



10 DOF Mems IMU Sensör - DFRobot



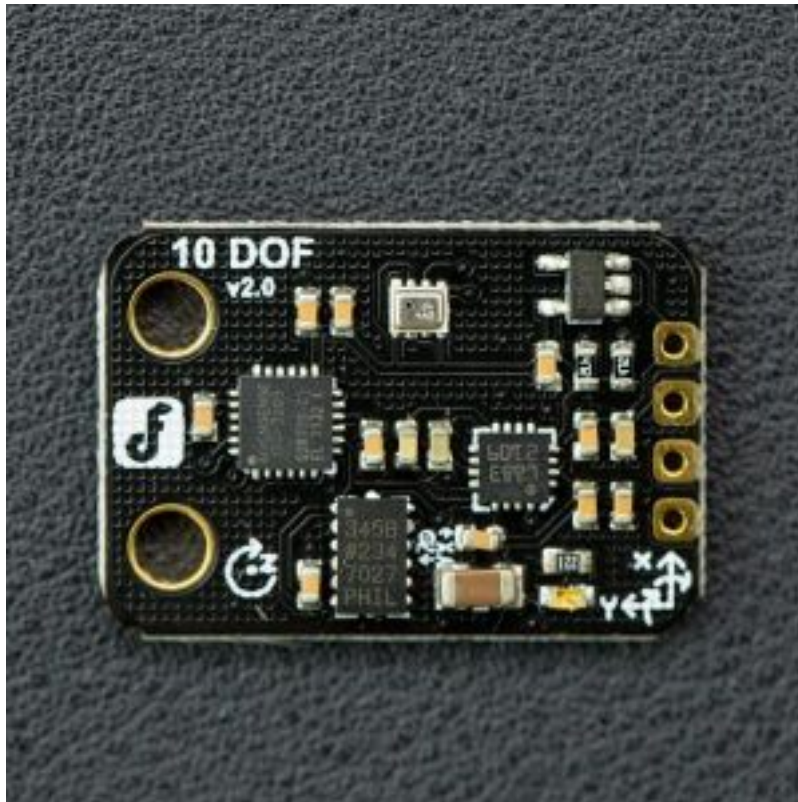
[Home](#) > [Sensors & Modules](#) > [Sensors](#) > [IMU Sensor](#)

Contents

[hide]

- [1 Introduction](#)
 - [1.1 Applications](#)
- [2 Specification](#)
- [3 Connection Diagram](#)
- [4 Example Code](#)
 - [4.1 Sample Code 1](#)
 - [4.2 Sample Code 2](#)
- [5 More Documents](#)

Introduction



10 DOF MemS IMU Sensor V2.0

At the beginning, the inertial measurement unit is an electronic device that measures and reports on a craft's velocity, orientation, and gravitational forces, using a combination of accelerometers, gyroscopes, and magnetometers. Now IMUs are commonly used in the Human-computer interaction (HCI), navigational purposes and balancing technology used in the Segway Personal Transporter as we all know.

Version Upgrade: V2.0 has upgraded the barometer sensor IC to BMP280.

