

# GH-311 ULTRASOUND MOTION SENSOR USER'S GUIDE

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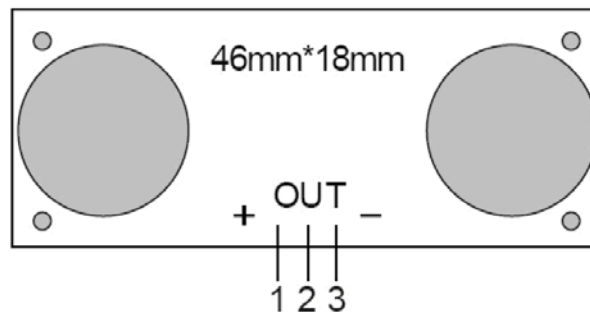
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## GH-311 Ultrasound Motion Sensor

The GH-311 ultrasonic Motion sensor provides precise, non-contact distance measurements from about 2 cm (0.8 inches) to 3 meters (3.3 yards). It is very easy to connect to microcontrollers such as the BASIC Stamp®, SX or Propeller chip, requiring only one I/O pin.

The GH-311 sensor works by transmitting an ultrasonic (well above human hearing range) burst and providing an output pulse that corresponds to the time required for the burst echo to return to the sensor. By measuring the echo pulse width, the distance to target can easily be calculated.

## Module's External Connection schematic



### Pin Definitions:

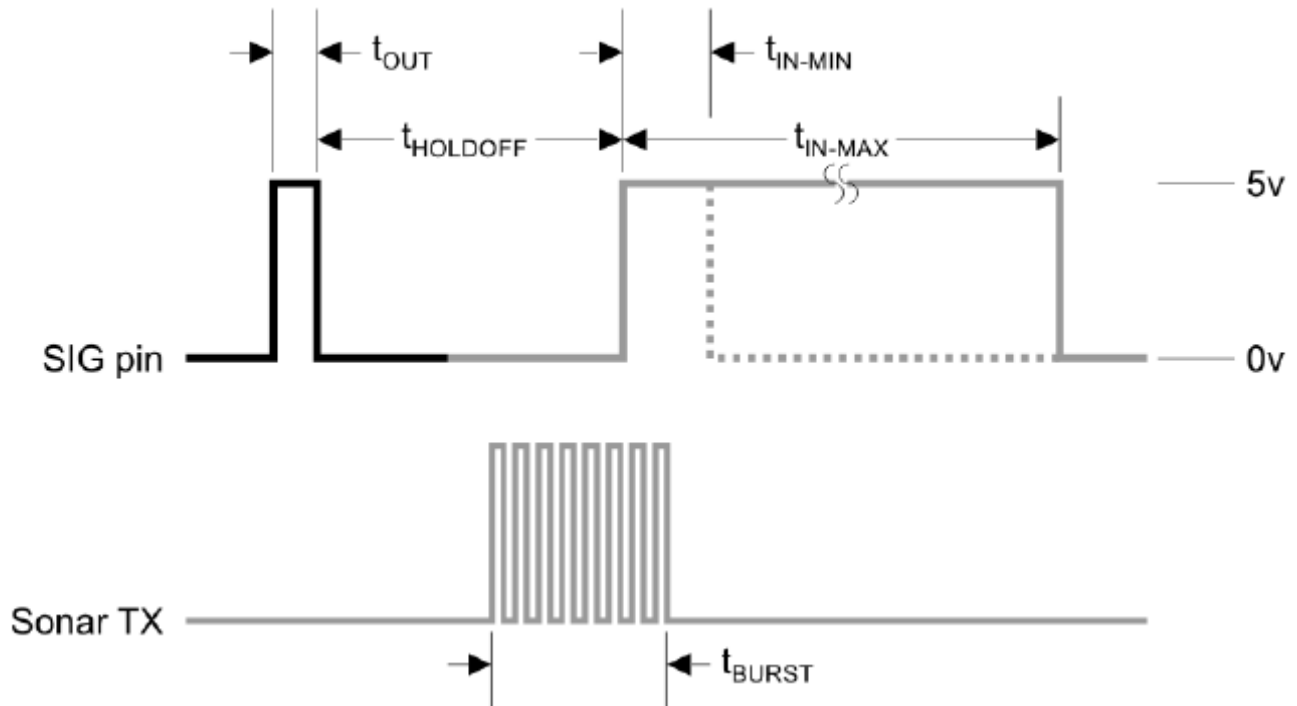
- GND Ground (Vss),
- 5 V 5 VDC (Vdd)
- SIG Signal (I/O pin)
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The GH-311 sensor has a male 3-pin header used to supply ground, power (+5 VDC) and signal. The header may be plugged into a directly into solder less breadboard, or into a standard 3- wire extension cable

