

NIGHT ACTIVATE SWITCH 220V.
CODE 404 **LEVEL 1**

This circuit can make human more convenient by automatically switching on the moon light at night and switching off in the morning. This circuit is suitable for front gate light. Easily installing by using small amount of alternating current (220VAC) only.

Technical specifications:

- power supply: 220-240VAC.
- adj. sensitivity by trimmer potentiometer
- maximum load: 10A@125VAC and 5A@220VAC
- PCB dimensions : 2.53 x 1.72 inches.

How to works:

The alternating current is reduced by C1, diode, D1-D4 are connected with rectifier circuit and transform to direct current. C2 is a filter. Photo-transistor is light detector. During day time, photo-transistor detects sun light, causing voltage at the base of TR4 is increased then TR4 is working while the collector of TR4 does not have voltage makes TR3 not working. Because at the base of TR3 not have voltage. So LED does not display and relay does not work. The collector of TR4 transfers voltage to the base of TR2 makes TR2 working by keeping voltage overload. At night, there is no sun light reflect to photo-transistor, causing TR4 does not work. The collector of TR4 transfers voltage to the base of TR3 makes TR3 working and LED then displays. While relay is working, the collector of TR3 does not have voltage so the base of TR2 does not have voltage and TR2 also does not work. Trimmer potentiometer VR1 is used for lighting adjustment.

PCB assembly:

Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. The LED has a flat spot on the body which lines up with the line on the overlay. Now check that you really did mount them all the right way round!

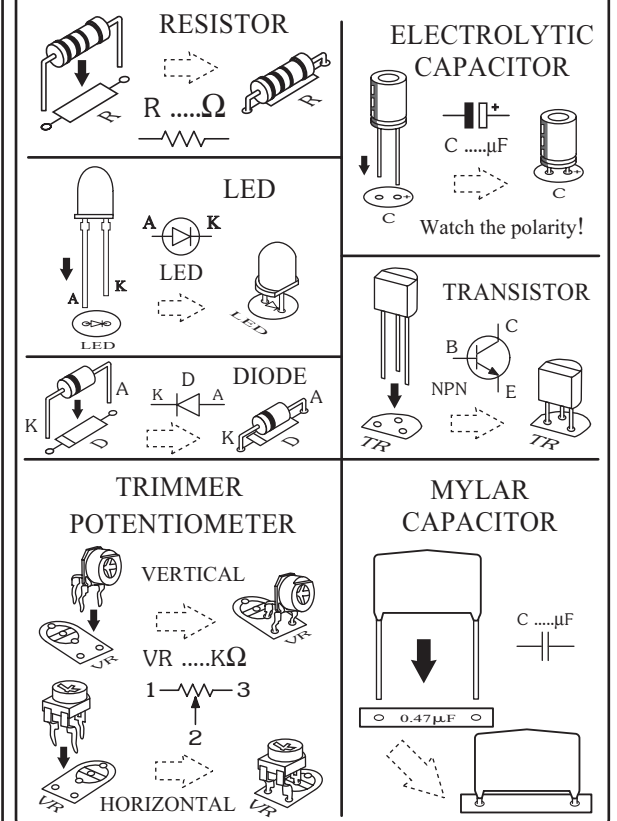
Testing:

Connect the power supply 12VDC to circuit. If photo-transistor detects light, LED does not display and moon light is not opened as well. Testing by keeping light from photo-transistor, LED now displays as well as moon light is opened automatically.

Application:

Suggest to have black pipe with no lamp for actual application. For short circuit prevention, adjusting VR prior to power supply given.

Figure 1. Installing the components



Troubleshooting:

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.

