

OPERATION MANUAL

STUDY OF L.D.R. CHARACTERISTICS APPARATUS, MODEL – LDR – 10.



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STUDY OF LDR CHARACTERISTICS APPARATUS

MODEL – LDR – 10

Study of L.D.R (Light Dependent Resistance) Characteristic Apparatus has been designed to draw the characteristic curve between Resistance and Light Intensity at different voltages.

THE INSTRUMENT COMPRISES OF THE FOLLOWING BUILT IN PARTS:

1. One continuously variable DC Regulated power supplies of 0-30, Volts.
2. LDR is mounted on the panel connections are brought out on sockets.
3. Voltmeter and current meter are mounted on panel to measure the voltage and current.

THEORY

Electronic opto sensors are devices that alter electrical characteristic, in the presence of visible or invisible light. The best known device of this type is LDR. (Light Dependent Resistor). LDR operation relies on the fact that the conductivity resistance of a film of cadmium sulphide (cds) varies with the Intensity of light falling on the face of film. This resistance is very high under dark condition and low under bright conditions. Fig. (1 A) illustrates the basic construction of the LDR, and Fig. (1B). Shown the symbol.

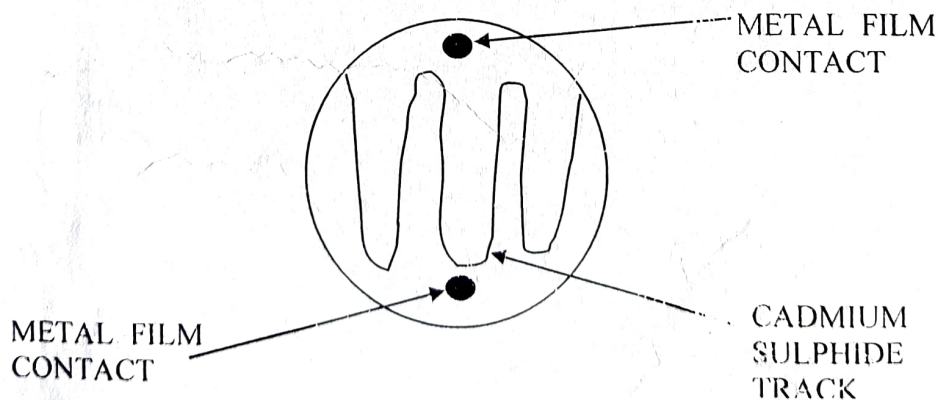


Fig. 1 (A)

The device consists of a pair of metal film contacts separated by a snake like track of contacts separated by a snake like track of cadmium sulphide film, designed to provide the maximum possible contact area with the two metal films. The structure is housed in a clear plastic or resin case, to provide free access to external light – practical LDR's are available in a variety of size and package styles, the most popular size having a face diameter of roughly 10 mm. LDR's are sensitive inexpensive and readily available devices. They have good power and voltage handling capabilities similar to those of a conventional resistor. Their only significant defect is that they are fairly slow acting taking tens hundreds of milliseconds to respond to sudden changes in light and dark activated switches and alarms, light beams and reflective smoke alarms etc.

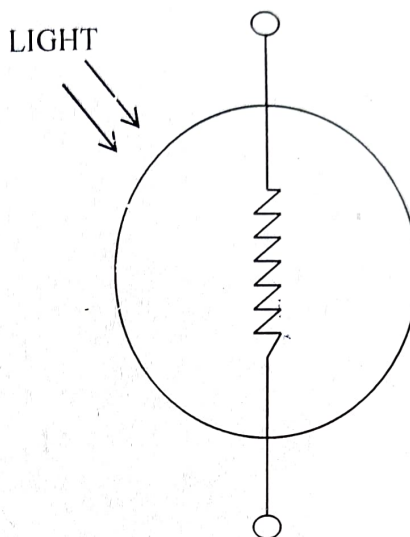


FIG. 1 (B)

PROCEDURE

1. Connect the circuit as in Fig. 2. i.e. connect the voltmeter and current meter in the circuit connecting dotted lines through path cords.
2. Switch ON the instrument using ON / OFF toggle switch provided on front panel.
3. Adjust the power supply to 1, Volt and focus the light on LDR. Note down the corresponding current and calculate the resistance value of LDR using formula :

$$R = V / I$$

4. Repeat step 3 for different supply voltages.

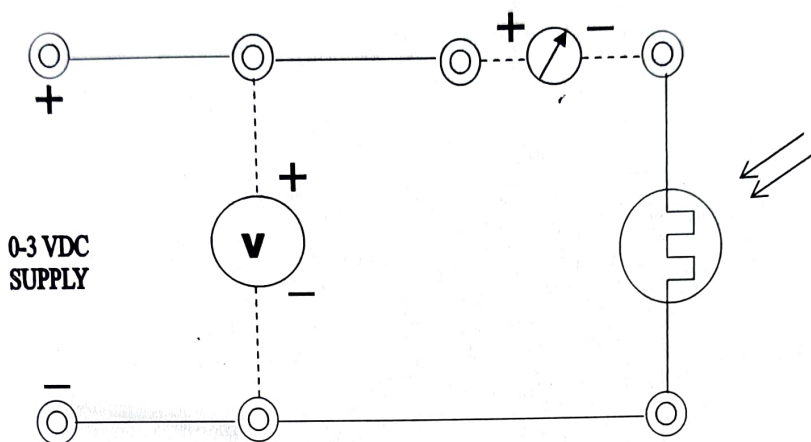


FIG. 2

STANDARD ACCESSORIES

1. Six Single point Patch for Interconnections.