# Vibration Sensing Module

| Item | VSM010100 | Description | Vibration Sensor | Version | 3 |
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- Function
  1. Vibration detection
  2. Earthquake detection


- Application
  1. Alarm for magnitude 3 or 4 earthquake
  2. Devices or applications which need vibration or earthquake detection

- Feature

  To detect vibration or earthquake with a magnitude above 3 or 4, the alarm light will be light up accordingly. When earthquake or vibration occurs, the module will calculate the strength. Once reached the magnitude above 3 or 4, the corresponded pin will output signal and the alarm light will be turned on for a while.
  - ◆ Green light: an earthquake with a magnitude above 3
  - ◆ Red light: an earthquake with a magnitude above 4

No.1, Jingke 3rd Rd., Nantun Dist., Taichung City
40852, Taiwan
http://www.oncque.com

Tel: +886-4-2358-8178
Fax:+886-4-2358-3555
E-mail: oncque@oncque.com.tw

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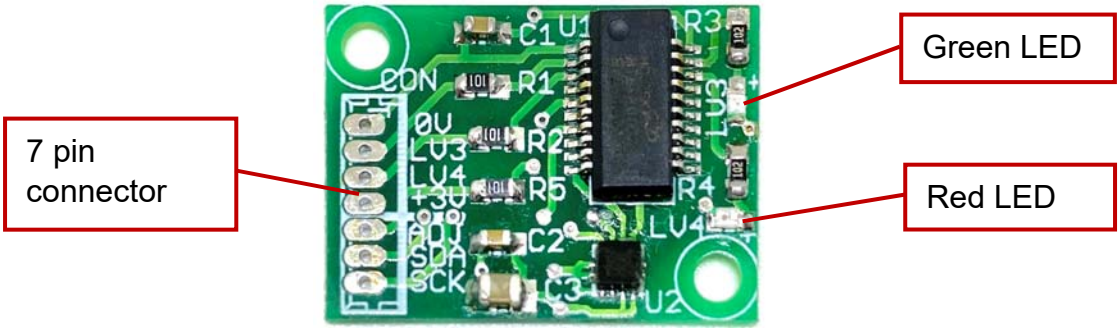
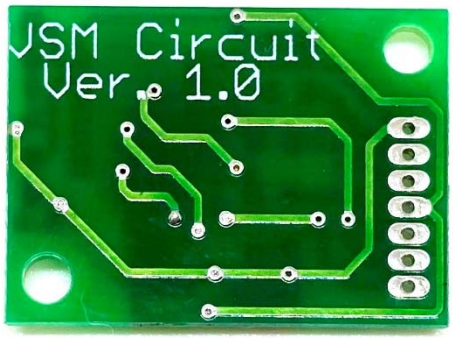
- Module Description

1. Exterior




(Fig. 1) Front Side




(Fig. 2) Back Side



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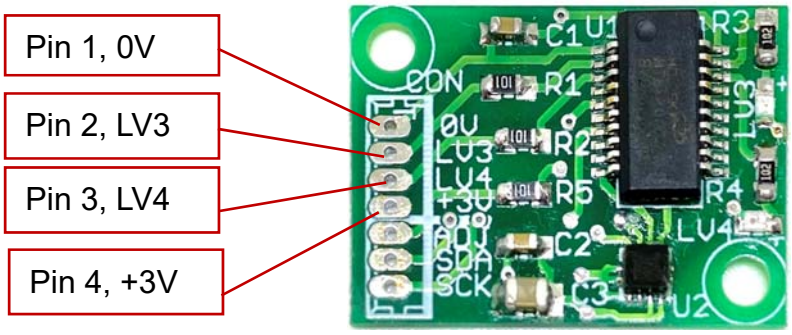
2. Pin Definition and Electrical Characteristic

- As Fig. 3 shows, each pin definition and function of the 7 pin connector part as below.

