LDR (Light Dependent Resistor)

An **LDR (Light Dependent Resistor)**, also called a **photoresistor**, is a light-sensitive resistor whose resistance decreases when light intensity increases. **LDR** works on the principle of **photoconductivity**. When light falls on the semiconductor material of the LDR, its resistance **decreases**, allowing more current to flow. In the darkness, resistance **increases**, reducing current flow.

Key Features:

- **High resistance in darkness** (~MΩ range)
- **Low resistance in bright light** (~kΩ range)
- **Passive electronic component**
- **Slow response time compared to photodiodes**

Common Applications:

- Automatic street lights
- Light-sensitive alarms
- Camera exposure control
- Solar-powered devices

Multimeter

A **multimeter** is an electronic measuring instrument that measures electrical parameters such as **voltage, current, and resistance**. It can be **analog or digital (DMM – Digital Multimeter)**.

Key Features:

- **Measures AC/DC Voltage and Current**
- **Checks Resistance and Continuity**
- **Some models measure Capacitance, Frequency, and Temperature**
- **Portable and battery-operated**
- **Useful for troubleshooting circuits**

Common Applications:

- Electrical and electronics troubleshooting
- Battery and power supply testing
- Component testing (resistors, diodes, transistors)
- Measuring household AC mains voltage