

SOLID STATE RELAY
CODE 423

LEVEL 1

The solid state relay device is an electronic relay used instead of mechanical one.

Technical specifications:

- power supply : 5-15VDC.
- consumption : 5mA @ 5VDC
- maximum load : 1000 watts @ 220VAC
- speed adj. by potentiometer
- PCB dimensions : 2.04 x 1.46 inches.

How to works:

The circuit utilizes IC1 as an optocoupler dividing high and low voltage. R1 controls the current distributed to LED. As illustrated in figure circuit it can be seen here that the current flows through R2 and R3 to the Terminal. After that the voltage flows out pin 4 of IC to the gate of TRIAC to trick and function. Since IC1 is diac and works at zero voltage so it has no disturbed trouble and prolongs the triac using. The input can be connected to DC from 5 to 15 volts. If it is used with input voltage at 16 to 30 volts, change R 500Ω to 2kΩ.

PCB assembly:

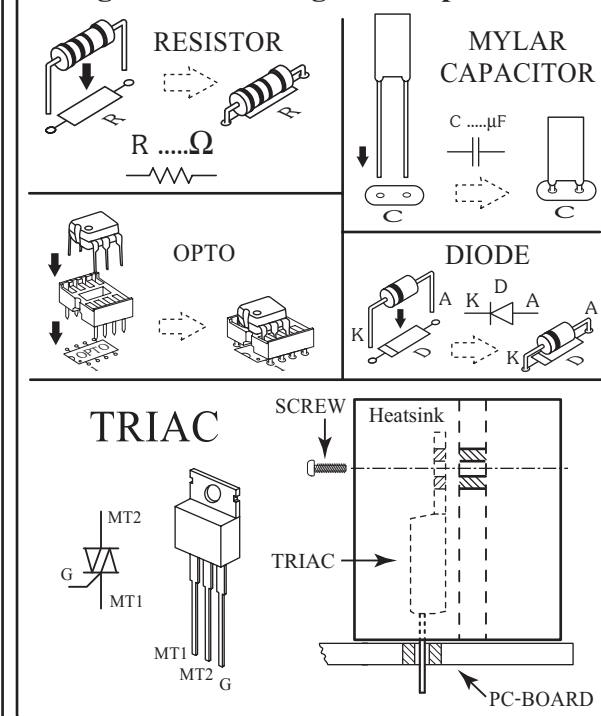
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. If the pins will not enter the holes with ease, 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:

Connecting all component follow figure 3 which connect DC voltage control 5-15 volts to "+" and "G" point. LOAD is connected to "OUT" and "220V" point. The circuit can be connected to a load not over 10A. If it is connected to more than 3A., the line should be connected separately from the pattern and a ventilated board should be provided for TRIAC.

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.

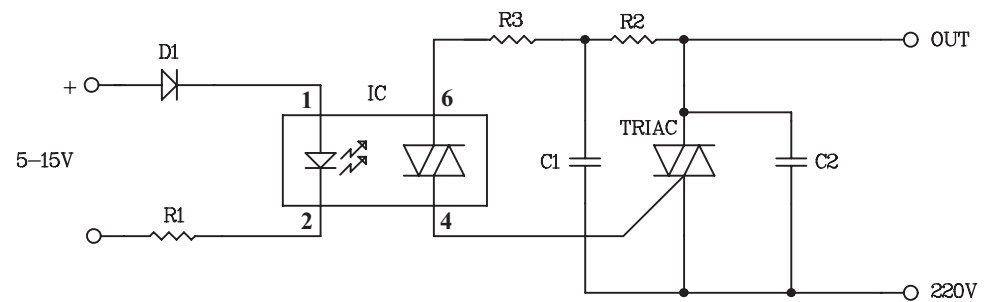
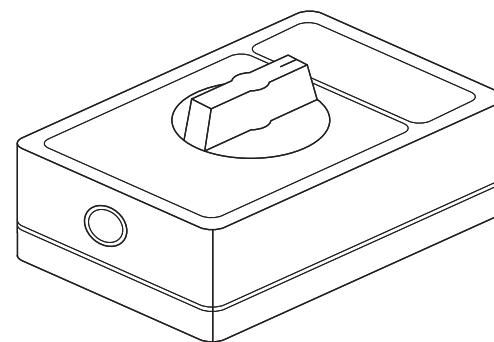
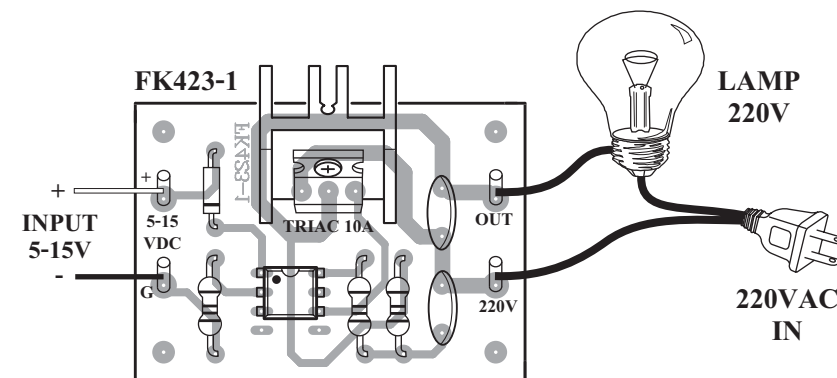


Figure 2. The solid state relay circuit

Figure 3. Connections



NOTE:

FUTURE BOX FB14 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