

SKU:SEN0386 (<https://www.dfrobot.com/product-2200.html>)



([https://www.dfrobot.com/product-](https://www.dfrobot.com/product-2200.html)

2200.html)

Introduction

This module integrates high-precision gyroscopes, accelerometer, microprocessor of high-performance and advanced dynamics solves and Kalman filter algorithms that aim to quickly solve the current real-time movement of the module attitude. The use of advanced digital filtering technology can effectively reduce measurement noise and improve accuracy.

The module comes with built-in gesture solver that can get accurate attitude in dynamic environment combining with dynamic Kalman filter algorithm. Its static measurement accuracy is up to 0.05 degree(dynamic 0.1) with high stability, which could bring better performance even than some professional Inclinometers!

There is a voltage stabilizer circuit inside the module. The product should be operated at 3.3-5V and its pin level is compatible with 3.3/5V embedded systems. It employs TTL interface for connection.

Specification

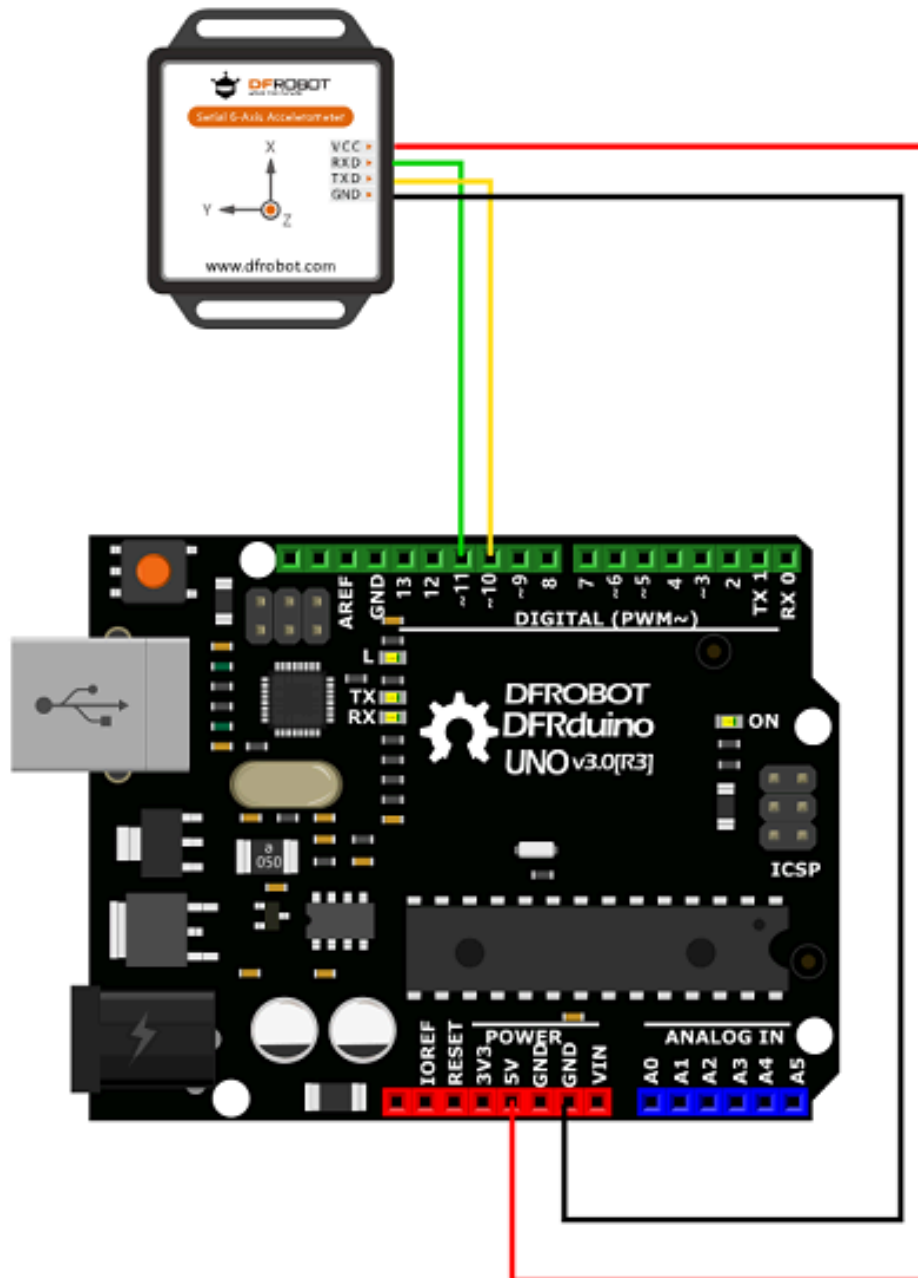
- Voltage: 3.3V~5V
- Current: <40mA
- Size: 51.33610mm
- Measuring Dimension: acceleration: 3D; angular velocity: 3D; attitude angle: 3D
- Range: acceleration: $\pm 2/4/8/16g$ (optional); angular velocity: $\pm 250/500/1000/2000$ °/s(Optional), attitude angle: $\pm 180^\circ$

