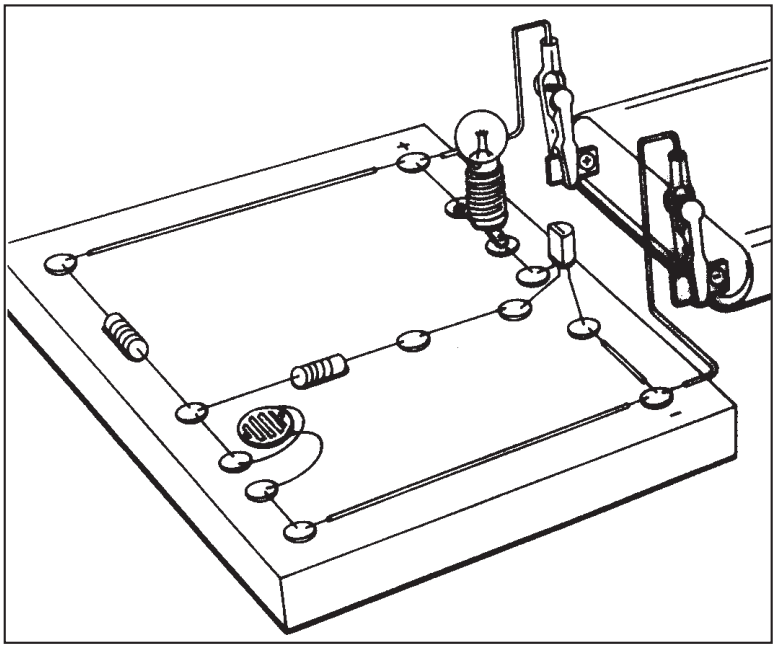
# 110.039

## Light sensor circuit



### Contents:

| | |
|---|---|
| 1x Insulated wire | 0,5 metre |
| 1x Transistor | BC 548 or BC 547 |
| 1x Resistor | 6,8 kΩ |
| 1x Resistor | 2,2 kΩ |
| 1x Bulb holder | E 10 |
| 1x Bulb | 3,8 V / 0,07 A |
| 1x Light dependant resistor | |

### Necessary tools:

Soldering iron 30W
Multi core solder
Wire stripper
Wire snips

**Please Note**

Due to the manufacturing process of the bulb hol- ders, the inner contact tab may stand a little proud. We recommend pressing the contact tab down with a small screwdriver, before inserting the bulb.

### General Notes

To construct this circuit we reccommend using the following methods.

1. Mounting the components on plaster board (Order No 873.017) using drawing pin heads to solder the components on. (the pins are easily inserted by hand)
2. Mounting the components on strip type circuit board. Order No 241.067.
3. Mounting on copper coated circuit board. Order No 241.171/241.207

### Further examples

1) Use the sensor circuit to switch a small DC motor - change the bulb for a small relay.
2) Use the llght sensor clrcuit to switoh on the siren circuit (Order No. 4008) to make an slarol.

**Please Note**

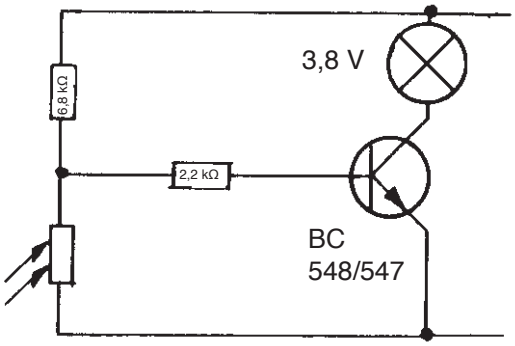
The OPITEC range of projects is not intended as play toys for young children.They are teaching aids for young people learning the skills of Craft, Design and Technolo- gy.These projects should only be undertaken and tested with the guidance of a fully qualified adult. The finished projects are not suitable to give to children under 3 years old. Some parts can be swallowed. Dan- ger of suffocation!

## Function description

**Circuit A**
Connect to 4,5 Volt power source.
When the LDR is in light (normal daylight) the current flows through the 6,8 kΩ resistor into the negative line. The base of the BC 548 does not receive enough current so the bulb stays unlit.
When the LDR is covered the current flows into the base of the BC 548/547 and switches the circuit, and the bulb lights.

