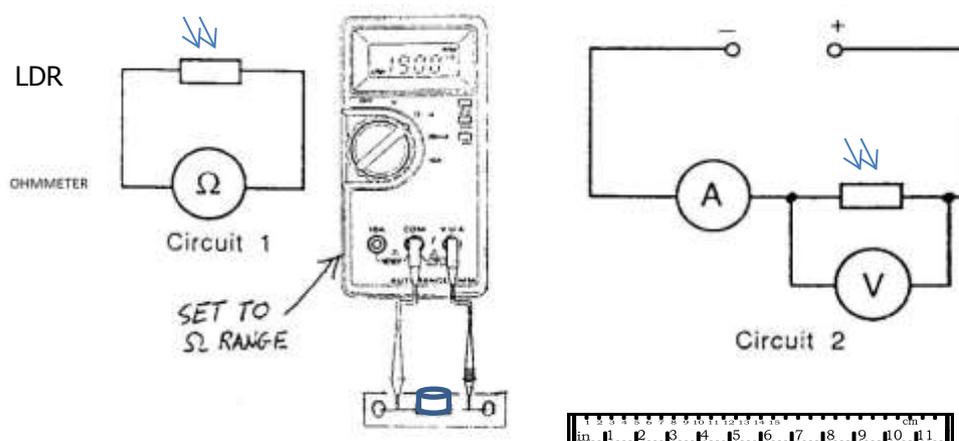


Investigating an LDR response to variations in light intensity by changing the distance from the light source

Equipment

LDR, Ammeter, Voltmeter, 12V power supply, Connecting leads lamp, Rule, (light intensity meter).



Instructions

- Connect the LDR and ammeter in series with the power supply. Connect the voltmeter in parallel to the LDR.
- Set the LDR up so it is 10 cm from the bulb.
- Switch on the lamp and record the ammeter and voltmeter readings.
- If you have one take a reading of the light intensity at this distance by replacing the LDR with the light intensity meter.
- Switch off the lamp, then back on and repeat the readings.
- Move the LDR 5 cm further from the bulb and take another 3 sets of readings from the voltmeter, ammeter and light intensity meter.
- Continue until you reach 40 cm – 60 cm from the bulb.
- Take the voltage reading and divide by the current to find the resistance of the LDR in each case.
- Plot a suitable graph from the readings to find out how the resistance changes with distance or light intensity.

Risk Assessment

- Check all the wires and ensure that the wires are not frayed
- The bulb being used may get hot. Care should be taken to let it cool before packing away.
- The bulb could get hot, so avoid contact with this.
- Switch off the equipment when it is not in use.

Background

1. https://www.yenka.com/activities/LDR_Current_-_Activity/
2. <http://www.markedbyteachers.com/as-and-a-level/science/investigating-how-distance-affects-the-light-shining-on-the-l-d-r.html>
3. http://www.bbc.co.uk/schools/gcsebitesize/science/edexcel_pre_2011/electricityintheory/voltagecurrentresistancerev6.shtml
4. <https://www.kitronik.co.uk/blog/how-an-ldr-light-dependent-resistor-works/>
5. <http://www.reading.ac.uk/virtualexperiments/ves/ldr-full.html>
6. <https://www.electrical4u.com/light-dependent-resistor-ldr-working-principle-of-ldr/>
7. http://www.schoolphysics.co.uk/age14-16/glance/Electricity%20and%20magnetism/LDR_and_thermistor/index.html
8. <http://www.circuitstoday.com/ldr-light-dependent-resistors>
9. <https://physics.stackexchange.com/questions/148471/effect-of-varying-distance-of-light-source-from-a-light-dependant-resistor>
10. <http://www.markedbyteachers.com/as-and-a-level/science/investigation-of-a-light-dependant-resistor.html>
11. <http://physicsnet.co.uk/gcse-physics/electrical-circuits/>
12. <http://slideplayer.com/slide/719746/2/images/69/Light+Dependent+Resistor.jpg>
13. http://tap.iop.org/electricity/resistance/111/page_45979.html
14. Look up any Physics Text book in the class