Tutorial

Requirements

- **Hardware**
 - DFRduino UNO R3 (<https://www.dfrobot.com/product-838.html>) (or similar) x 1
 - Serial 6-Axis Accelerometer x1
- **Software**
 - Arduino IDE (<https://www.arduino.cc/en/Main/Software>)
 - Download and install the **DFRobot_WT61PC Library** (https://github.com/DFRobot/DFRobot_WT61PC) (About how to install the library? (<https://www.arduino.cc/en/Guide/Libraries#.UxU8mdzF9H0>))

Connection



WT61PC	Arduino UNO
VCC	5V/3V
DVD	D11

TXD	D10
GND	GND

Sample Code

```

/!*
 * @file getData.ino
 * @brief Set the frequency of data output by the sensor, read the acceleration
 * @n angular velocity, and angle of X, Y, and Z axes.
 * @n Experimental phenomenon: when the sensor starts, it outputs data at the
 * @n frequency and the data will be displayed on serial monitor.
 * @copyright Copyright (c) 2010 DFRobot Co.Ltd (http://www.dfrobot.com)
 * @license The MIT License (MIT)
 * @author [huyujie](yujie.hu@dfrobot.com)
 * @version V1.0
 * @date 2023-07-12
 * @url https://github.com/DFRobot/DFRobot_WT61PC
 */
#include <DFRobot_WT61PC.h>

#if (defined(ARDUINO_AVR_UNO) || defined(ESP8266)) // Using a soft serial port
#include <SoftwareSerial.h>
SoftwareSerial softSerial( /*rx =*/10, /*tx =*/11);
#define FPSerial softSerial
#else
#define FPSerial Serial1
#endif

DFRobot_WT61PC sensor(&FPSerial);

void setup()
{
  //Use Serial as debugging serial port
  Serial.begin(115200);

#if (defined ESP32)
  FPSerial.begin(9600, SERIAL_8N1, /*rx =*/D3, /*tx =*/D2);

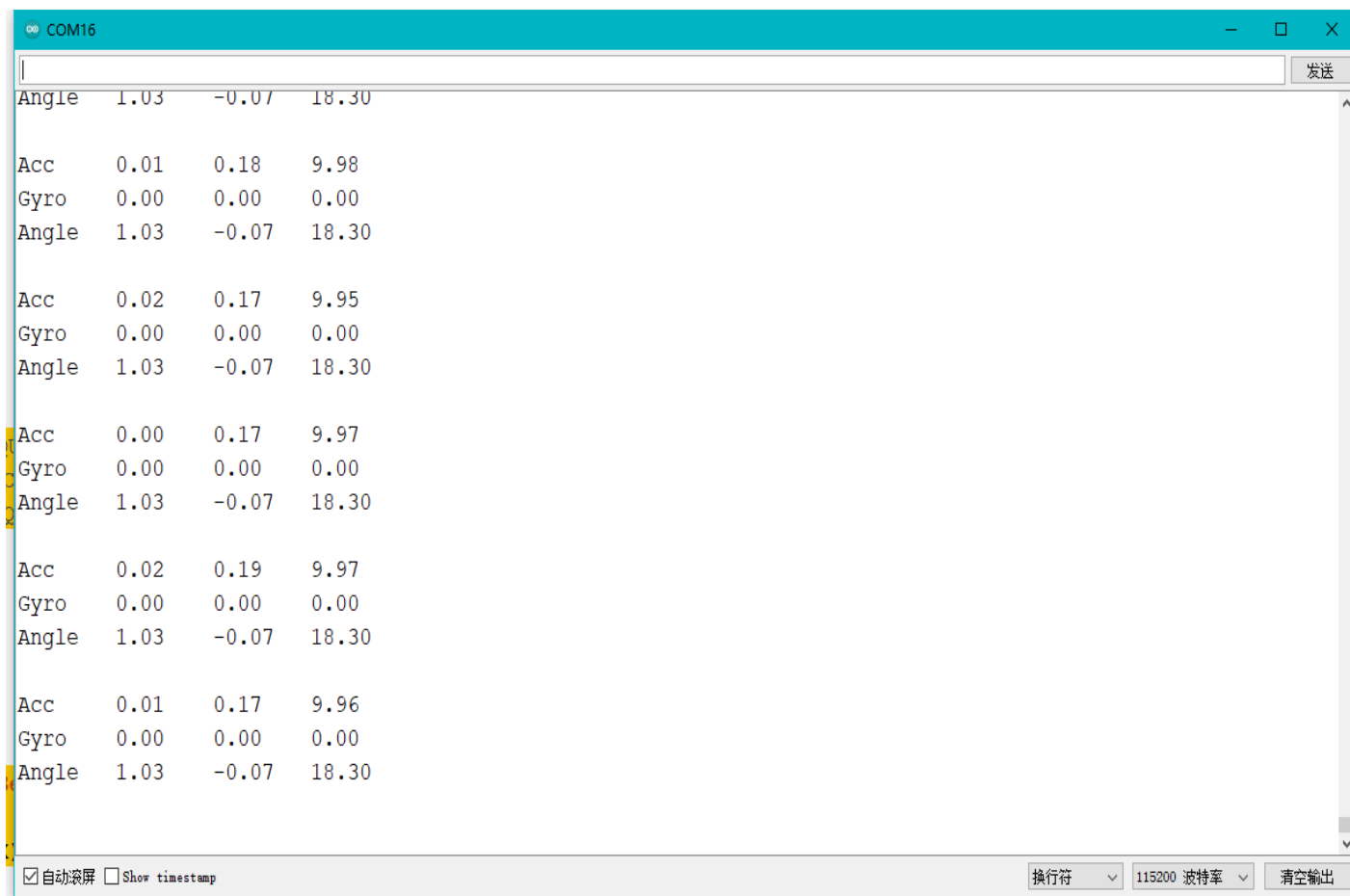
```

```
#else
  FSerial.begin(9600);
#endif

/**
 * @brief Revise the data output frequency of sensor
 * @param frequency - FREQUENCY_0_1HZ for 0.1Hz, FREQUENCY_0_5HZ for 0.5Hz,
 * @n                FREQUENCY_2HZ for 2Hz, FREQUENCY_5HZ for 5Hz, FREQUENC
 * @n                FREQUENCY_20HZ for 20Hz, FREQUENCY_50HZ for 50Hz, FREQ
 * @n                FREQUENCY_125HZ for 125Hz, FREQUENCY_200HZ for 200Hz.
 */
sensor.modifyFrequency(FREQUENCY_10HZ);
}

void loop()
{
  if (sensor.available()) {
    Serial.print("Acc\t"); Serial.print(sensor.Acc.X); Serial.print("\t");
    Serial.print(sensor.Acc.Y); Serial.print("\t"); Serial.println(sensor.Acc.Z);
    Serial.print("Gyro\t"); Serial.print(sensor.Gyro.X); Serial.print("\t");
    Serial.print(sensor.Gyro.Y); Serial.print("\t"); Serial.println(sensor.Gyro.Z);
    Serial.print("Angle\t"); Serial.print(sensor.Angle.X); Serial.print("\t");
    Serial.print(sensor.Angle.Y); Serial.print("\t"); Serial.println(sensor.Angle.Z);
    Serial.println();
  }
}
```

