



FUTURE KIT

HIGH QUALITY ELECTRONIC KITS

CIRCULATED ON-OFF SWITCH 0-180 MIN.
CODE 432 **LEVEL 1**

This circulated on-off switch circuit can control the on-off function freely. It may be used in almost any application, such as switching off television and hi-fi equipment, lights (staircase lighting), dark-room timer, etc.

Technical specifications:

- power supply : 12VDC.
- consumption : 45mA max.
- relay output : 10A@110VAC, 5A@220VAC
- range : from ± 1 to ± 180 minutes
- PCB dimensions : 3.01 x 1.87 inches.

How to works:

IC1 acts as the ON timer and VR1(ON) incharges for time adjustment from 1 to 180 minutes. TR1 conducts the current to the circuit, LED display and relay works. The collector of TR1 resets IC2 at pin12 to stop IC2. VR1 makes TR1 stop transferring current on setting time, relay will stop working, LED does not display and pin3 of IC2 is not reset. IC2 can be worked by adjusting OFF timer, IC2 will then send OUTPUT to pin3 to reset IC1 so that OUTPUT at pin3 does not have voltage. While TR1 works, LED displays and relay works. At the collector of TR1 has high voltage and reset IC1 respectively making IC2 reset. At pin3 of IC2 is stopping reset IC1 so that IC1 is working and acts as timer as normal condition.

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. If the pins will not enter the holes with ease, use a small drill to slightly enlarge the opening. 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. Some components are particularly sensitive to heat (ie: Transistors, IC's, diodes etc.) extra care must be taken to only apply the iron for as little time as possible, using a pair of pliers to grip the leads will help conduct heat away. Trim components leads with wire cutters to prevent excess lengths causing a short circuit. Now check that you really did mount them all the right way round!

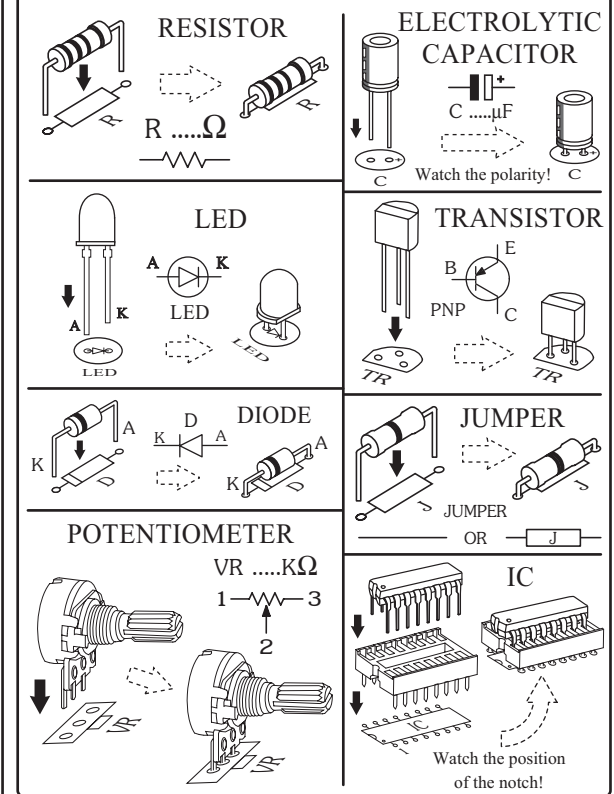
Testing:

When correctly finishing up the installation, turn both potentiometer max. counterclockwise. Supply the power supply 12VDC to the circuit. LED is displaying while relay is working for 1 minute then stopping, and again showing. Potentiometer VR1(ON) incharges for relay and LED working adjustment maximum to 180 minutes while VR2(OFF) incharges for relay and LED non-working adjustment from 1 to 180 minutes.

Remark:

J1 is used for setting timer as normal condition 1 to 180 minutes.
J2, J3 is used for setting timer to second but disconnect J1.

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.

