Grove - 3-Axis Digital Gyro User Manual

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Version： 1.0

Wiki: http://www.seeedstudio.com/wiki/Grove_-_3-Axis_Digital_Gyro

Bazaar: http://www.seeedstudio.com/depot/Grove-3Axis-Digital-Gyro-p-750.html?cPath=25_133

Document Revision History

Revision	Date	Author	Description
1.0	Sep 22, 2015	Loovee	Create file

Contents

Disclaimer

For physical injuries and possessions loss caused by those reasons which are not related to product quality, such as operating without following manual guide, natural disasters or force majeure, we take no responsibility for that.

Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.

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The design of this product (including software) and its accessories is under tutelage of laws. Any action to violate relevant right of our product will be penalized through law. Please consciously observe relevant local laws in the use of this product.

1. Introduction

Grove - 3-Axis Digital Gyro module based on ITG 3200. It is the world's first single-chip, digital-output, 3-axis MEMS motion processing gyro optimised for gaming, 3D mice, and motion-based remote control applications for Internet connected Digital TVs and Set Top Boxes. The ITG-3200 features three 16-bit analog-to-digital converters (ADCs) for digitising the gyro outputs, a user-selectable internal low-pass filter bandwidth, and a Fast-Mode I2C (400kHz) interface.
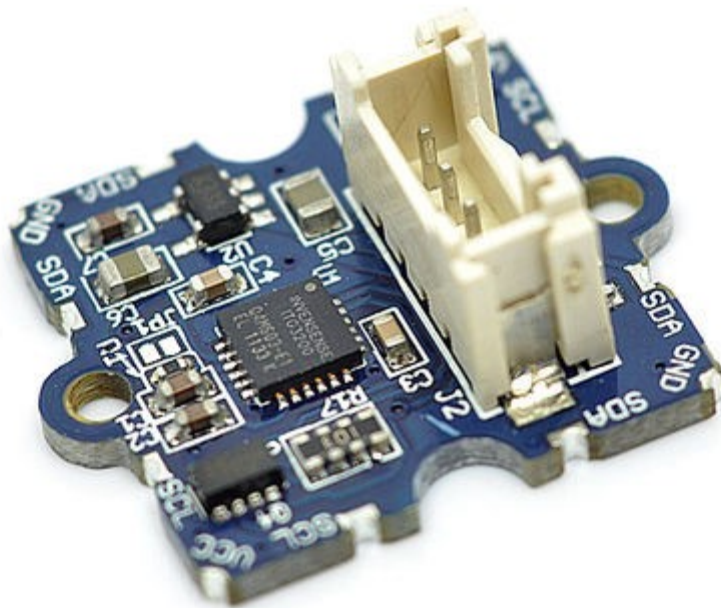
2. Features

- Supply Voltage: 3.3V, 5V

- Operation Current: 6.5mA

- Standby current: 5 μ A

- Sensitivity: 14 LSBs per ° /sec

- Full scale range: ±2000° /sec

- Acceleration: 10,000g for 0.3ms

- I2C Interface

- ±2000° /s full scale range and 14.375 LSBs per ° /s sensitivity

- Three integrated 16-bit ADCs

- On-chip temperature sensor

- Integrated amplifiers and low-pass filters

- Hermetically sealed for temp and humidity resistance

- RoHS and Green compliant

3. Demonstration

This demo will show you how to get data from this digital gyro, the data is in the unit of rad/s.

Here we need a Grove - 3-Axis Digital Gyro and a Seeeduino V3.0.

3.1   Hardware Installation

Hardware installation is very easy, because there's an I2C Grove in Seeeduino,

so what we need to to is connect it to I2C Grove via a Grove cable.

3.2   Download Code and Upload

You can download the library in github, click here, then extract it to libraries folder of Arduino.

