



# Grove - 3-Axis Digital Accelerometer( $\pm 400g$ )

Release date : 9/20/2015

Version : 1.0

Wiki: [http://www.seeedstudio.com/wiki/Grove - 3-Axis Digital Accelerometer\(%C2%B1400g\)](http://www.seeedstudio.com/wiki/Grove_-_3-Axis_Digital_Accelerometer(%C2%B1400g))

Bazaar: [http://www.seeedstudio.com/depot/Grove-3Axis-Digital-Accelerometer400g-p-1897.html?cPath=25\\_132](http://www.seeedstudio.com/depot/Grove-3Axis-Digital-Accelerometer400g-p-1897.html?cPath=25_132)

## Document Revision History

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Revision	Date	Author	Description
1.0	Sep 21, 2015	Victor.He	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.*

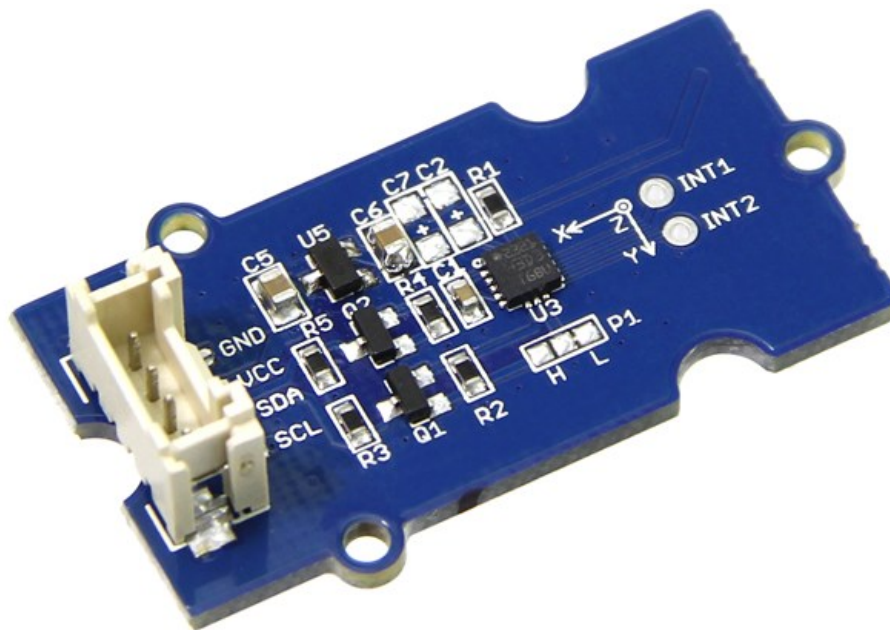
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## 1. Introduction

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The H3LIS331DL is a low power high performance 3-axis linear accelerometer belonging to the “nano” family, with digital I2C serial interface standard output. The device features ultra low power operational modes that allow advanced power saving and smart sleep to wake-up functions. The H3LIS331DL has dynamically user selectable full scales of  $\pm 100\text{g}$ / $\pm 200\text{g}$ / $\pm 400\text{g}$  and it is capable of measuring accelerations with output data rates from 0.5 Hz to 1 kHz.



## 2. Features

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- Wide power range DC3.3V to 5V
- Grove outline
- 3 axis sensing
- Small, low-profile package: 3×3×1mm TFLGA
- Low power 300μA at 3.3V (typical)
- $\pm 100\text{g}$  /  $\pm 200\text{g}$  /  $\pm 400\text{g}$  dynamically selectable full scale
- I2C digital output interface
- 10000 g high shock survivability
- ECOPACK®RoHS and “Green” compliant

