

## Product Information Sheet

### Motion Sensor



Our range of science experiment kits will equip you with all you need to carry out each of the practical experiments included in your LJ Create science program.

The kits can be used for teacher demonstration, individual student, or group activities.

The Data Logging equipment has been produced for ease of use in a wide range of science and technology applications.

Make lessons on time, speed, and acceleration fully interactive. Simple to use, select the best range, point at the target and collect data. Optimised range for time distance work with students.

The sensor can be used in a range of teaching applications, including:

- Graphing time distance curves in real time
- Demonstrating the derivation of velocity, acceleration from time distance
- Simple harmonic motion in suspended mass spring systems and pendulums
- Demonstration of ultrasound imaging
- Free fall
- Conservation of energy

The Motion sensor is a sonar device that emits ultrasonic pulses, which reflect off an object. Maximum sample rate is 50 per second (50 Hz) (20 ms interval between samples). Automatic correction for air temperature incorporated into the Distance ranges.

The Time range measures the time taken for the pulse to travel to an object and back so can be used to measure the speed of sound.

#### Sensor Specifications:

- Range 1: Distance 0.17 – 10m, Values displayed: 3 decimal places, Resolution: 0.001m (1mm), Automatic correction for variation in air temperature
- Range 2: Distance 17 – 1000cm, Values displayed: 1 decimal place, Resolution: 0.1cm, Automatic correction for variation in air temperature
- Range 3: Distance 7 – 400 inches, Values displayed: 1 decimal place, Resolution: 0.1inch, Automatic correction for variation in air temperature
- Range 4: Time 1000 – 60000 $\mu$ s, Resolution: 1 $\mu$ s, No temperature compensation

#### Examples of some extension and advanced ideas include:

- Impulse and momentum
- With Easysense software, the energy changes in collisions or SHM
- Speed of sound in air
- Motion of large pendulum

#### Items Included:

- Motion Sensor

#### Other Items Required:

- Data logger (520-01)
- LJ Create Science Content and Computer

#### General Information:

Packed Volume: Approx. 0.0001 m<sup>3</sup>  
Packed Weight: Approx. 0.1 kg

**Order Code: 520-07**

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For more information visit [www.ljcreate.com](http://www.ljcreate.com)