Then open File -> examples -> Grove_3_Digital_Gyro -> ITG3200_gyro, you can open the demo code.
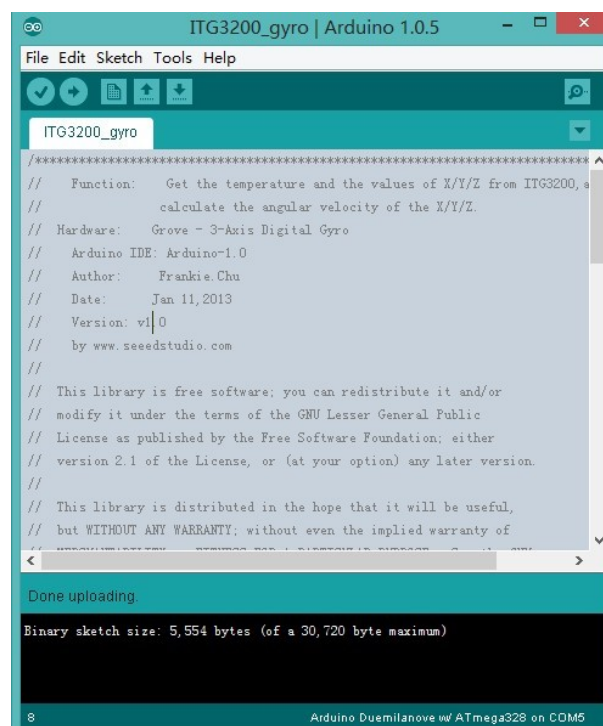
Click Upload to Upload the code, if you have any problem about how to start Arduino, please click here for some help.

3.3   Check The Result

Now, you can open the serial monitor to check the result.

COM5

|	Send

```
************
Temperature = 27.86 C
-15      -2      -14
Angular Velocity of X , Y , Z: -1.04 , -0.28 , -1.25 degrees per second
************
Temperature = 27.74 C
-14      -11      -20
Angular Velocity of X , Y , Z: -1.39 , -0.28 , -1.11 degrees per second
************
Temperature = 27.86 C
-11      -18      -14
Angular Velocity of X , Y , Z: -1.04 , -0.90 , -0.70 degrees per second
************
Temperature = 27.86 C
-12      -4      -17
Angular Velocity of X , Y , Z: -1.95 , -0.28 , -1.53 degrees per second
************
Temperature = 27.91 C
-12      -4      -22
Angular Velocity of X , Y , Z: -1.25 , 0.21 , -0.77 degrees per second
************
Temperature = 28.03 C
-17      -2      -22
Angular Velocity of X , Y , Z: -0.90 , -0.07 , -1.32 degrees per second
************
Temperature = 28.09 C
-17      -6      -16
Angular Velocity of X , Y , Z: -0.90 , -0.83 , -1.25 degrees per second
************
Temperature = 28.03 C
```

Autoscroll   No line ending ∨   115200 baud ∨

4. Reference

The diagram below shows the orientations of 3 axes. You can use it to understand the physical meanings of the result.
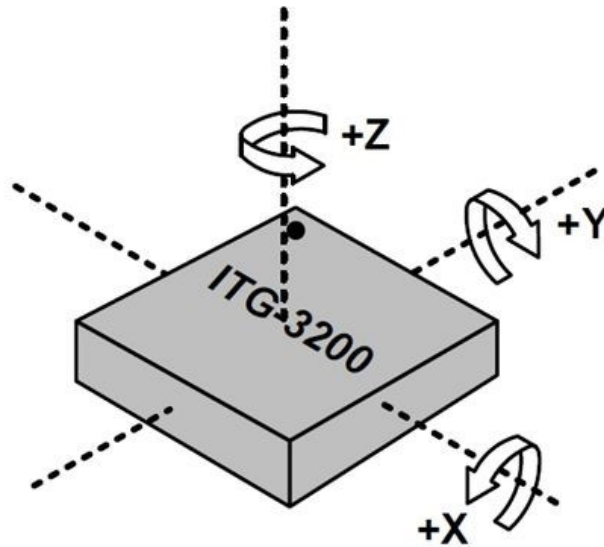
5. Resources

- [Datasheet of ITG-3200.](#)

- [Grove - 3-Axis Digital Gyro Eagle File](#)

- [Digital Gyro Library](#)