### 3. Application ideas

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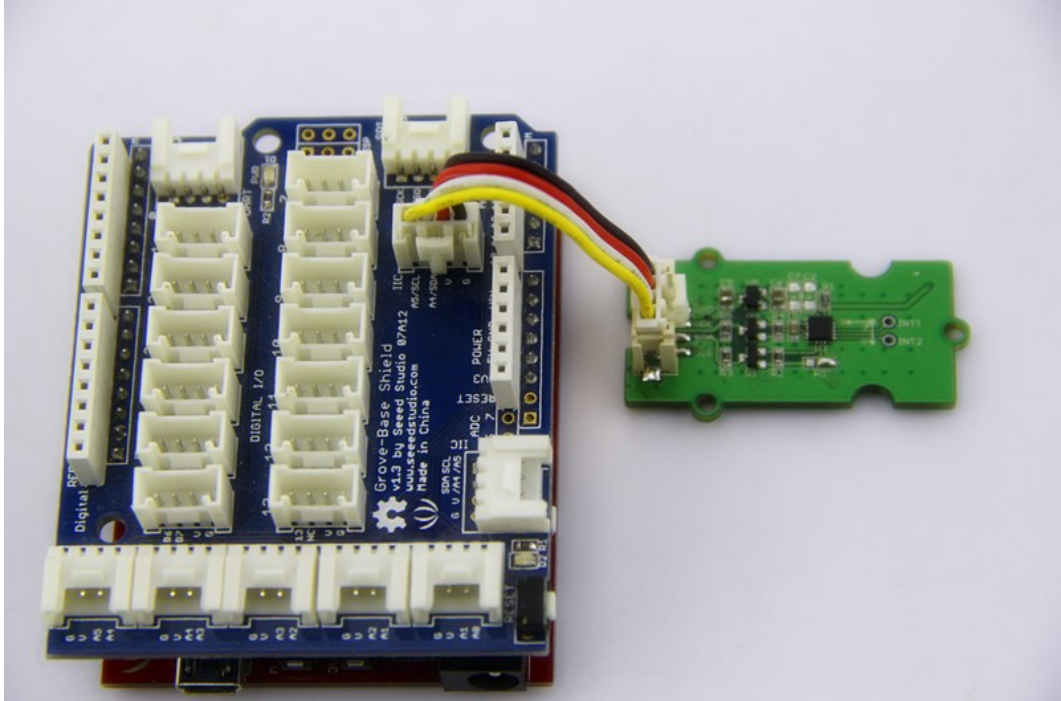
- Shock detector
- Impact recognition and logging
- Concussion detection

## 4. Usage

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Here below we show you how to read the raw data from this accelerometer.

1. Plug it onto the I2C port of your [Grove - Base Shield](#).



2. Download the [Digital Accelerometer\(±400g\) Library .zip](#) and unpack it into arduino-1.0\libraries in your Arduino installation folder.
3. Open the demo code directly by the path: File -> Example  
-> Grove\_3Axis\_Digital\_Accelerometer\_H3LIS331DL->H3LIS331DL\_AdjVal. It is a sketch to adjust the raw data of H3LIS331DL to make it more precise.
4. Upload the code and open the serial monitor. Please click [here](#) if you do not know how to upload.
5. Open the serial monitor to get the adjust value of reference as the steps described in serial output.

```
adjust value of X axis is 351
adjust value of y axis is 169
adjust value of z axis is 224
note: these data can be used in H3LISDL_Demo sketch
```

6. Open the demo code directly by the path: File -> Example  
-> Grove\_3Axis\_Digital\_Accelerometer\_H3LIS331DL->H3LIS331DL\_Demo. then modify the VAL\_X\_AXIS/VAL\_Y\_AXIS/VAL\_Z\_AXIS according to what you get from H3LIS331DL\_AdjVal Sketch.



```
//please get these value by running H3LIS331DL_AdjVal Sketch.
#define VAL_X_AXIS 351
#define VAL_Y_AXIS 169
#define VAL_Z_AXIS 224
```

7. Upload the code and open the serial monitor and open the serial monitor to check the result.

```
x, y, z = -159 -41 480
accelerate of x, y, z = -0.43 0.07 1.78
x, y, z = -95 -25 448
accelerate of x, y, z = -0.28 -0.08 1.34
x, y, z = -351 23 512
accelerate of x, y, z = -0.33 0.07 1.54
x, y, z = -143 55 608
accelerate of x, y, z = -0.38 -0.22 1.44
x, y, z = -159 103 560
accelerate of x, y, z = -0.48 0.31 1.68
x, y, z = -127 23 592
accelerate of x, y, z = -0.52 -0.08 1.78
x, y, z = -111 7 544
accelerate of x, y, z = -0.33 -0.12 1.63
x, y, z = -127 7 528
accelerate of x, y, z = -0.38 0.02 1.58
x, y, z = -111 23 544
accelerate of x, y, z = -0.48 0.07 1.63
x, y, z = -159 -25 528
```

## 5. Resources

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[Grove - 3-Axis Digital Accelerometer\( \$\pm 400g\$ \) Eagle File](#)

[github repository for 3-Axis Digital Accelerometer\( \$\pm 400g\$ \)](#)

[H3LIS331DL Datasheet PDF](#)

## 6. Support

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If you have questions or other better design ideas, you can go to our [forum](#) or [wish](#) to discuss.

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