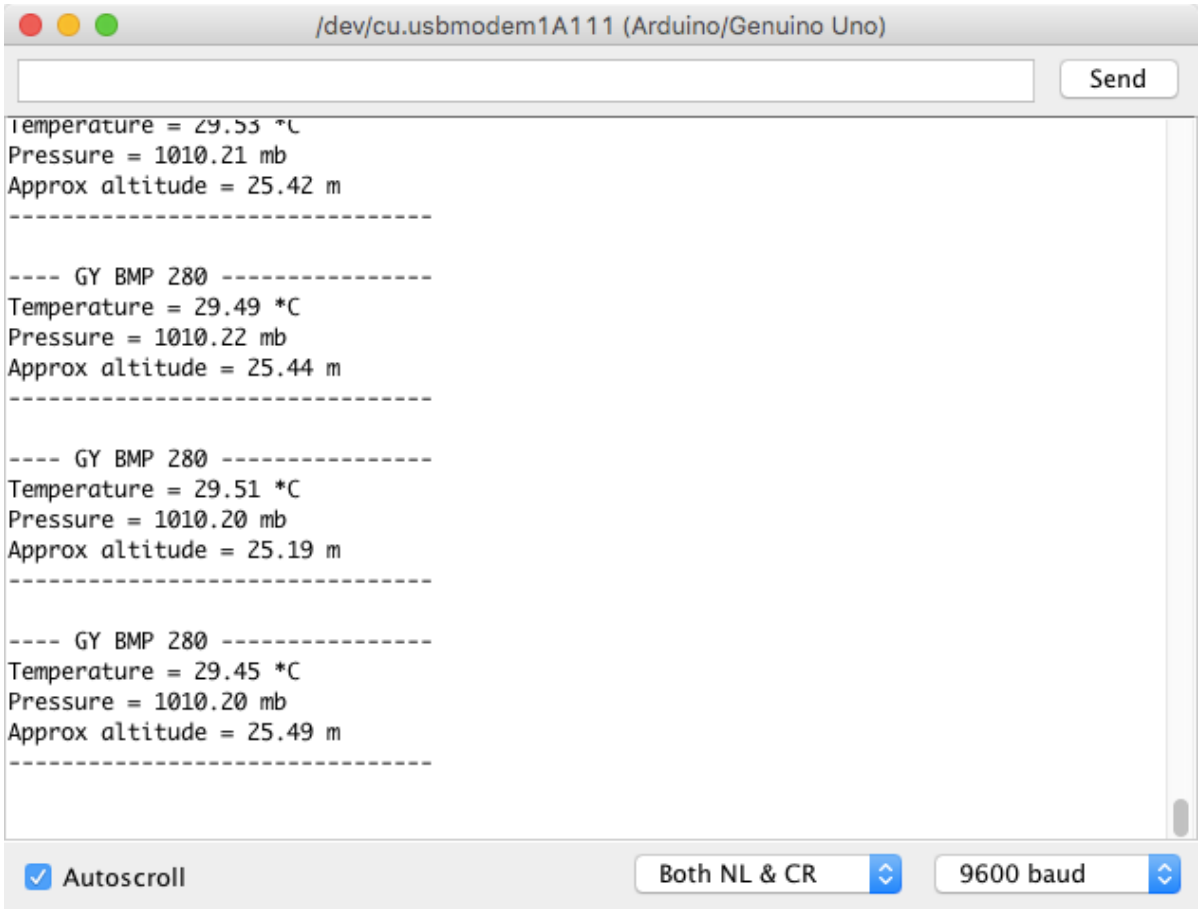


Note:
For this sensor you need to change I2C address on to **0x76.** Locate file **Adafruit_BMP280.h** and change the I2C the address.



Download sketch and upload to Arduino from my github : https://github.com/satujamsaja/Arduino/tree/master/bmp280 [https://github.com/satujamsaja/Arduino/tree/master/bmp280]

Here is the result.



While pressure result pretty accurate, altitude is miss about 18m. Calculated from google map, my location altitude is 7m above sea level. Well we wouldn't get accurate altitude without accurate **sea level pressure** on that point. This sea level pressure would change depend on weather or even temperature. But for this calculation we use **1 atm** which is equal to **1013.25 millibar.**

Good luck.

Posted 17th September 2016 by deni saputra

Labels: Arduino

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10 comments

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Top comments

Mark Cremer 1 month ago (edited) - Shared publicly

in the .ino file https://github.com/satujamsaja/Arduino/tree/master/bmp280 are no addresses is I guess the link is no good anymore , also the example file is not I2C

link is no good anymore...also the example file is not I2C

1 · Reply

Kenneth Quiros Chaves 8 months ago - Shared publicly

Thank you very much for sharing your knowledge. You are powerfull!!

+1 1 · Reply

Emeka Azodo 3 months ago - Shared publicly

Thanks a lot , i just changed the I2C address on Adafruit_BMP280.h from 0x77 to 0x76 and device sprang to life.

1 · Reply

Peter EIER 9 months ago - Shared publicly

TIP.... editting the .cpp file might be necessary... id code for the BMP280 clone board is 0x60 instead of 0x58...

#include <Adafruit_BMP280.h> // .cpp must be editted to use a BMP280 (id code 0x60) instead of a BME280 (id code 0x58)

1

Steve Robey 9 months ago - Shared publicly

Hello,

This is the first bit of information I have found on the web that is specific to this version of the sensor. Would you by any chance have information on connecting this sensor to the Arduino using SPI instead of I2C though? I'm hoping to not have to use the I2C bus for my project as there will be a lot of sensors connected and I want them to all have dedicated inputs.

Thank you.

1 · Reply

Josh J 9 months ago - Shared publicly

Pressure always shows as 0, altitude as 44330m. Any idea why? Using a nano, plugged into the computer. Using 1.0.2 version for both libraries.

1 · Reply

Matthew Applegate 1 year ago - Shared publicly

Just the one comment "Thanks for pointing out the I2C address is 0x76, that fix the problem in the library. original ibrary state t is 0x77." has saved the day :)

1 · Reply

George Todd 4 months ago

You can always scan the I2C bus, https://playground.arduino.cc/Main/I2cScanner
Saved my bacon a few times!

Teoh Swee Siang 1 year ago - Shared publicly

Thanks for pointing out the I2C address is 0x76, that fix the problem in the library. original ibrary state t is 0x77

Thanks for pointing out the I2C address is 0x76, that fix the problem in the library. Original library state it is 0x77.

1 · Reply

Floris Wouterlood 1 year ago - Shared publicly

Thank you very much! Your explanation and sketch were instrumental to getting my cheap Chinese BMP20 working. Maybe you like my previous project: an Arduino Cyclotron
-decsription of construction, and an ino at http://www.zonnepanelen.wouterlood.com/index.php/hobby-elektronica

1 · Reply