| | Definition | Function | Format |
|---|---|---|---|
| Pin 1 | 0V | (POWER) | Power 0V |
| Pin 2 | LV3 | Digital voltage output:<br>"Hi" = 3V, earthquake with a magnitude above 3;<br>"Lo" = 0V, earthquake with a magnitude below 3 | Comply with general TTL logic |
| Pin 3 | LV4 | Digital voltage output:<br>"Hi" = 3V, earthquake with a magnitude above 4;<br>"Lo" = 0V, earthquake with a magnitude below 4 | Comply with general TTL logic |
| Pin 4 | +3V | (POWER) | DC3V Power + |
| Pin 5 | --- | (not for client end) | --- |
| Pin 6 | --- | (not for client end) | --- |
| Pin 7 | --- | (not for client end) | --- |




(Fig. 3)

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- Power Supply: DC3V±0.5V

  (Note: Do not exceed the standard to avoid damage to the module)

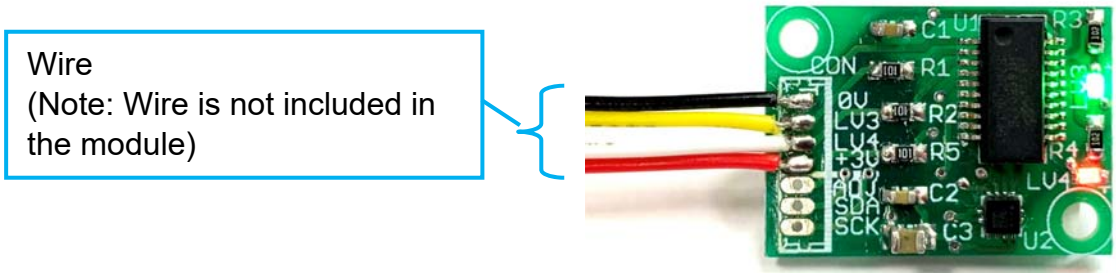
- Current Consumption:

  0.5mA at normal status, 0.8-2.0mA when LED turns on.

- As Fig.3, supply DC3V to the module by PIN “0V” and “+3V”, receive High/Low TTL digital logic signal through PIN “LV3” and “LV4”.

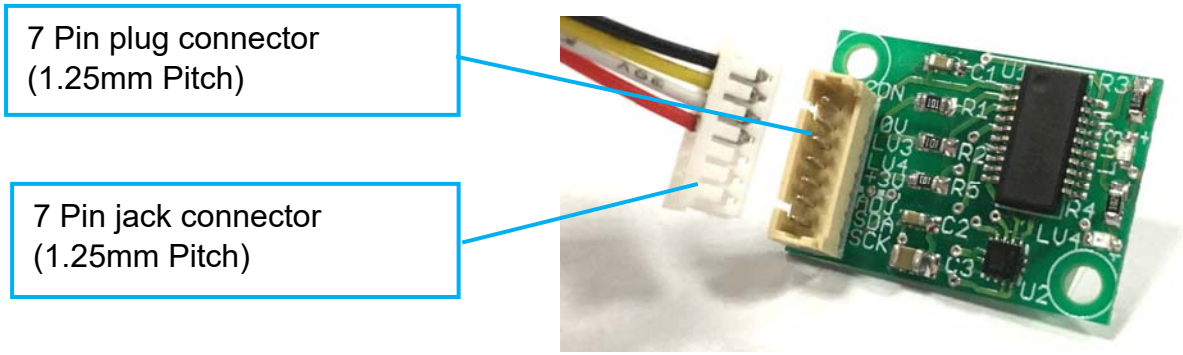
- Connection Suggestion:

  **A.** Use wire to connect with the module




(Fig. 4)

  **B.** Solder a 7 pin plug connector on the module and connect with the jack connector. (Note: Connector and wire is not included in the module)



