Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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Contact us

LSM303 Tilt Compensated Compass(SEN0079)

Contents

Introduction

The LSM303DLH is a triple axis accelerometer combined with a triple axis magnetic sensor. This breakout board uses the LSM303DLH to give you the data you need to feed into a microcontroller and calculate tilt-compensated output.

Specifications

- Power supply: 3.6~8V DC
- Chip: LSM303DLH
- ±1.3 to ±8,1 gauss magnetic field full-scale
- ±2 g/±4 g/±8 g dynamically selectable fullscale
- 16-bit data out
- I2C serial interface
- 2 independent programmable interrupt

- generators for free-fall and motion detection
- Embedded self-test
- Accelerometer sleep-to-wakeup function
- 6D orientation detection
- Dimensions: 20.5mmx20.5mm
- Weight: 1g

Applications

- Compensated compassing
- Map rotation
- Position detection
- Motion-activated functions
- Free-fall detection
- Intelligent power-saving for handheld devices
- Display orientation
- Gaming and virtual reality input devices
- Impact recognition and logging
- Vibration monitoring and compensation

Connection Diagram
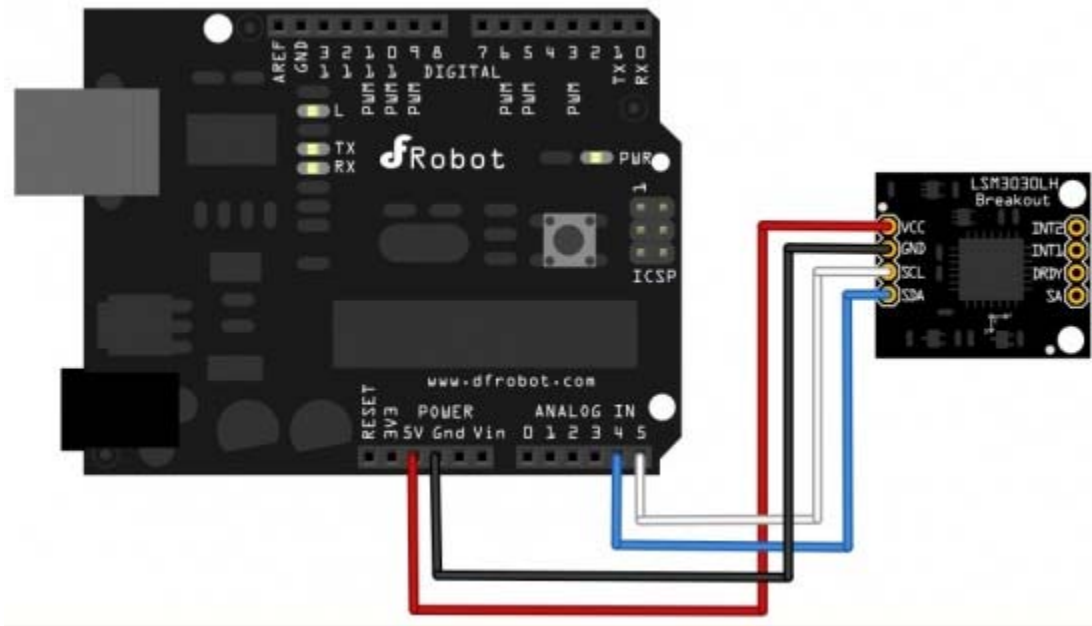
SEN0079 connection diagram---IIC

Download library

Download related Library. About Library installation.

Sample Code(Read Navigation Angle)

```
/*!
 * @file NavigationAngleRead.ino
 * @brief DFRobot's Manentic Sensor,This program continuously reads the accel
erometer and magnetometer,
 *        communicating the readings over the serial interface. You can displ
ay the readings with the Arduino Serial Monitor.
 * @n [Get the module here](http://www.dfrobot.com.cn/goods-326.html)
 * @n This example get the four lightest positions of the IR sources.
 * @n [Connection and Diagram](http://wiki.dfrobot.com.cn/index.php?title=(SK
U:TOY0035)Gadgeteer_LSM303%E7%94%B5%E5%AD%90%E7%BD%97%E7%9B%98%E4%BC%A0%E6%84
%9F%E5%99%A8)
 *
 * @copyright   [DFRobot](http://www.dfrobot.com), 2016
 * @copyright   GNU Lesser General Public License
 *
 * @author [carl](carl.xu@dfrobot.com)
 * @version  V1.0
 * @date   2016-07-11
 */
#include <MagneticSensorLsm303.h>


MagneticSensorLsm303 compass;


void setup() {
  Serial.begin(9600);
  compass.init();
  compass.enable();
}


void loop() {
  compass.read();
  float heading = compass.getNavigationAngle();
  Serial.print("Navigation Angle:  ");
  Serial.println(heading,3);
```

```
  delay(500);  // delay for serial readability

}
```

Sample Code(Read Raw Data)

```
/*!

 * @file MagneticRawData.ino

 * @brief DFRobot's Manentic Sensor,This program continuously reads the accel
erometer and magnetometer,

 *        communicating the readings over the serial interface. You can displ
ay the readings with the Arduino Serial Monitor.

 * @n [Get the module here](http://www.dfrobot.com.cn/goods-326.html)

 * @n This example get the four lightest positions of the IR sources.

 * @n [Connection and Diagram](http://wiki.dfrobot.com.cn/index.php?title=(SK
U:TOY0035)Gadgeteer_LSM303%E7%94%B5%E5%AD%90%E7%BD%97%E7%9B%98%E4%BC%A0%E6%84
%9F%E5%99%A8)

 *

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 * @copyright   GNU Lesser General Public License

 *

 * @author [carl](carl.xu@dfrobot.com)

 * @version  V1.0

 * @date   2016-07-11

 */


#include <MagneticSensorLsm303.h>


MagneticSensorLsm303 compass;


char report[120];


void setup()

{

  Serial.begin(9600);
```

```
    compass.init();

    compass.enable();

}


void loop()

{

    compass.read();

    snprintf(report, sizeof(report), "Acceleration:(X:%6d Y:%6d Z:%6d) Magnetom
eter:(X:%6d Y:%6d Z:%6d)",

    compass.accelerometer.x, compass.accelerometer.y, compass.accelerometer.z,

    compass.magnetometer.x, compass.magnetometer.y, compass.magnetometer.z);

    Serial.println(report);

    delay(500);

}
```