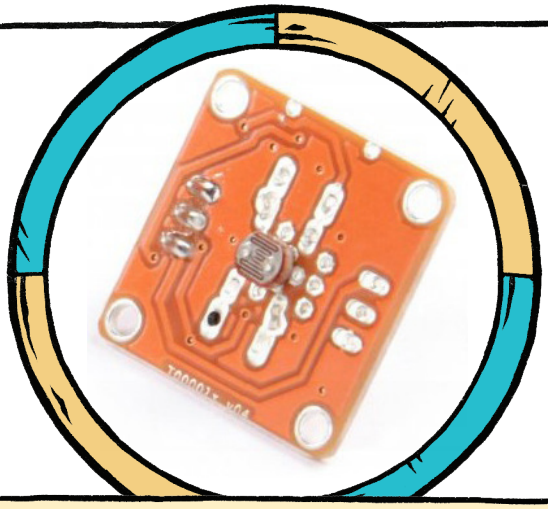
TOOL



ASSOCIATED SHEETS

Tinkerkit shield

TINKERKIT LIGHT SENSOR

Measures the light intensity.

Range: not calibrated
Ease of use: simple
Use: measuring a light, capturing the passage of an object by measuring its shadow, ...
Necessay hardware: a Tinkerkit shield, and a Tinkerkit cable

This sensor uses a resistance whose value varies with illumination (Light Dependent Resistor) to measure the light intensity that illuminates the sensor.

Wiring

Install the Tinkerkit library on your computer, and the Tinkerkit shield on your Arduino board. Connect the sensor to the I0 input of the shield. If you do not have a suitable cable, or no Tinkerkit shield, connect your sensor to the A0 input of your Arduino board (see "Tinkerkit shield" sheet).

Coding

Once the Tinkerkit library is installed, open the sample program available from the File menu, Examples, Tinkerkit, LightSensor program.

<Tinkerkit.h>: this library defines the coding instructions necessary to communicate with the sensor.
TKLightSensor ldr(I0): creates a variable 'ldr', of type TKLightSensor (defined in the library Tinkekit), corresponding to a Tinkekit Light Sensor connected to the input I0. The name of the variable can be changed, as can the input port.
ldr.read(): this instruction retrieves the value of the magnetic field measured by the light sensor associated with the ldr variable. It is an integer value between 0 and 1023.

The following program will have the same behavior as the Tinkerkit library example:

```
int MeasuredVoltage ;

void setup() {
  Serial.begin(9600) ;   // the serial communication between board and computer is initialized
}

void loop() {
  MeasuredVoltage = analogRead(A0) ;   // sensor should be connected to I0, or A0
  Serial.print("Value of the light intensity = ") ;
  Serial.println(MeasuredVoltage) ;

  delay(1000) ;
}
```

Open the serial monitor to observe the measurements made by the light sensor. Approach a lamp, or hide the sensor with your hand to see the effect on the measurement.
The measure is a number between 0 and 1023 with the approximate conversion:

- 0 = darkness;
- 1023 = high brightness.

The sensor is not calibrated, use a reference light if you want to convert the measurement into lux.

Possible uses of the sensor:

- This sensor measures a luminous intensity: it can be used to study the vararіation of light emitted by a system with controlled parameters;
- This sensor can detect movements by detecting the passage of the shadow of an object.