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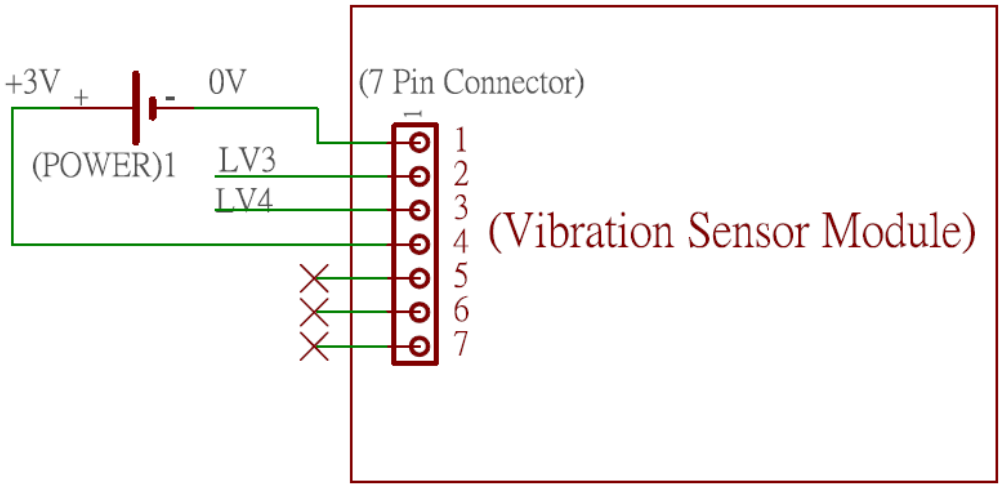
(Fig. 5)

- Application Circuit




(Fig. 6)

3. Application and Power-ups

Once the circuit is settled as the suggestion above, plug on the module when it is stable. The module must be at a stationary status when plugging on in order to catch the correct initial value.

After plugged on, the green and red LED will be turned on for 3 seconds, then the module will record the initial value and start detecting vibration and calculating the strength of the vibration then comparing the difference of value and output signals.

If reconnect the power, the module will catch the new initial value.



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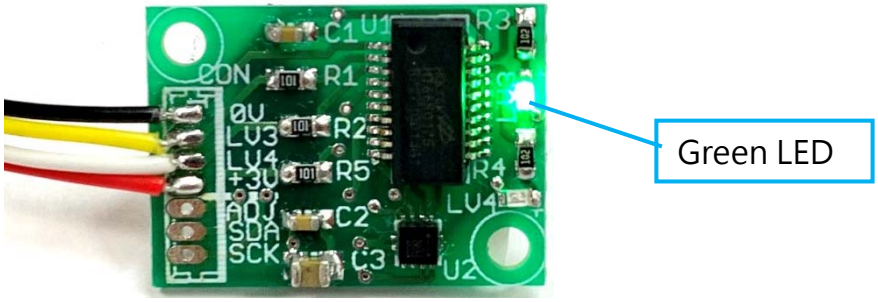
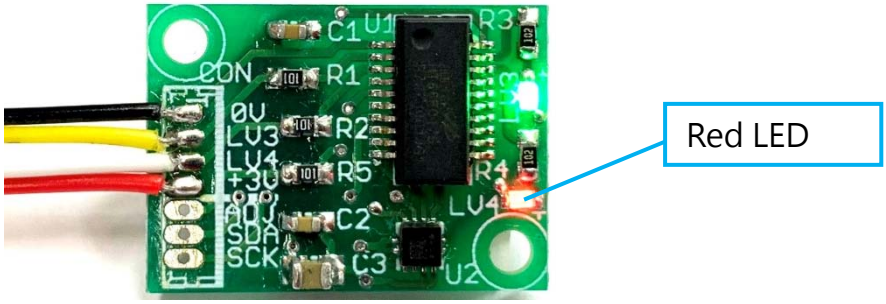
4. Vibration Strength and Pin Output Logic Signal

(1) Green LED shows an earthquake with a magnitude above 3. When module detect the vibration strength reach a magnitude of 3, the green LED will be turned on with LV3 High signal. On the contrary, green LED will not be turned on with LV3 Low signal.