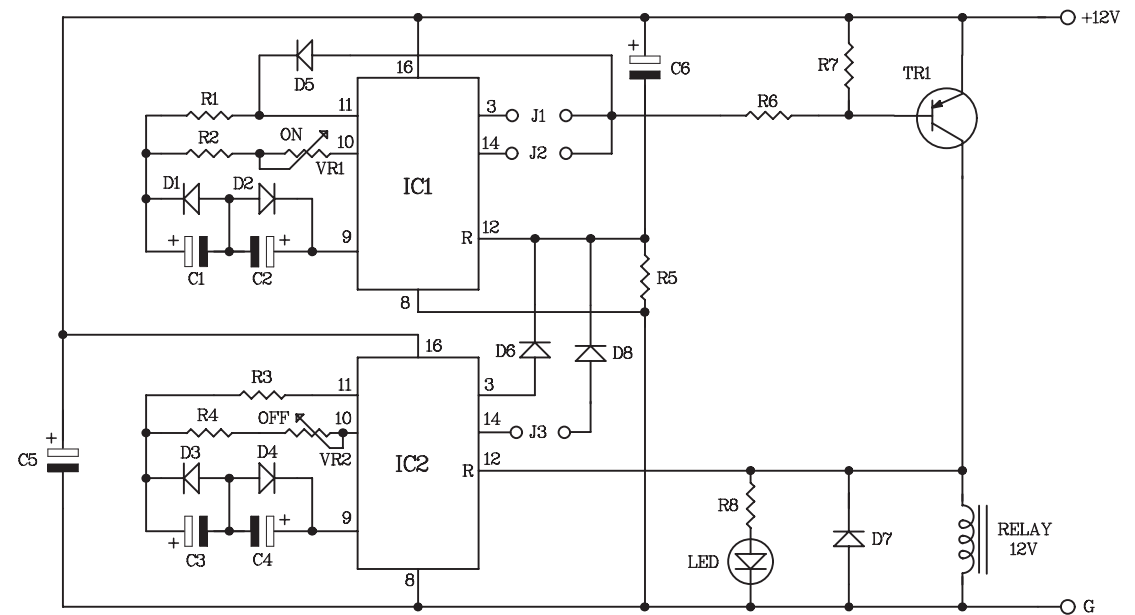


Figure 2. The circulated on-off switch circuit

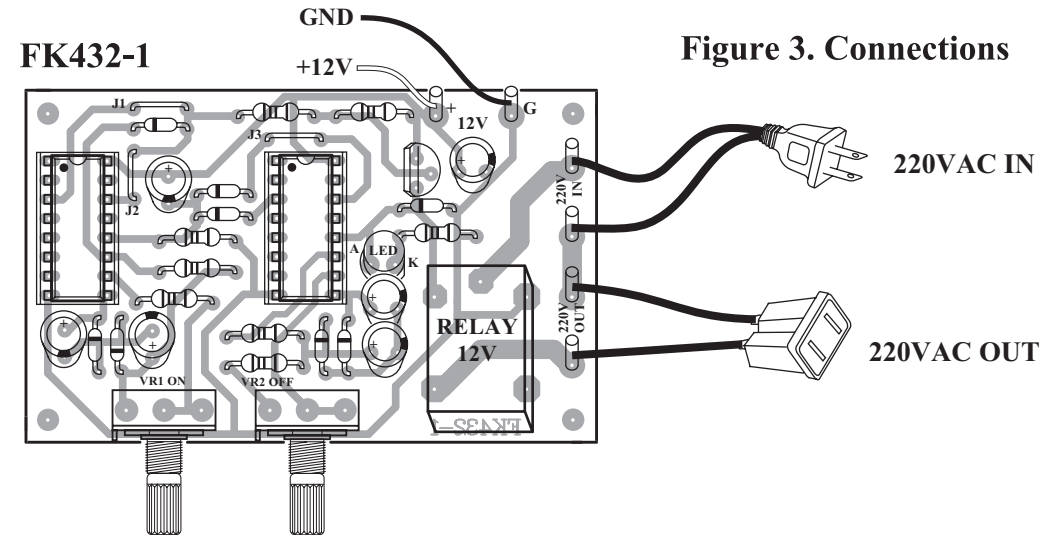
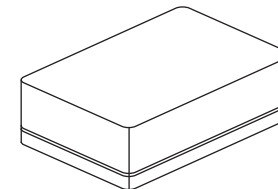


Figure 3. Connections



NOTE:
FUTURE BOX FB04 is suitable for this kit.

NEW KIT SET

CODE FK	DESCRIPTION	POWER
161	FEELING FLASHER 14 LED	9-12VDC
162	SATURN'S RING FLASHER 31 LED	9-12VDC
163	UNIVERSAL FLASHER 10 LED	9VDC
164	XENON TUBE FLASHER (STRAIGHT TYPE)	220VAC
165	SOUND ACTIVATED XENON FLASHER (STRAIGHT TYPE)	220VAC
166	LIGHT ACTIVATED XENON FLASHER (STRAIGHT TYPE)	220VAC