FUTURE KIT

HIGH QUALITY ELECTRONIC KITS

LIGHT REMOTE CONTROL SWITCH

CODE 402 — LEVEL 1

The light remote control switch was adapted to be more efficient. It is easy to use and assemble. The switch circuit was designed to be transistor that sensitive to the light and has light emitting diode (LED) showing the circuit state.

Technical specifications:

- Power supply: 12VDC.
- Consumption: 42mA max.
- Maximum load: 10A@125VAC and 5A@220VAC
- PCB dimensions : 1.54 x 2.85 inches.

How to works:

The circuit uses photo transistor as light sensor. The resistance of photo transistor is usually high so the current flows hardly, about 0.2-0.3 volt at C2. But when light passes through photo transistor, its resistance will reduce. That lets more current at C2 anode. C2 will lock-on the base of TR1. Then TR1 is on, its C current will temporary low, letting flip-flop to work. TR2 and TR3 alternating current. If TR2 and LED1 are both on, TR3 will be off and relay will not attract the contact so LED3 will also off. On the contrary, when light passes through photo transistor, TR1 is temporary on, TR2 and LED are but TR3 is on and let relay to attract the contact that LED2 to be on. It is alternating by light passing through photo transistor.

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!

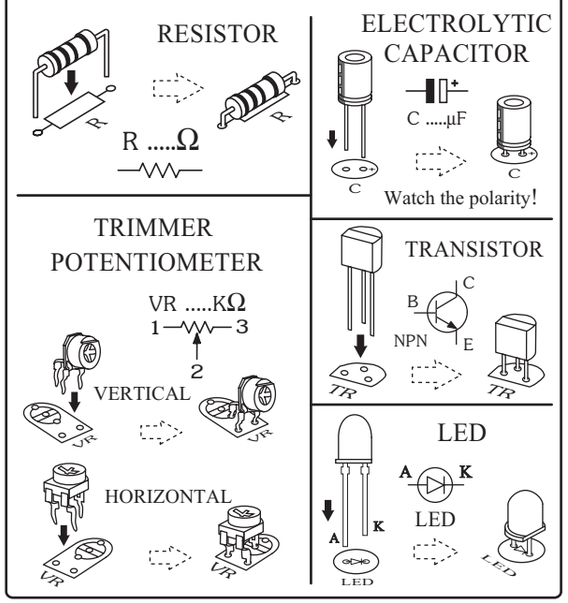
Testing:

Connect the power supply 12VDC to circuit. With connecting "+12" point at positive pole and "G" point at negative pole. It LED1 is on, LED2 is still. Turn photo transistor to the light, cover it and undo. LED1 is off but LED2 is on. The relay is work again, cover photo transistor and undo. LED2 is now off but LED1 is on. The relay is not work.

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.

Figure 1. Installing the componants



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.

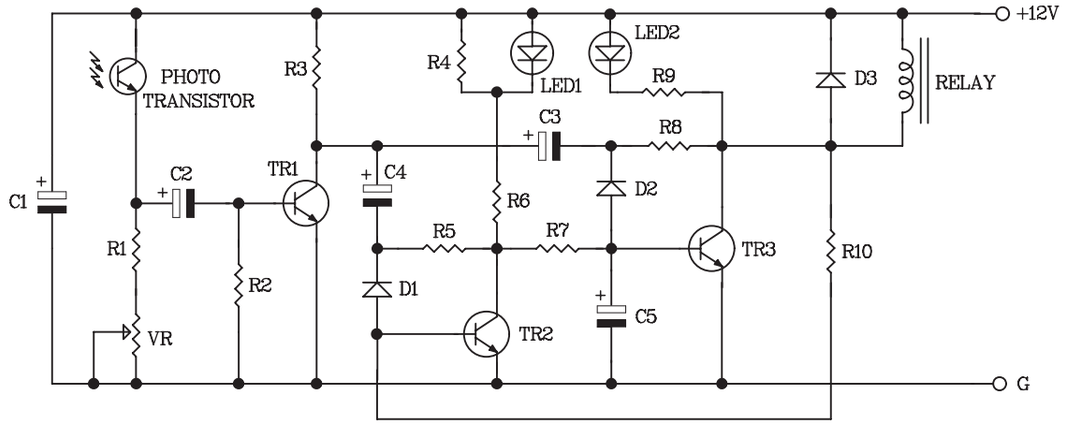
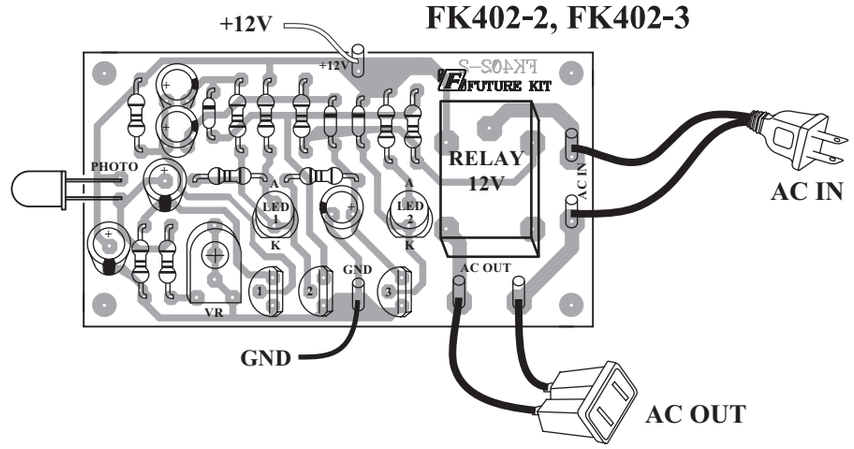
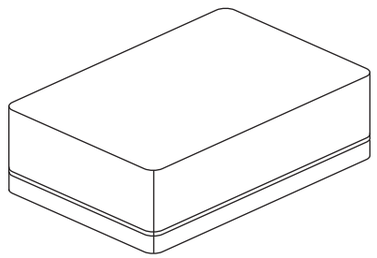


Figure 2. The light remote control switch circuit

Figure 3. Connections





NOTE:

FUTURE BOX FB04 is suitable for this kit.

NEW KIT SET NEW

CODE FK	DESCRIPTION	POWER
277	LOVELY MASSAGE VOICE	3VDC
327	DUAL STATION INTERCOM (TRANSISTOR)	4.5-6VDC
511	TWO FUNCTION INFRARED SENSOR	12VDC
512	DING/DONG DOOR CHIME (PIR SENSOR)	4.5VDC
935	BODY TEMPERATURE	9VDC
936	FOUR DIGITAL COUNTER (PRESETTABLE)	6-12VDC