Expected Results

A screenshot of a serial terminal window titled "COM16". The window displays a series of sensor data readings. Each reading consists of three lines: "Angle", "Acc", and "Gyro". The "Angle" readings are consistently 1.03, -0.07, and 18.30. The "Acc" readings are 0.01, 0.18, 9.98; 0.02, 0.17, 9.95; 0.00, 0.17, 9.97; and 0.01, 0.17, 9.96. The "Gyro" readings are consistently 0.00, 0.00, and 0.00. The window has a search bar at the top, a "发送" (Send) button, and a status bar at the bottom with checkboxes for "自动滚屏" (checked) and "Show timestamp" (unchecked), and dropdown menus for "换行符" (set to "\n") and "115200 波特率" (Baud rate), along with a "清空输出" (Clear output) button.

```
COM16  
|  
Angle 1.03 -0.07 18.30  
Acc 0.01 0.18 9.98  
Gyro 0.00 0.00 0.00  
Angle 1.03 -0.07 18.30  
Acc 0.02 0.17 9.95  
Gyro 0.00 0.00 0.00  
Angle 1.03 -0.07 18.30  
Acc 0.00 0.17 9.97  
Gyro 0.00 0.00 0.00  
Angle 1.03 -0.07 18.30  
Acc 0.02 0.19 9.97  
Gyro 0.00 0.00 0.00  
Angle 1.03 -0.07 18.30  
Acc 0.01 0.17 9.96  
Gyro 0.00 0.00 0.00  
Angle 1.03 -0.07 18.30  
自动滚屏 Show timestamp 换行符 115200 波特率 清空输出
```

FAQ

For any questions, advice or cool ideas to share, please visit the **DFRobot Forum** (<https://www.dfrobot.com/forum/>).

More Documents