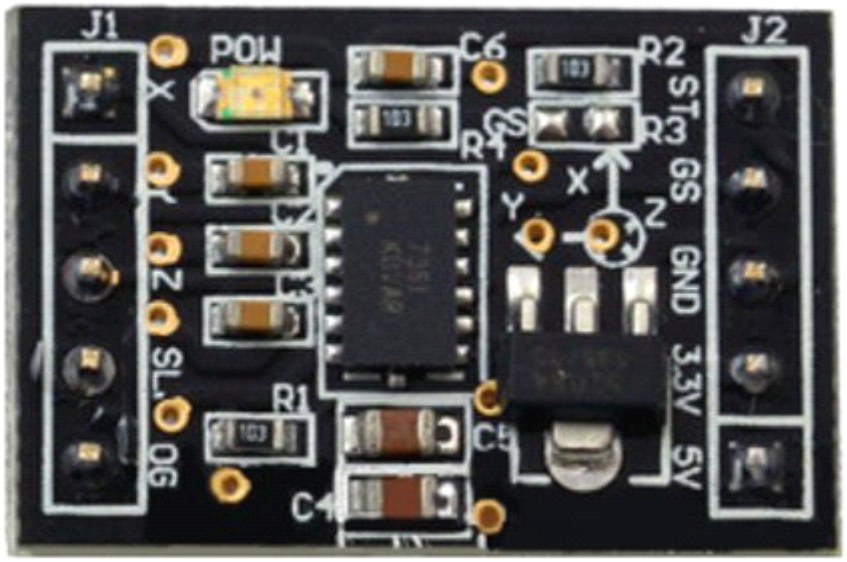
MMA7361 Triaxial Acceleration Sensor



Please notice that: MMA7361 Triaxial Acceleration Sensor can fully take the place of MMA7260 Triaxial Acceleration Sensor

1、Description :

The MMA7361LC is a low power, low profile capacitive micromachined accelerometer featuring signal conditioning, a 1-pole low pass filter, temperature compensation, self test, 0g-Detect which detects linear freefall, and g-Select which allows for the selection between 2 sensitivities. Zero-g offset and sensitivity are factory set and require no external devices. The MMA7361LC includes a Sleep Mode that makes it

ideal for handheld battery powered electronics.

This module can be used for signal disposal、unipolar low-pass filter and temperature compensation technology because it use low-cost micro capacitive accelerometer and four ranges which is optional for user choosing in four of the sensitivity. This device include a low-pass filter and zero g compensation.

This product also provides sleeping mode and so it's ideal choice for products with battery handheld devices.

2、**Features :**

1、3mm x 5mm x 1.0mm LGA-14 Package

2、Low Current Consumption: 400 μA

3、Sleep Mode: 3 μA

4、Low Voltage Operation: 2.2 V – 3.6 V

5、High Sensitivity (800 mV/g @ 1.5g)

6、Selectable Sensitivity (±1.5g, ±6g)

7、Fast Turn On Time (0.5 ms Enable Response Time)

8、Self Test for Freefall Detect Diagnosis

9、0g-Detect for Freefall Protection

10、Signal Conditioning with Low Pass Filter

11、Robust Design, High Shocks Survivability

12、RoHS Compliant

13、Environmentally Preferred Product

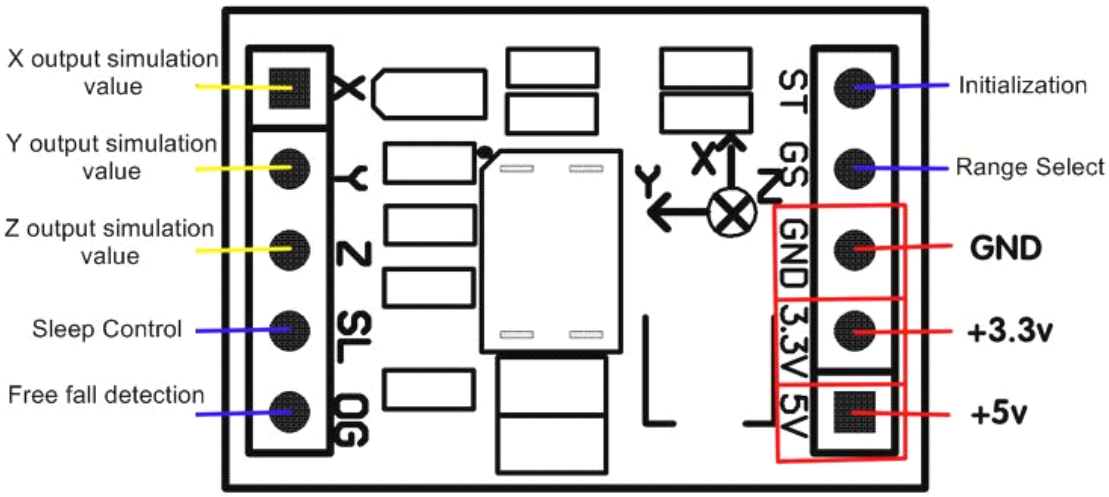
14、Working Voltage : +3.3V and 5V

15、Size : 22mm * 15mm * 9mm

16、Low Cost

17、Weight : 2g

3、Diagram functional



Note: the GS is controlled by the microcontroller's I/O port output level. "0" is low, "1" is high level.

When GS is vacant, the interface is acquiescently "0", then range selection is 1.5g.

If use the +5 V supply, then connected the +5 V and GND pin

If use the +3.3V supply, then connect the +3.3 V and GND pin.

