

GoPiGo3 Sensors

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Dexter Sensors Documentation

DI sensor documentation: <https://di-sensors.readthedocs.io/en/master/>

Dexter Temperature, Humidity, and Pressure Sensor

A tutorial for how to use the Dexter Temperature, Humidity Sensor (BME280).

Barometric pressure compensation for altitude:

https://www.engineeringtoolbox.com/barometers-elevation-compensation-d_1812.html

1. Shutdown the GoPiGo3. (Do not connect sensors when the GoPiGo3 has power.)
2. Plug the BME280 sensor into an I2C port.
3. Mount the sensor on a sensor mount.

bme280_sensor.py

This program will read the Dexter Temperature, Humidity Sensor (BME280) every 5 seconds and display to the console.

```
1  #!/usr/bin/env python3
2  # Name: thp_sensor.py
3  # Purpose: Read temperature, humidity and barometric pressure
4  # -----
5  # History
6  # -----
7  # Author    Date        Comments
8  # Loring    10/24/21     Changed to fahrenheit, convert pressure to inHg,
9  #                                     compensate for altitude
10 # Barometric pressure compensation for altitude:
11 # https://www.engineeringtoolbox.com/barometers-elevation-compensation-d\_1812.html
12 #
13 # DI sensor documentation: https://di-sensors.readthedocs.io/en/master/
14 #
15 # Python example program for the Dexter Industries
16 # BME280 Temperature Humidity Pressure Sensor
17
```

```
18 from time import sleep
19 from di_sensors.easy_temp_hum_press import EasyTHPSensor
20
21 print("Example program for reading Dexter Industries")
22 print("Temperature Humidity Pressure Sensor on an I2C port.")
23
24 my_thp = EasyTHPSensor()
25
26 while True:
27     # Read the temperature
28     # temp = my_thp.safe_celsius()
29     temp = my_thp.safe_fahrenheit()
30
31     # Read the relative humidity
32     hum = my_thp.safe_humidity()
33
34     # Read the pressure in pascals
35     press = my_thp.safe_pressure()
36
37     # Convert pascals to inHg, compensate for 4000' altitude
38     press = (press / 3386.38867) + 4.08
39
40     # Print the values to the console
41     print("Temperature: {:.1f}F Humidity: {:.1f}% Pressure: {:.2f}".format(
42         temp, hum, press))
43
44     # Pause between readings
45     sleep(5)
```

The next step would be to send the data every 15 seconds or more to ThingSpeak. All sensors can be setup to upload data to ThingSpeak.

Dexter Grove Buzzer

Plug the buzzer into AD1 or AD2.

Example code in Code Examples: `buzzer.py`

Dexter Light and Color Sensor

Plug the Light and Color sensor into an I2C port.

`bme280_sensor.py`

Dexter Inertial Measurement Unit (IMU)

Plug into I2C port.

`sensor_imu.py`

Dexter IR Sensor and Remote

Plug into AD1 port.

`sensor_ir.py`