### Communication Protocol

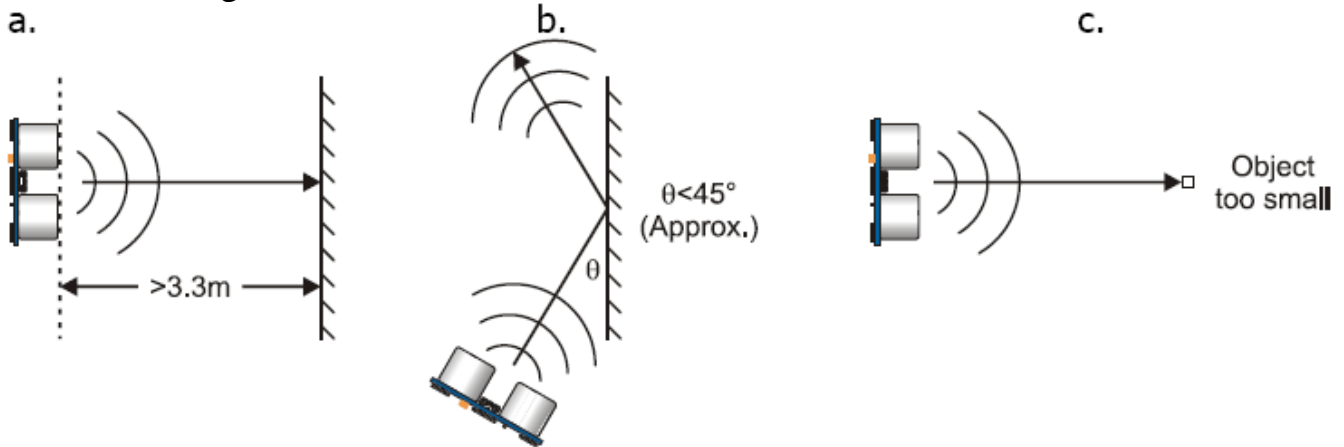
The GH-311 sensor detects objects by emitting a short ultrasonic burst and then listening" for the echo. Under control of a host microcontroller (trigger pulse), the sensor emits a short 40 kHz (ultrasonic) burst. This burst travels through the air, hits an object and then bounces back to the sensor. The GH-311 sensor provides an output pulse to the host that will terminate when the echo is detected, hence the width of this pulse corresponds to the distance to the target.

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### Practical Considerations for Use, (Object Positioning)

