

Photoresistors and Light Sensors

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Sensors & Modules



Photo: Suyash Dwivedi — CC BY-SA 4.0 — via Wikimedia Commons (25mm_light-dependent_resistor_(LDR)_(5).jpg)

A photoresistor (LDR) changes resistance with light level and is used in simple light-sensing circuits, while integrated light sensor modules output analog or digital values proportional to brightness. Both introduce the concept of sensing the environment with electronics.

Key Features

- LDR resistance from 1 k ohm in light to 1 M ohm dark
- Light sensor modules with comparator outputs
- Analog output for fine readings
- Adjustable thresholds on modules
- Cheap and robust for beginners

Typical Uses in the Workshop

- Build night lights and light-activated alarms
- Control displays based on ambient light
- Measure brightness differences for lines
- Demonstrate analog input and thresholds

Safe Operation

1. Wire the LDR in a voltage divider circuit
2. Read the analog value and map it to light level
3. Set the module threshold for on/off output
4. Calibrate in the actual lighting conditions
5. Test with a hand or torch over the sensor

SAFETY NOTES

- Do not point lasers or intense light directly at the sensor
- Keep solder away from the sensing element
- Mount away from heat sources
- Check wiring before powering
- Keep the sensor dry

Maintenance & Consumables

- Keep the sensing surface clean
- Check solder joints on the LDR legs
- Retest the threshold when lamps change
- Store in the parts tray with labels
- Replace damaged sensors

Specification & Buying Notes

Buy LDR packs for divider circuits and a few comparator modules with pots for threshold projects. Both are cheap; stock plenty for the class.