



## Parallax PING))) Ultrasonic Sensor #28015

Parallax's PING))) Ultrasonic Sensor provides a very low-cost and easy method of distance measurement. This sensor is perfect for any number of applications that require you to perform measurements between moving or stationary objects. This ultrasonic distance sensor is widely used in robotics applications and is also useful in security systems or as an infrared replacement.

The PING))) sensor measures distance using sonar; an ultrasonic (well above human hearing) pulse is transmitted from the unit and distance-to-target is determined by measuring the time required for the echo return. Output from the PING))) sensor is a variable-width pulse that corresponds to the distance to the target.

Interfacing to the BASIC Stamp microcontroller or other programmable controller is a snap: a single (shared) I/O pin is used to trigger the Ping sensor and "listen" for the echo return pulse. An on-board three-pin header allows the PING))) to be plugged into a solderless breadboard (on a Boe-Bot, for example), and to be connected to its host through a standard three-pin servo extension cable.



Note: For close-up measurements, the Ping))) sensor only needs to be roughly 8 to 10 cm above your working surface. However, if you are measuring objects that are more than a half a meter away, make sure to keep your Ping))) sensor at least half a meter above the floor. Please read the Ping))) documentation (398k pdf) for more practical considerations.

### PING))) Sensor Features

- **The PING))) has only has three connections: Vdd, Vss, and one I/O pin.**
- **The 3-pin header makes it easy to connect using a standard servo extension cable, no soldering required.**
- **Sample code (8k zip) for using the Ping))) sensor with the BASIC Stamp is available.**

### Key Specifications

- **Range: 2 cm to 3 meters (~.75" to 10')**
- **Supply Voltage: 5V +/-10% (Absolute: Minimum 4.5V, Maximum 6V)**
- **Supply Current: 30 mA typical, 35 mA maximum**
- **3-pin interface (power, ground, signal)**
- **20 mA power consumption**
- **Narrow acceptance angle**
- **Simple pulse in / pulse out communication**
- **Indicator LED shows measurement in progress**
- **Input Trigger: positive TTL pulse, 2  $\mu$ s minimum, 5  $\mu$ s typical**
- **Echo Pulse: positive TTL pulse, 115  $\mu$ s to 18.5 ms**
- **Echo Hold-off: 750  $\mu$ s from fall of trigger pulse**
- **Burst Frequency: 40 kHz for 200  $\mu$ s**
- **Size: 22 mm H x 46 mm W x 16 mm D (0.85 in x 1.8 in x 0.6 in)**

[Documentation on producer website.](#)

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