Applications

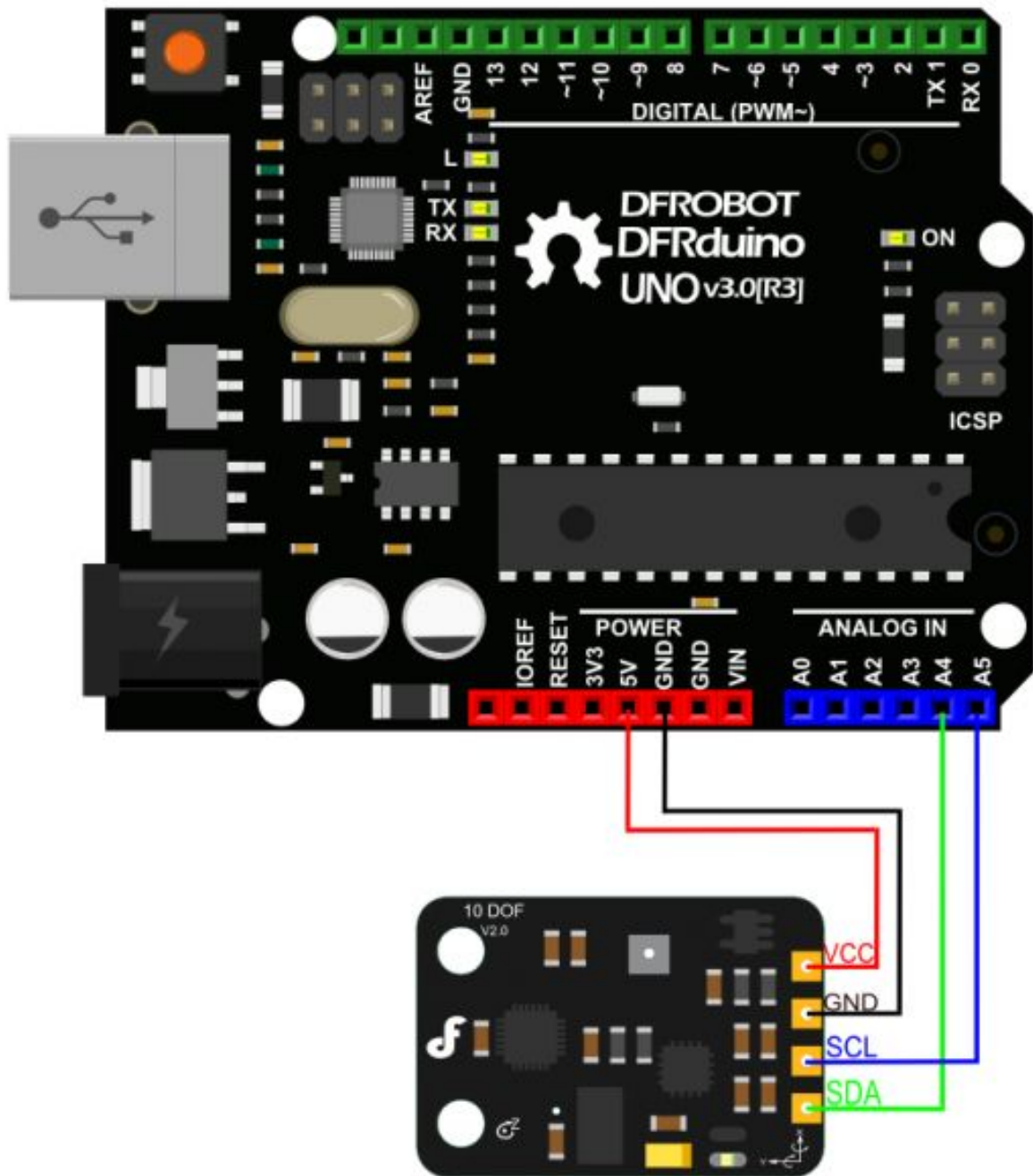
- Aircraft
- Balancing robots
- Indoor inertial navigation
- Altimeter
- Human-computer Interaction (HCI)

Specification

- Wide power input range from 3 to 5 volts
- Low noise LDO regulator
- Low cost IMU
- Interface: I2C

- M3x2 mounting holes for easily fixing in your mobile platforms, robots, HCI or UAVs
- LED power indication
- Integrate 10 dof sensors
 - Adxl345 accelerometer
 - ITG3200 gyro
 - HMC5883L Compass
 - BMP280 temperature & barometer sensor
- Compact size design and easy-to-use
- Compatible with Arduino controllers
- Electricity gold PCB
- Size: 26x18mm

Connection Diagram



10 DOF IMU Sensor V2.0 Connection Diagram

Example Code

Sample Code 1

Please download following library first.

- [FreeSixIMU](#)

- [HMC5883](#)
- [BMP280](#)

```
#include <FreeSixIMU.h>
```

```
#include <FIMU_ADXL345.h>
```

```
#include <FIMU_ITG3200.h>
```

```
#include <Wire.h>
```

```
float angles[3]; // yaw pitch roll
```

```
// Set the FreeSixIMU object
```

```
FreeSixIMU sixDOF = FreeSixIMU();
```

```
void setup() {
```

```
  Serial.begin(9600);
```

```
  Wire.begin();
```

```
  delay(5);
```

```
  sixDOF.init(); //begin the IMU
```

```
  delay(5);
```

```
}
```

```
void loop() {
```

```
  sixDOF.getEuler(angles);
```

```
  Serial.print(angles[0]);
```

```
  Serial.print(" | ");
```

```
  Serial.print(angles[1]);
```

