

Light-sensitive switch

This switch could have a number of applications — it can be operated by either light or heat. Where an LDR is used as the sensing element, the relay will be operated by light which exceeds a predetermined level.

Substituting a thermistor for the LDR will cause the circuit to trigger when a preset heat is exceeded.

The sense device (either the LDR or the thermistor) actually forms a voltage divider with the 10k Ω trimpot. The output of this divider varies in proportion to the amount of light or

heat detected by the sensor.

The divider output is fed to the inverting input (pin 2) of IC1, a 741 op-amp wired as a comparator. When the sense voltage falls below a reference voltage on its non-inverting input (pin 3), the output (pin 6) goes high.

The output of IC1 drives transistor Q1 which, in turn, provides coil current for the relay. D1 protects the circuit against inductive kick-back from the relay coil.

The 10k Ω trimpot allows adjustment of the trigger point. Note that the thermistor should be of the NTC type.

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