(Fig. 7)

(2) Red LED shows an earthquake with a magnitude above 4. When module detect the vibration strength reach a magnitude of 4, the red LED will be turned on with LV4 High signal. On the contrary, red LED will not be turned on with LV4 Low signal.




(Fig. 8)

(3) If the vibration lasts, the light will keep lighting up with High signal. When the vibration stops, the light will be turned off after one second. At the same time, High signal will only last for one second then return to Low signal.



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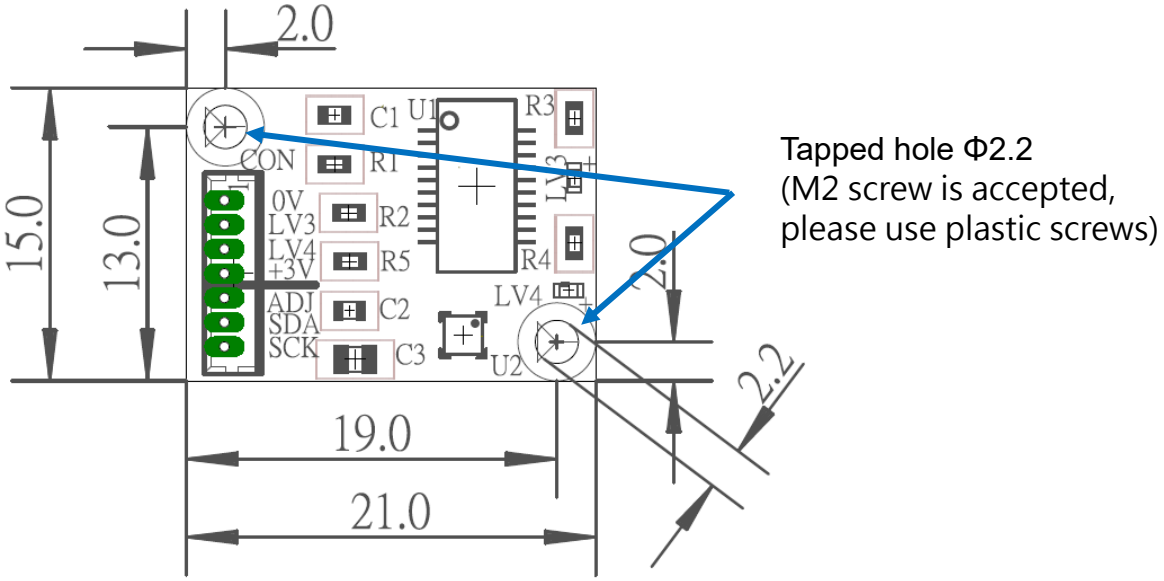
- Absolute Maximum Temperature (Ta=25°C)

| | | | |
|---|---|---|---|
| Operating Temperature | Topr | -20~+80 | °C |
| Storage Temperature | Tstg | -40~+85 | °C |

- Dimension (Unit: mm, Tolerance: ±0.25mm)

Module size: 21.0(L) *15.0(W) *2.5(H) mm




(Fig. 9)



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● Packing

| | Part Number | Package | Quantity | Total | Dimension (mm) |
|---|---|---|---|---|---|
| 1 | VSM010100 | Bubble bag | 1 pcs | 1 pcs | 30L*20W*18H |
| | | Inner box | 450 pcs | 450 pcs | 348L*191W*85H |
| | | Carton | 3 inner boxes | 1,350 pcs | 364L*278W*213H |

**※ Package shown as below for reference.(Temporary)**

Bubble bag　　Inner box　　Carton

● Notes

For the continued product improvement as one of the company policies, specifications may change or update without notice. The latest information can be obtained through our sales offices. Normally, all products are supplied under our standard conditions.

● Cautions

1. If the product is intended to be used for other endurance equipment requiring higher safety and reliability such as life support system, aerospace devices, disaster prevention and safety system, it's necessary to ensure the reliability or contact us before using.
2. Please do not exceed the rated load as there will be a risk of disabling the product function.



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