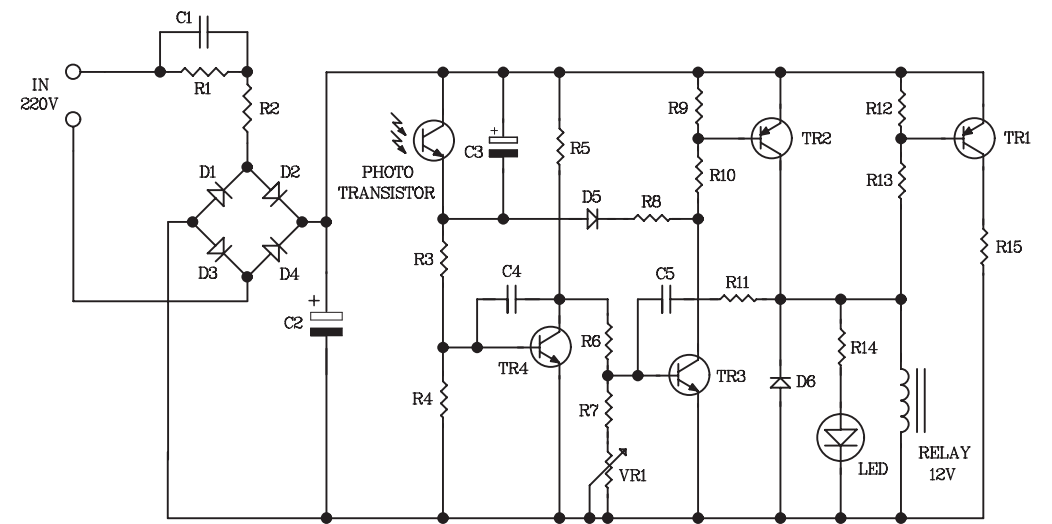
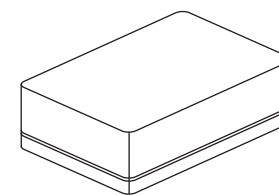
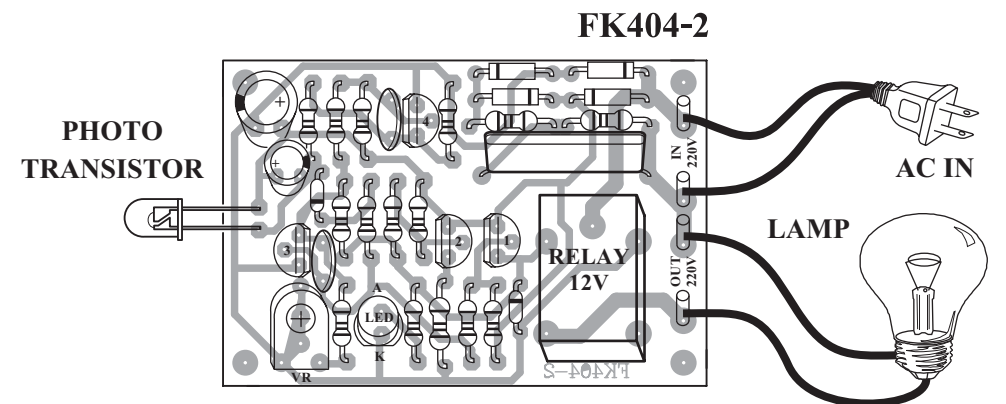


Figure 2. The night activate switch 220V. circuit

Figure 3. Connections



NOTE:
FUTURE BOX FB03 is suitable for this kit.

NEW KIT SET

CODE FK	DESCRIPTION	POWER
170	DANGER FLASHER 42 LED	9-12VDC.
171	TWO LAMP FLASHER	3VDC.
172	THREE STEP FLASHER 19 LED	9-12VDC.
173	HALLOWEEN PUMPKIN FLASHER 23 LED	9-12VDC.
174	ANIMATED LED SIGNBOARD (5x7 DOT MATRIX)	3-5VDC.
327	DUAL STATION INTERCOM (TRANSISTOR)	4.5-6VDC.
512	DING/DONG DOOR CHIME (PIR SENSOR)	4.5-6VDC.
816	VARIABLE REGULATOR 0-50V. 3A.	50VDC.
817	TRANSFORMERLESS POWER SUPPLY 6-9-12V 50mA	220-240VAC.