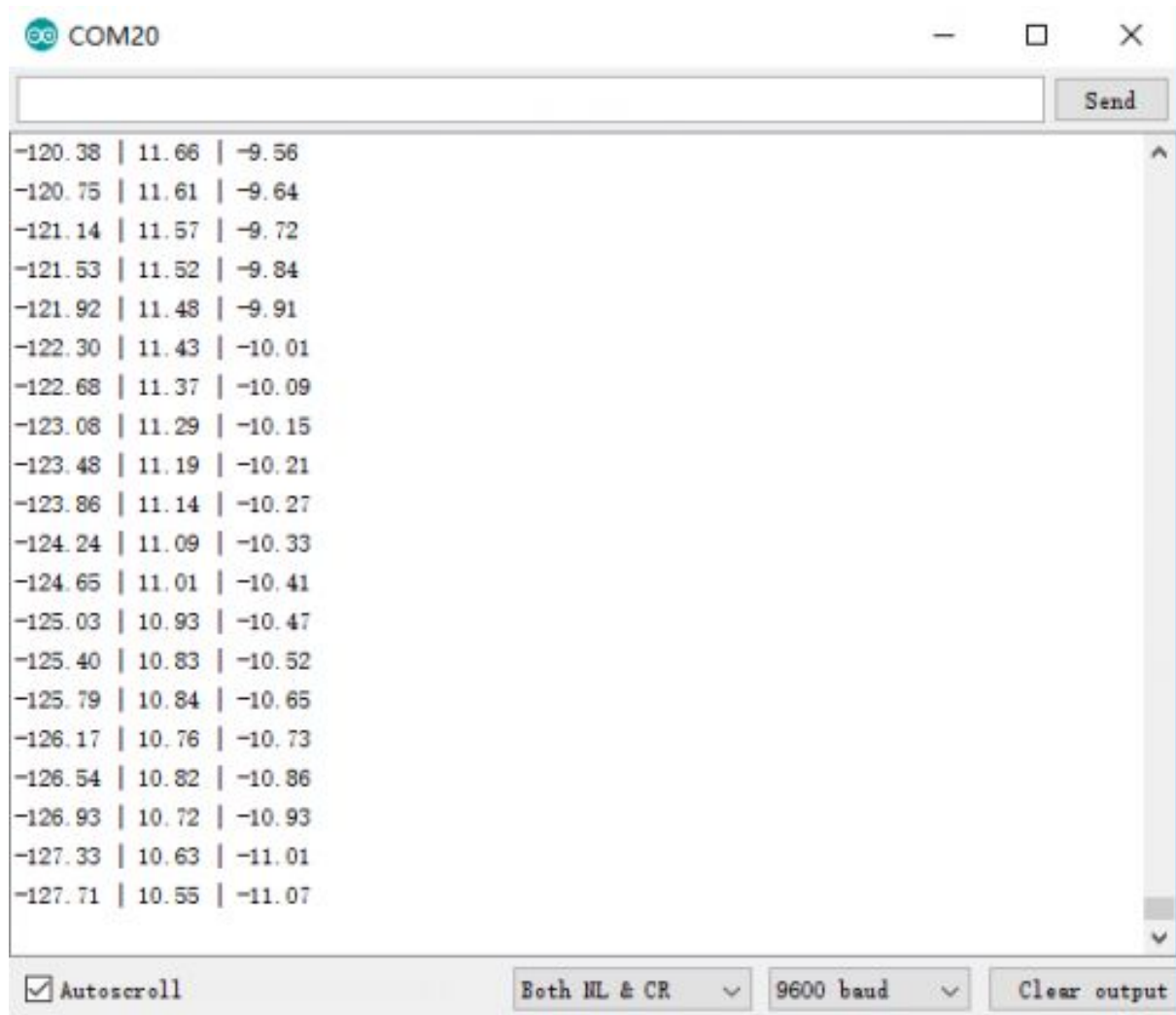
```
  Serial.print(" | ");
```

```
  Serial.println(angles[2]);
```

```
  delay(100);
```

```
}
```

Open the arduino IDE serial monitor, you will get Yaw; Pitch; Roll value:



