

## ENGDUINO LIBRARIES: THE LIGHT SENSOR

The light sensor measures light flux – it returns a higher value when more light lands on the sensor.

### HEADER

```
#include <EngduinoLight.h>
```

### SETUP()

```
EngduinoLight.begin();
```

### BASIC FUNCTIONS

There is only one function for the light sensor:

```
loop() {  
    int v = EngduinoLight.lightLevel();  
  
    Serial.print("Light value: ");  
    Serial.println(v);  
}
```

The values returned range from 0 to 1023, inclusive – if there is more light, the number returned is higher. (For those interested in the technical details, the returned value is directly proportional to the illuminance in lux).

### IDEAS FOR PROJECTS WITH THE LIGHT SENSOR

- Make a bar graph out of the LEDs to show how much light is reaching the sensor. Can you think why this might not be 100% accurate? Hold a sheet of white paper flat on the top of the Engduino. Keep holding the part of the paper near the Engduino's switch and gradually lift the end nearest the light sensor – what happens to your bar graph and why?
- See if you can make a night-light. It should come on when it becomes reasonably dark and go off in the daylight.
- Make a communication system.
  - Flash the LEDs on one Engduino and receive those flashes on another – print the value of the light level to the screen so you can see when the LEDs are on and when they are off... the numbers should be different.
  - Work out a way of using this to send the elements of morse code – print out whether you think the thing that was sent was a dot, dash or space. Do you always get it right?
  - How about sending just two values rather than the three in morse – this is binary code and we call the values 1s and 0s. Can you figure out a way of turning 1s and 0s into flashes of light and turning the flashes you receive back into 1s and 0s? If so, congratulations, you built a modern digital communication system.