

LIGHT ACTIVATE SWITCH (LIGHT-ON)
CODE 401 **LEVEL 1**

This light activate switch circuit is an electronic circuit that using light to control the relay for open or close electric home appliances. When photo transistor detects light, relay is working by starting those connected electric home appliance. When photo transistor does not detect light, the relay is not working and immediately stopping those electric home appliance.

Technical specifications:

- power supply: 12VDC.
- consumption: 46mA max.
- maximum load: 10A@125VAC and 5A@220VAC
- PCB dimensions : 1.29 x 2.36 inches.

How to works:

TR1 acts as light detector. When detecting light, the internal resistance of photo transistor will decrease caused starting of the base of TR1 and TR2. Then relay will work and LED is displaying. But whenever photo transistor does not detect light, the internal resistance of photo transistor will increase, voltage at the base will also decrease till TR1 and TR2 cannot work, relay won't work and LED won't display. Connecting D1 and R5 back to prevent relay shaking.

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!

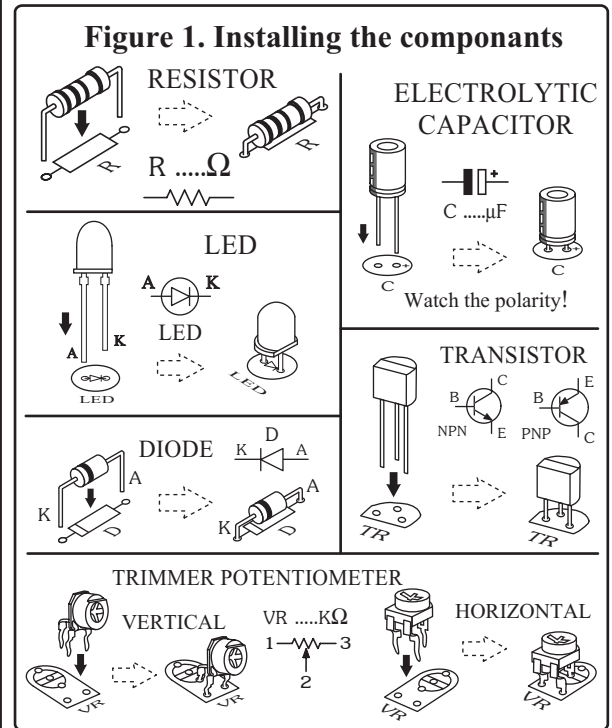
Testing:

Connect the power supply 12VDC to circuit. With connecting "+12" point at positive pole and "G" point at negative pole. Turn photo transistor to light. Relay will

start working by having "tik-tak" sound from relay and LED will display. Hiding photo transistor from light then relay will stop working, by having is signal sound from relay and LED wil shut down.

Application:

Connecting 220VAC with "AC IN" point and connecting "AC OUT" point with required electric home appliance. Covering photo transistor with a black pipe or rolled cylinder black paper with 2 cm. Length in order to get direct light to the circuit. VR1 is used for adjusting the sensitivity.



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.

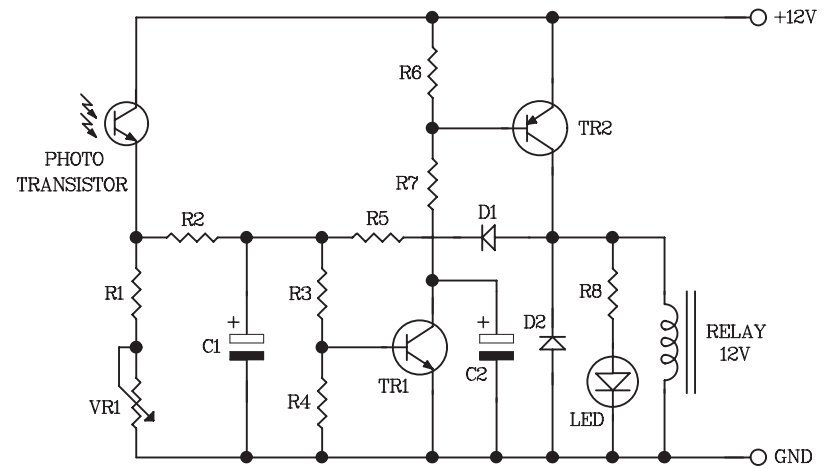
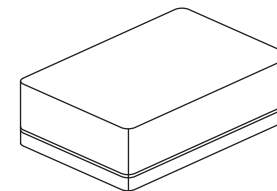
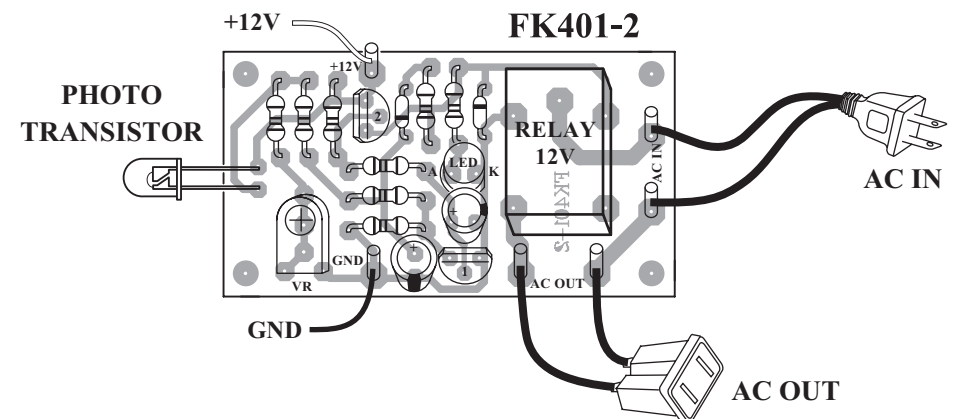


Figure 2. The light activate switch (light-on) circuit

Figure 3. Connections



NOTE:
FUTURE BOX FB03 is suitable for this kit.

NEW KIT SET **NEW**

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.