



# Grove - 3-Axis Digital Gyro User Manual

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Wiki: [http://www.seeedstudio.com/wiki/Grove\\_-\\_3-Axis\\_Digital\\_Gyro](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](http://www.seeedstudio.com/depot/Grove-3Axis-Digital-Gyro-p-750.html?cPath=25_133)

## Document Revision History

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

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### *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.*

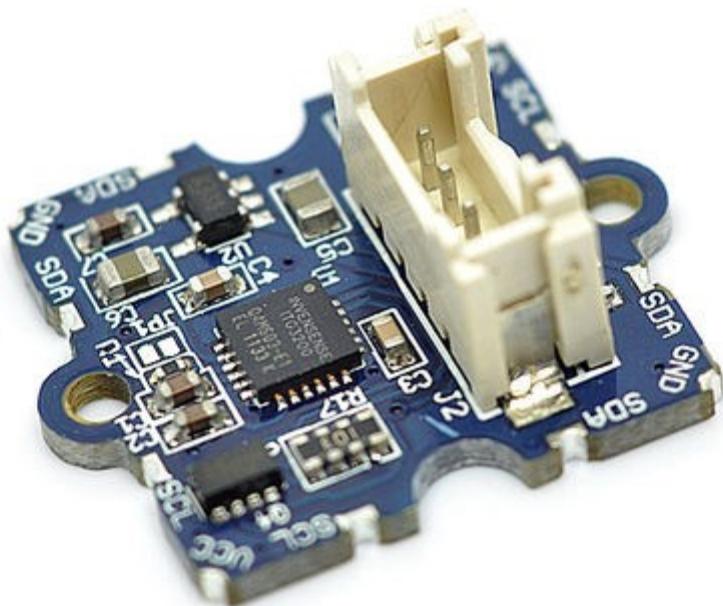
### *Copyright*

*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

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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 I<sub>2</sub>C (400kHz) interface.



## 2. Features

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- Supply Voltage: 3.3V, 5V
- Operation Current: 6.5mA
- Standby current: 5  $\mu$  A
- Sensitivity: 14 LSBs per  $^{\circ}$  /sec
- Full scale range:  $\pm 2000^{\circ}$  /sec
- Acceleration: 10,000g for 0.3ms
- I2C Interface
- $\pm 2000^{\circ}$  /s full scale range and 14.375 LSBs per  $^{\circ}$  /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

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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.

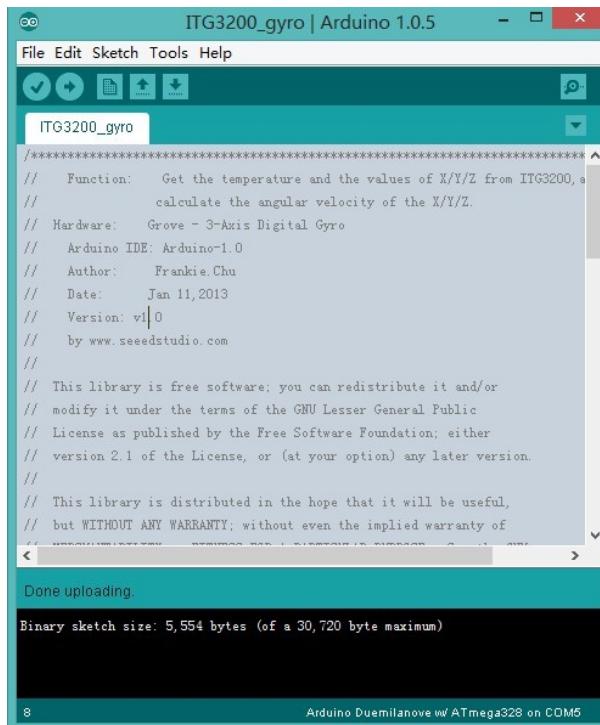
#### 3.1 Hardware Installation

Hardware installation is very easy, because there's an I2C Grove in Seeeduino, so what we need to do 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.

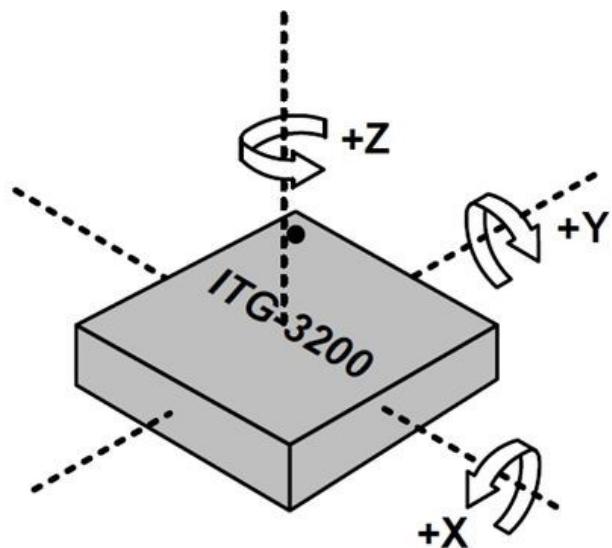
```
*****  
Temperature = 27.86 C  
-15 -2 -14  
Angular Velocity of X , Y , Z: -1.04 , -0.28 , -1.25 degrees per second  
*****  
Temperature = 27.74 C  
-14 -11 -20  
Angular Velocity of X , Y , Z: -1.39 , -0.28 , -1.11 degrees per second  
*****  
Temperature = 27.86 C  
-11 -18 -14  
Angular Velocity 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

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



## 5. Resources

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- [Datasheet of ITG-3200.](#)
- [Grove - 3-Axis Digital Gyro Eagle File](#)
- [Digital Gyro Library](#)

**Данный компонент на территории Российской Федерации****Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибуторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ Р В 0015-002 и ЭС РД 009

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