



BME 680

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Overview

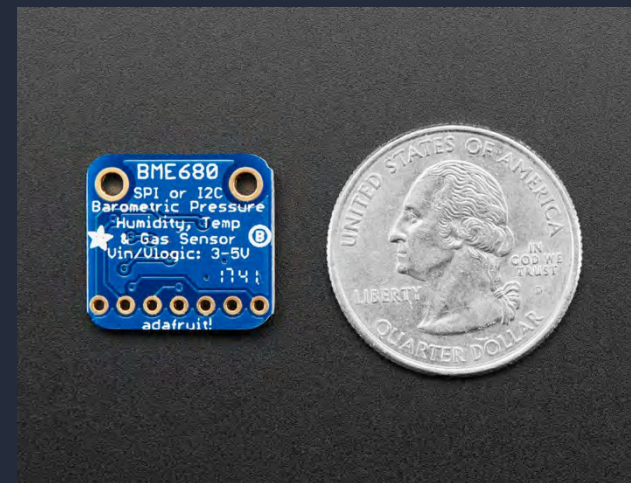
Can sense temperature, humidity, barometric pressure and VOC gas

VOC gas levels are an indicator of Indoor Air Quality (IAQ)

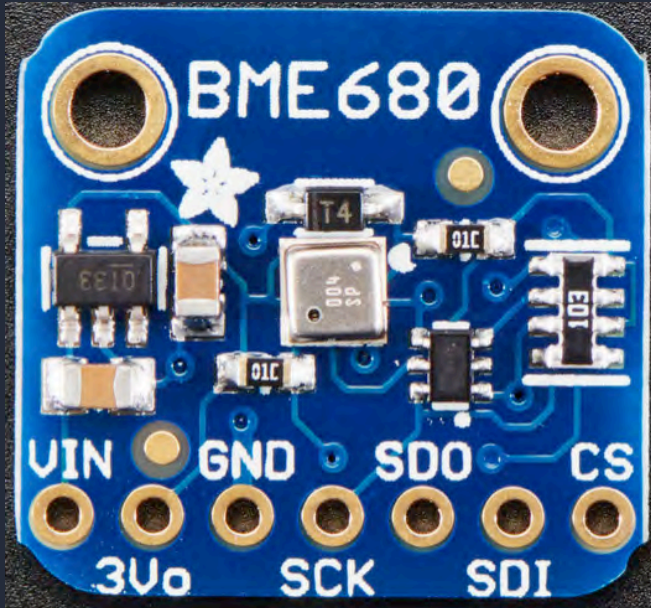
Because the pressure is such an accurate measurement, you can also use the BME 680 to measure altitude with ± 1 meter

Can be used for: indoor/outdoor navigation, weather forecasting/air quality assessment, and GPS enhancement

Can be used in wearable devices, navigations systems, gaming systems, and handheld mobile devices



Pinout



- VIN - power input (3-5 V)
- 3Vo - regulated 3.3 V output (pull at most 100 mA)
- GND - common ground
- SCK - SPI & I2C data clock
- SDO - SPI MISO
- SDI - I2C data & SPI MOSI
- CS - Chip Select



Gas Sensor

(Mox Sensor)

Heated Metal Oxide changes based on VOCs (Volatile Organic Compounds) in the air.

- ❖ Can sense carbon monoxide, ethanol, and alcohol

3 Operational Modes: Ultra-low power (0.09 mA)

Low power (0.9 mA)

Continuous power mode (12 mA)

Measures gas resistance → Air quality : can not distinguish specific gases

The sensor needs to be “burnt in” to get consistent results (about 48 hours in continuous power mode)



Other Sensors

	Operating Range	Accuracy Range	Accuracy
Temperature	-40°C to +85°C	0°C to 65°C	±1°C
Pressure	-40°C to +85°C	0°C to 65°C 300 hPa to 1100 hPa	±0.6 hPa
Humidity	300-100 hPa	0°C to 65°C 10 % to 90 % r.H.	±3% r.H.



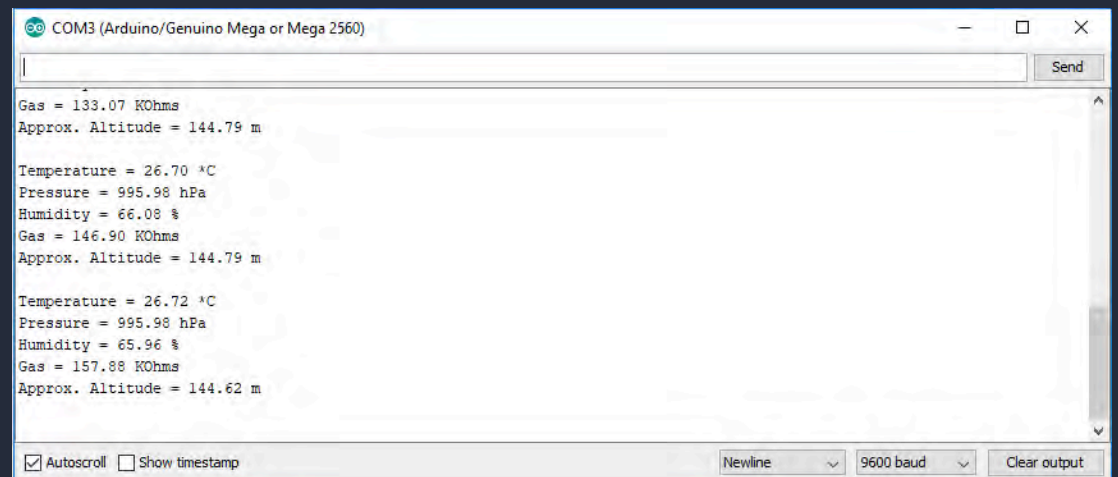
Libraries

Adafruit BME680 Library:

https://github.com/adafruit/Adafruit_BME680

Using the BME680 Library also requires Adafruit's sensor core library:

https://github.com/adafruit/Adafruit_Sensor



```
COM3 (Arduino/Genuino Mega or Mega 2560)
|
|
|
Gas = 133.07 KOhms
Approx. Altitude = 144.79 m

Temperature = 26.70 ^C
Pressure = 995.98 hPa
Humidity = 66.08 %
Gas = 146.90 KOhms
Approx. Altitude = 144.79 m

Temperature = 26.72 ^C
Pressure = 995.98 hPa
Humidity = 65.96 %
Gas = 157.88 KOhms
Approx. Altitude = 144.62 m

 Autoscroll  Show timestamp
Newline 9600 baud Clear output
```



References

<https://cdn-shop.adafruit.com/product-files/3660/BME680.pdf>

<https://learn.adafruit.com/adafruit-bme680-humidity-temperature-barometric-pressure-voc-gas/arduino-wiring-test>

https://www.bosch-sensortec.com/bst/products/all_products/bme680



Definitely not sponsored by Adafruit

Simple Interface

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