Yaw; Pitch; Roll Value

Sample Code 2

BMP280 Barometer & Temperature Test

```
/*!  
 * @file bmp280test.ino  
 * @brief DFRobot's Temperature, Pressure and Approx altitude  
 * @n [Get the module here](等上架后添加商品购买链接)  
 * @n This example read the Temperature, Pressure and Altitude from BMP280, and  
 then print them  
 * @n [Connection and Diagram](等上架后添加wiki链接)  
 *  
 * @copyright [DFRobot](http://www.dfrobot.com), 2016  
 * @copyright GNU Lesser General Public License  
 */
```

```

* @author [yuxiang](1137717512@qq.com)
* @version V1.0
* @date 2016-12-06
*/

#include <Wire.h>
#include "DFRobot_BMP280.h"

DFRobot_BMP280 bmp280;

void setup() {
  Serial.begin(9600);
  Serial.println("BMP280 demo");

  if (!bmp280.begin()) {
    Serial.println("Could not find a valid BMP280 sensor!");
    while (1);
  }
}

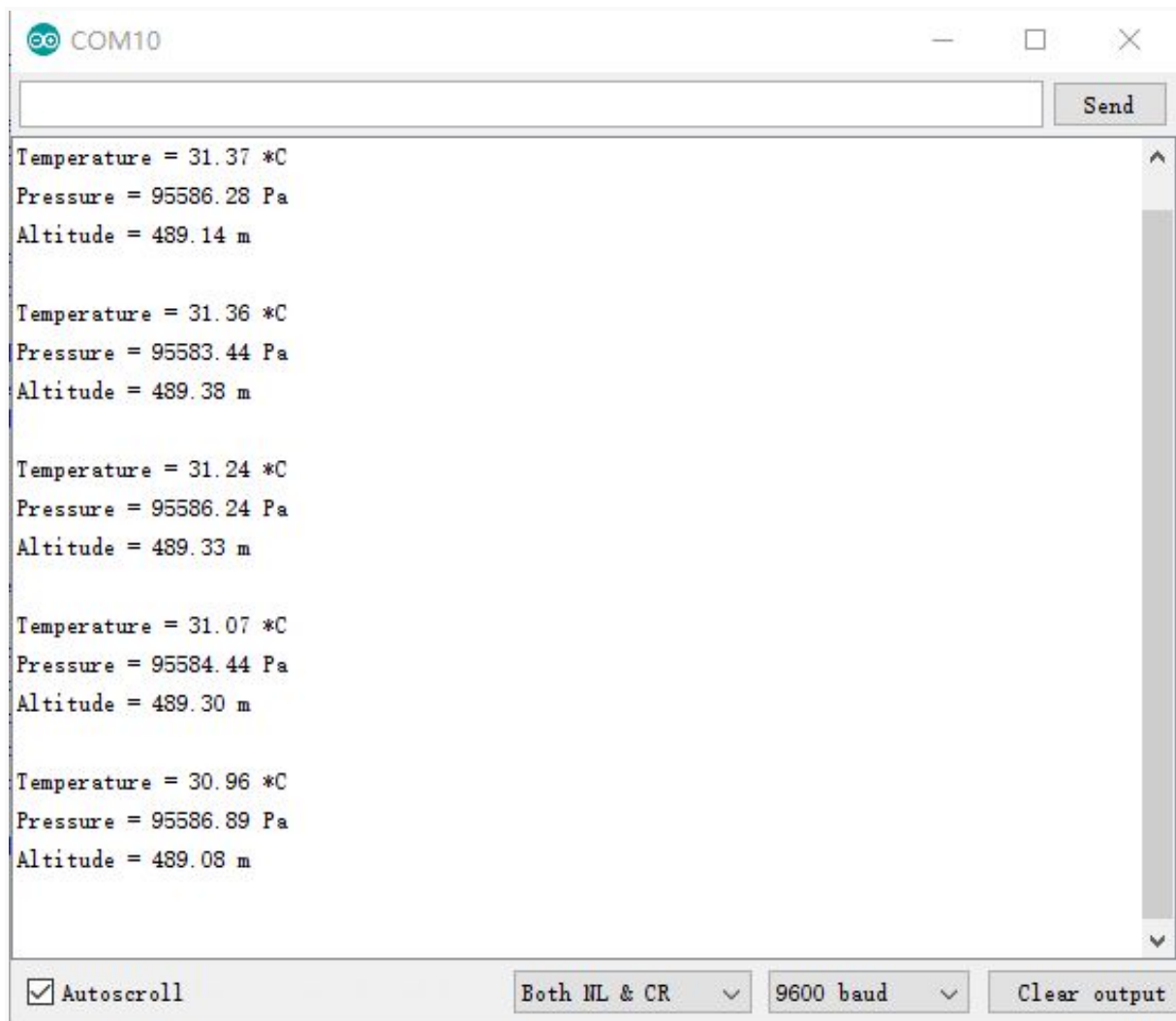
void loop() {
  Serial.print("Temperature = ");
  Serial.print(bmp280.readTemperatureValue());
  Serial.println(" *C");

  Serial.print("Pressure = ");
  Serial.print(bmp280.readPressureValue());
  Serial.println(" Pa");

  Serial.print("Altitude = ");
  Serial.print(bmp280.readAltitudeValue(1013.25)); // this should be adjusted to your
local forcase
  Serial.println(" m");

  Serial.println();
  delay(2000);
}

```



Temperature & Barometer Value

More Documents

- [Schematic](#)
- [Top layout](#)
- [Bottom layout](#)
- [ADXL345, ITG3200, HMC5883, BMP085 Datasheet](#)
- [BMP280 Datasheet](#)
- Related Resource
 - [Historiic WiKi V1.0](#)
 - [How to Use a Three-Axis Accelerometer for Tilt Sensing](#)
 - [FreeIMU configuration](#)