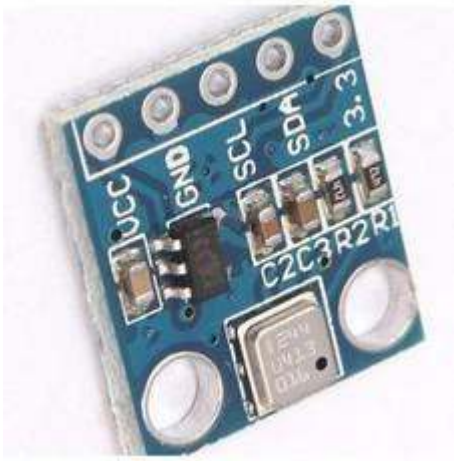
GY-68 BMP180 Barometric Pressure Sensor Module



Measuring the absolute pressure of the environment using a digital barometer such as this has some interesting applications. By converting the pressure measured into altitude, you have a reliable sensor for determining the height of your robot, plane.

Using a sensor as capable as the BMP180 you can achieve accuracy of 1m, with noise of only 17cm in ultra high resolution noise. The device will operate at only 0.3uA meaning low current draw for battery powered applications.

The BMP180 comes fully calibrated and ready to use. As the device operates over I2C we've added optional I2C pull ups that can be enabled using the PU (pull up) jumper on the board for your convenience and ease during bread-boarding.

Using I2C, the device provides pressure and temperature as 16bit values, which are used along with calibration data within the device are used to provide a temperature compensated altitude calculation.

Features:

- 1.8V to 3.6V Supply Voltage
- Low power consumption - 0.5uA at 1Hz
- I2C interface
- Max I2C Speed: 3.5Mhz
- Very low noise - up to 0.02hPa (17cm)
- Full calibrated
- Pressure Range: 300hPa to 1100hPa (+9000m to -500m)
- Weight: 1.18g
- Size: 21mm x 18mm

Technology and specification

Through its high relative accuracy of ±0.12 hPa (±1m) the BMP180 has become the most reliable sensor for precise applications, like indoor-navigation. The small size of 3.6 x 3.8 mm2 and the height of only 0.93 mm makes it very suitable for the implementation in small mobile devices. The high absolute accuracy (please see parameter sheet beside) and a noise level down to 0.02 hPa (altitude of 17 cm) open new perspectives for applications in the sport devices.

The BMP180 is a sensor based on piezo-resistive MEMS technology for EMC robustness and high quality standards. The dies of the BMP180 are protected by a stable and thin LGA package with a metal lid. The package has seven optimized pins. The BMP180 can communicate directly with a microcontroller in the device through I2C or SPI as a variant.

BMP180 applications

- Indoor navigation
- GPS-enhancement for dead-reckoning, slope detection, etc.
- Sport devices, e.g. altitude profile
- Weather forecast
- Vertical velocity indication (rise/sink speed)

Sensor operation

The BMP180 comes as a fully calibrated, ready-to-use sensor module without the need for additional external circuitry. Pressure and temperature data are provided as 16 bit values, which, together with the stored calibration data, are used for temperature compensation on the external microcontroller. Data transfer can be performed via I2C or SPI interfaces.