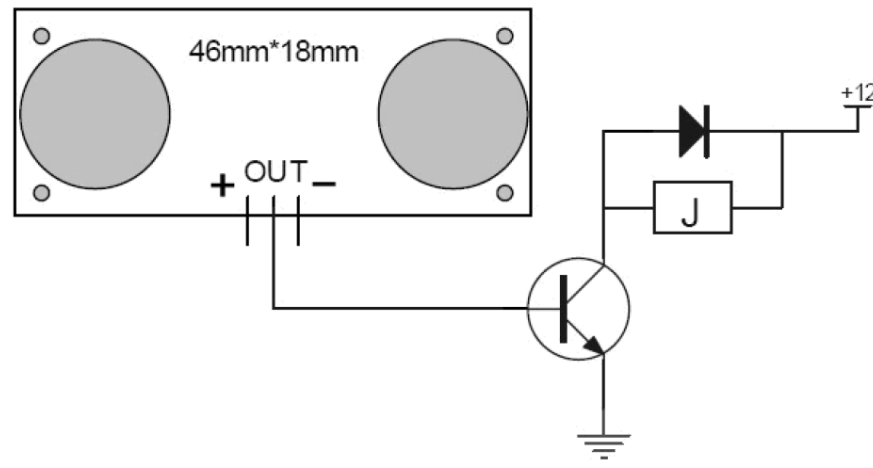
The GH-311 sensor cannot accurately measure the distance to an object that: a) is more than 3 meters away, b) that has its reflective surface at a shallow angle so that sound will not be reflected back towards the sensor, or c) is too small to reflect enough sound back to the sensor. In addition, if your GH-311 is mounted low on your device, you may detect sound reflecting off of the floor.



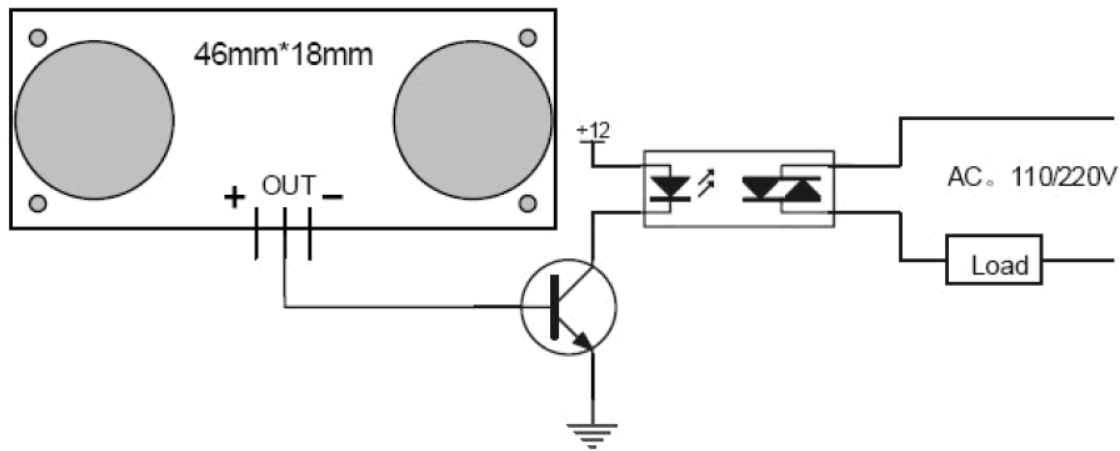
### Target Object Material

In addition, objects that absorb sound or have a soft or irregular surface, such as a stuffed animal, may not reflect enough sound to be detected accurately. The GH-311 sensor will detect the surface of water, however it is not rated for outdoor use or continual use in a wet environment. Condensation on its transducers may affect performance and lifespan of the device.

## DC load circuit schematic



## AC load circuit schematic



### **Range of Application:**

Used to detect the move of human or object. Suitable for indoor and outdoor burglar-proof application, vehicle burglar-proof application, ATM surveillance camera, warehouse surveillance camera, and safety warning applications in dangerous site where high voltage and high temperature exist.

### **Product Features:**

- 1 High Sensitivity, Reliability and Stability
- 2 Extreme-Temp resistant, moisture proof, shock & vibration-proof, etc.

### **Main Technical Specifications**

- 1 Power Voltage: DC 6-12V
- 2 Quiescent current : Less than 2 mA
- 3 output Level: High 5V
- 4 output Level: Low 0V
- 5 Sensing Angle: no greater than 15°
- 6 Sensing distance: 2mm-3m