When SL is vacant, the interface is acquiescently for "1" if power-on, the X, Y, Z have output value.

0G is freefall detection, when normal it is "0", but when "free falling" output is "1" and can be connected to an alarm trigger signal.

When SL is vacant, the interface is acquiescently for "1" if power-on, then it will work.

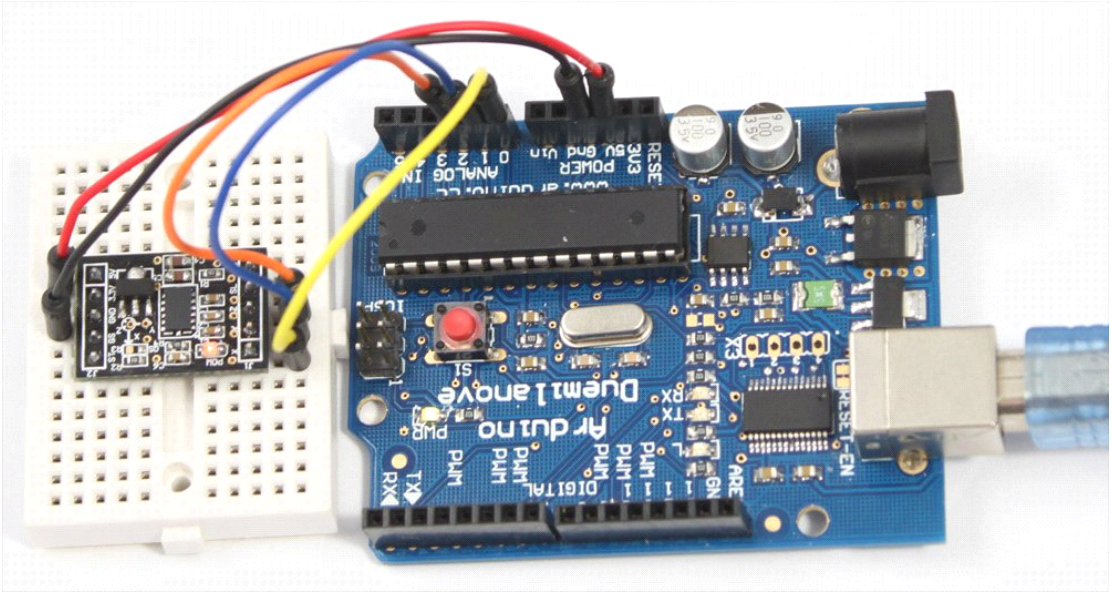
It can be connected with MCU I/O port, if given "0" signal, it will hibernate, lower power consumption.

4、Test Code

This sensor is vailable for the robot, intelligent vehicle, free fallers detection, and action detection etc, and has higher sensitivity. It can carry out three-dimensional XYZ axial detection, and can make three corresponding equipment can respond to position, orientation and mobile changes. So it can be used for evaluation and research.

Characteristics: in one side the board can be directly powered with 5V power, compatible Arduino and other 51 series, in another side it can be directly powered with 3.3V power same as Aruino.

Standard interface and can be directly inserted into multi-purpose boards.



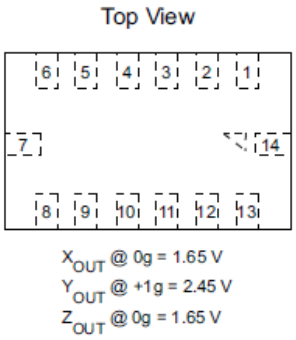
X、Y、Z connect separately with Arduino analog interface 0、1.、2

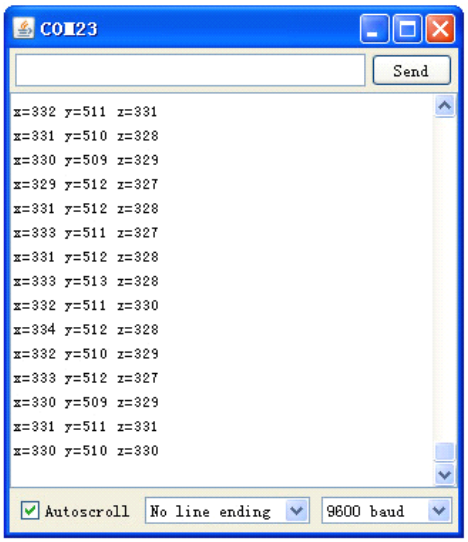
Let GS be vacant, the interface is acquiescently "0", then range selection is 1.5g.

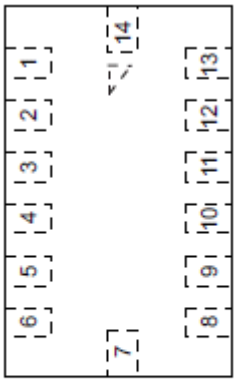
Arduino Test Code:

```
int xpin=0;

int ypin=1;

int zpin=2;

int n;

int m;

int i;

void setup()

{

Serial.begin(9600);

}

void loop()
```

```
{
n=analogRead(xpin);
m=analogRead(ypin);
i=analogRead(zpin);
Serial.print("x=");
Serial.print(n);
Serial.print(" ");
Serial.print("y=");
Serial.print(m);
Serial.print(" ");
Serial.print("z=");
Serial.println(i);
delay(500);
}
```







X_{OUT} @ +1g = 2.45 V
Y_{OUT} @ 0g = 1.65 V
Z_{OUT} @ 0g = 1.65 V