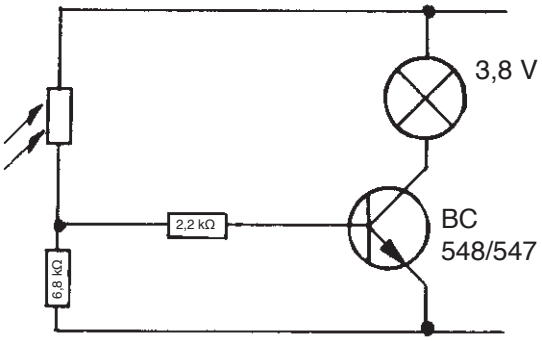
**Circuit B**
Here the bulb lights when the LDR in daylight and goes off when dark.
Should, you wish to increase the sensitivity - instead of the 2,2 kΩ resistor try a 5 kΩ pot entiometer.

**Circuit A**
Dark sensitive.

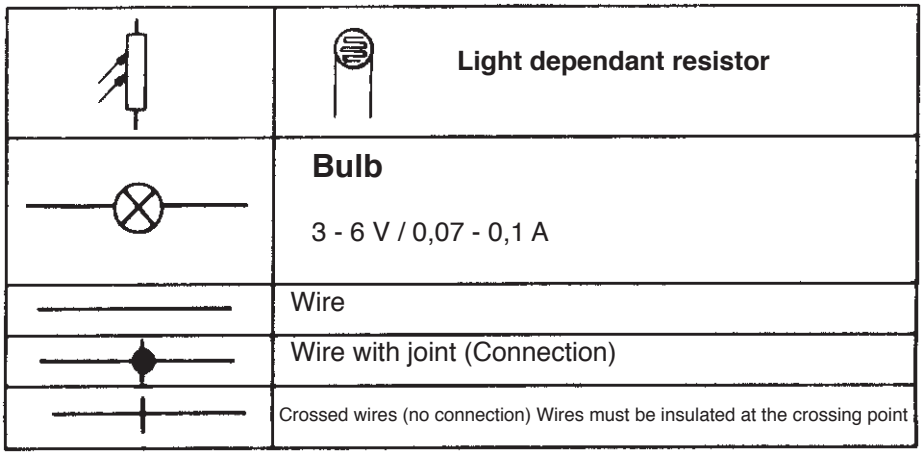


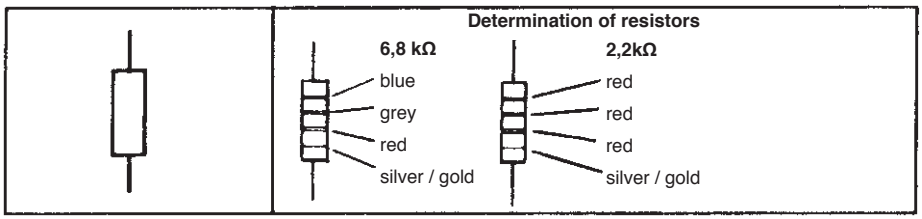

**Schematic diagram**

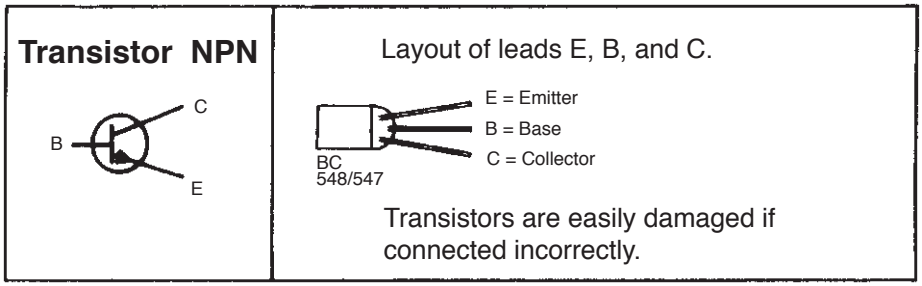
**Circuit B**
Light sensitive.



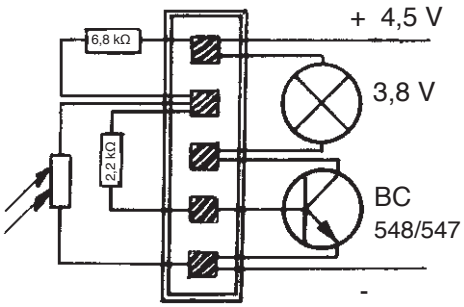

A LED can be used instead of the lamp with a 150 Ohm resistor or a relay can be operated.




**Circuit A on a connector strip**



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