

MOTION SENSOR FOR SECURITY LIGHT

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Here is a system based on PIR motion detector module BS1600 (or BS1700) that

The working of the circuit is simple. When you power-on the circuit after assembling all the components including the CFL, the CFL will glow for 10 seconds, turn off for 30 seconds,

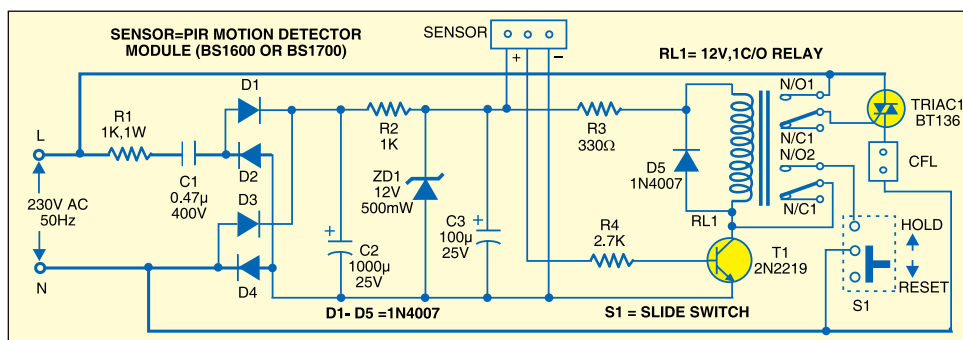


Fig. 1: Circuit of motion sensor for security light

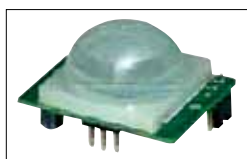


Fig. 2: PIR motion detector module (BS1600 or BS1700)

can be used for security or corridor lighting in power-saving mode. The 12V DC power supply required for the motion detector and the relay driver is derived from 230V, 50Hz mains using a transformerless circuit as shown in Fig. 1.

glow for 10 seconds and then turn off. Now the circuit is ready to work.

When any movement is detected, around 3.3V appears on the base of relay-driver transistor T1 and it conducts to energise relay RL1. As a result, TRIAC1 (BT136) fires to provide full 230V and light up the CFL. Another normally-opened contact of the relay (N/O2) is used here to hold the output until reset. If the switch is not in 'hold' position, the light

will remain 'on' for about ten seconds (as programmed in the motion sensor). In short, when there is a movement near the sensor, the CFL glows for about ten seconds. It will remain 'on' if switch S1 is in 'hold' position.

Assemble the circuit on a general-purpose PCB and enclose in a suitable cabinet. Use a three-pin connector for connecting the PIR sensor in

the circuit with correct polarity. The motion detector is embedded onto the transparent cover of the light assembly as shown in Fig. 2

An arrangement of CFL assembly in the author's prototype (Fig. 3) is shown in Fig. 4. In this arrangement, a PIR sensor and 23W, 230V AC CFL are used. Seal all four sides with Blue Tac for water-tightness. Insulate the track side of the PCB using an insulating foam and glue to the base. ●



Fig. 3: Author's prototype



Fig. 4: CFL assembly