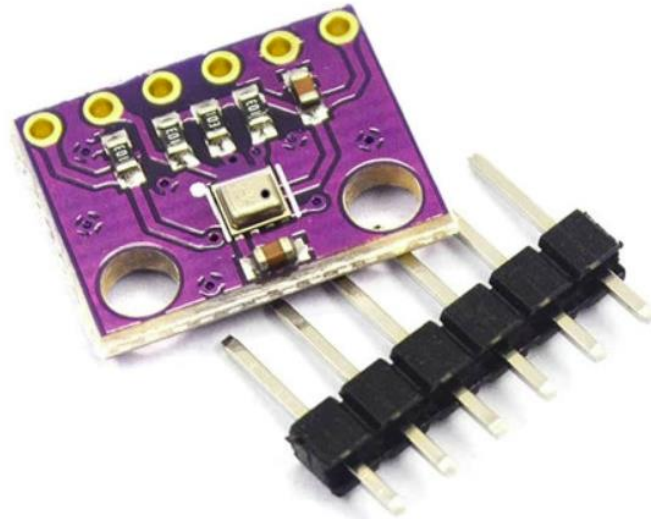




BMP280 Barometric Pressure & Temperature Module

This precision sensor is the best low-cost, precision sensing solution for measuring barometric pressure with ± 1 hPa absolute accuracy, and temperature with $\pm 1.0^{\circ}\text{C}$ accuracy. Because pressure changes with altitude, and the pressure measurements are so good, you can also use it as an altimeter with ± 1 meter accuracy.



SKU: SSR1043

Brief Data:

- Module Type: Barometric Pressure & Temperature Sensor.
- Operating Voltage: (1.8~3.3)Vdc.
- Low power consumption: 0.5uA at 1Hz.
- Interface Bus: I2C & SPI.
- Default I2C Address: 0x76.
- Max I2C Speed: 3.5MHz.
- Very low noise - up to 0.02hPa (17cm).
- Fully calibrated.
- Pressure Range: (300~1100)hPa/(+9000m to -500m).
- Weight: 1.18g.
- Size: 21mm x 18mm.
- Working temperature: -40°C ~ 85°C .

Mechanical Dimension:

Unit: mm

BMP280 Pin Connection:

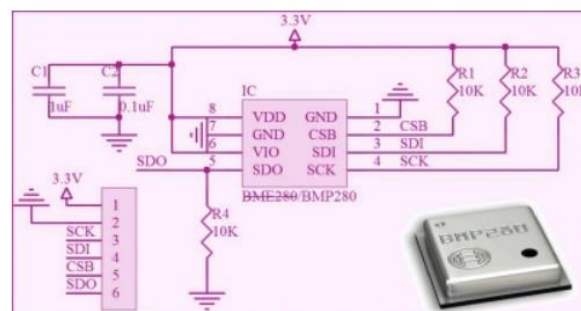
Unlike Adafruit's BMP280 module, this module GY-BM E/P 280 comes as a six-pin module designed for 3.3-V operation; hence, you should add an external 3.3-V regulator (and a logic-level shifter) if you want to interface this module with any 5-V microcontroller. Although the notations of the pins indicated on the module are for I²C with default I²C address of 0x76, the module simply supports both I²C and SPI interfaces.



The BMP280 module pinout description.

The chip select (CSB) and serial data output (SDO) pins of the BMP280 are necessary only when SPI-based (four-wire) communication is applied. For SPI, keep an eye on the pin assignments: VCC-VCC/GND-GND/SCL-SCK/SDA-MOSI/CSB-SS/SDO-MISO. Now to the official schematic of the GY-BM E/P 280 module:

BMP280 Schematic Diagram:



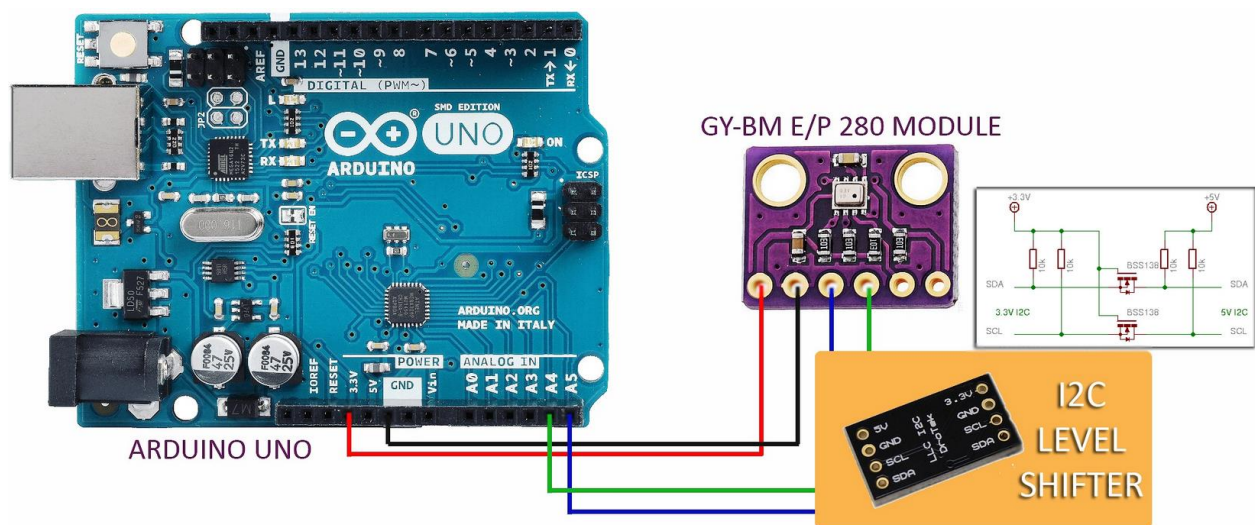
The BMP280 module schematic.

Arduino Application Examples:

Connecting the GY-BM E/P 280 module to an Arduino is very easy being that there are only four wires between them:

- VCC > Arduino VCC (3.3 V)
- GND > Arduino GND
- SCL > Arduino A5
- SDA > Arduino A4

Also see the hardware setup diagram shown below:



Next is the software to read barometric pressure and temperature from the hardware. The test code (sketch) included here provides the serial monitor output of barometric pressure and temperature. Two dedicated libraries are required here to support the code:

- Adafruit_BMP280 > https://github.com/adafruit/Adafruit_BMP280_Library
- Adafruit_Sensor.

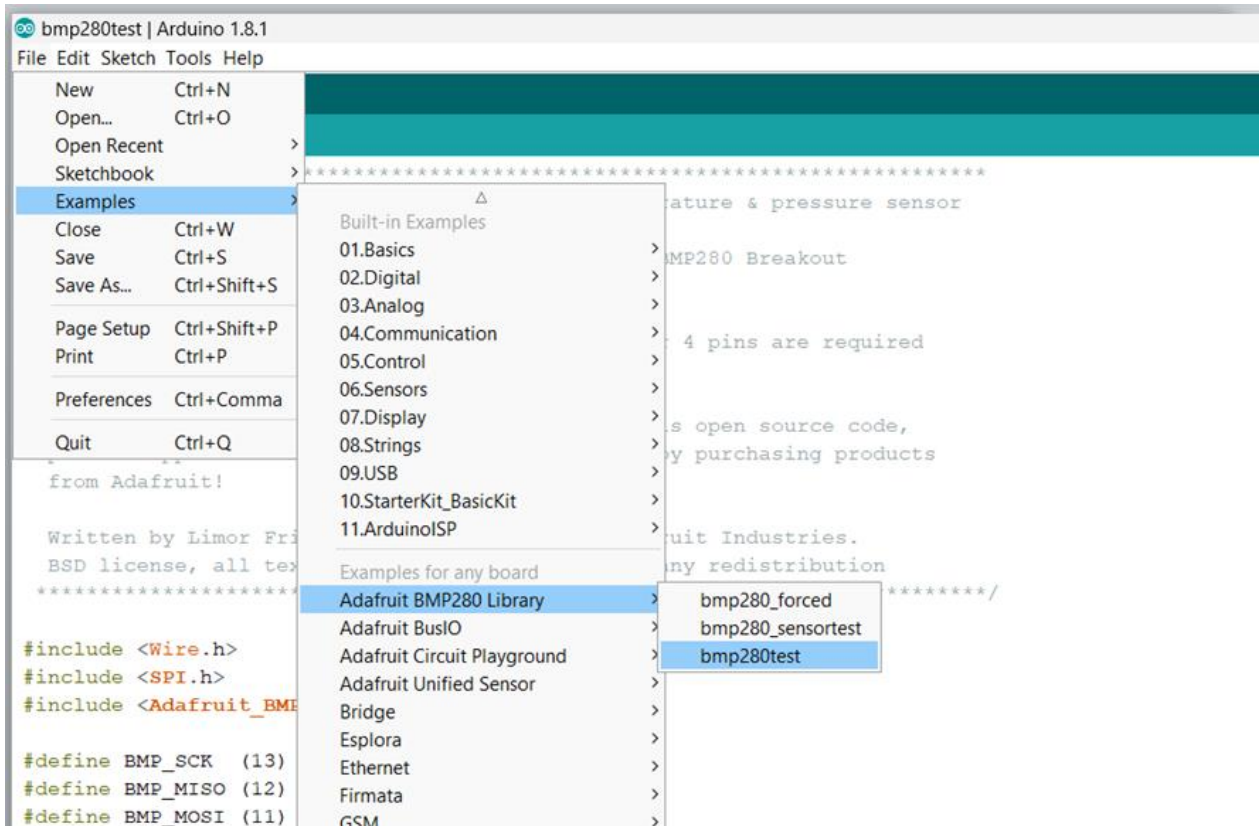
Because this specific module is with default I2C address hardwired to 0x76, you may need to change Line 34 in Adafruit_BMP280.h as:

- `#define BMP280_ADDRESS (0x76).`

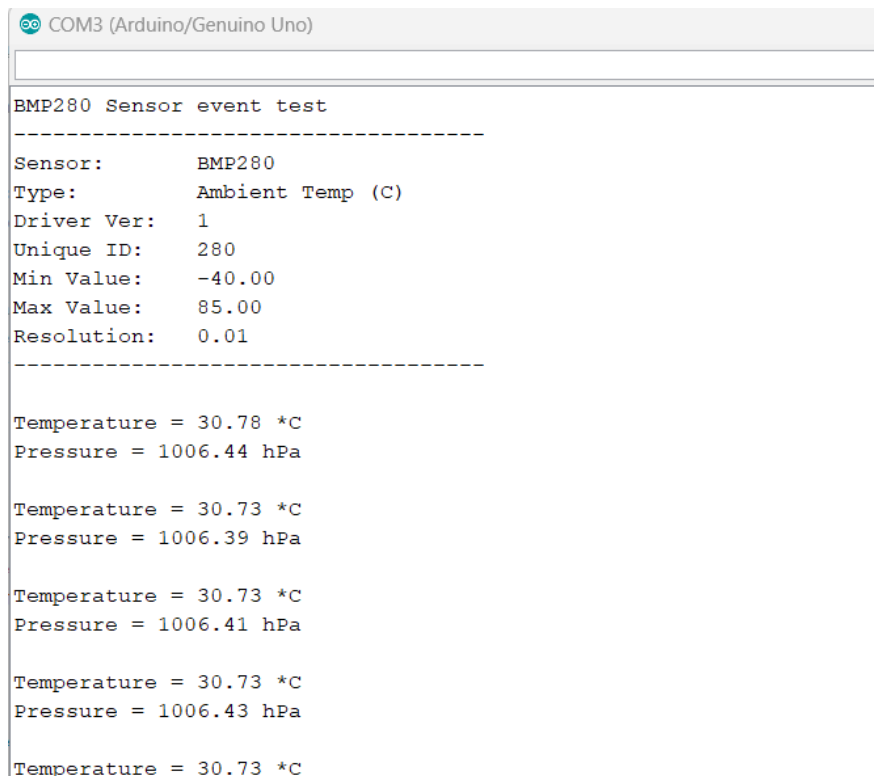
```
30
31  /*!
32   * I2C ADDRESS/BITS/SETTINGS
33   */
34  #define BMP280_ADDRESS (0x77) /**< The default I2C address for the sensor. */
35  #define BMP280_ADDRESS_ALT
36    (0x76) /**< Alternative I2C address for the sensor. */
37  #define BMP280_CHIPID (0x58) /**< Default chip ID. */
38
39  /*!
40   * Define available on the sensor
```

Once these libraries are installed, you just have to compile the test code, upload it, and run.

Go to Examples>Adafruit BMP280 Library> bmp280_sensortest and upload the sketch:



Open the Serial monitor, the sensor reading will be displayed:



Resources:

- <https://learn.adafruit.com/adafruit-bmp280-barometric-pressure-plus-temperature-sensor-breakout?view=all>
- <https://www.electroschematics.com/bmp280-diy-project-primer/>



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