

LIGHT DIMMER 1000 WATT
CODE 416

LEVEL 1

The light dimmer is an electronic device used for dimming or adjusting light of electric bulbs and heat of stoves or electric pans. Its maximum capability is to be used with electrical appliances up to 1000 watts.

Technical specifications:

- voltage supply: 220-240VAC.
- maximum load: 1000 watts @ 220VAC
- dimming adj. by potentiometer
- PCB dimensions : 1.01 x 1.46 inches.

How to works:

The triac works as the switch of dimming-brightening operation, capable of the voltage control of the both cathode and anode poles. As illustrated in figure circuit it can be seen here that the current in each fragment will be divided into 180 degree fragment. If the triac can be controlled of its current induction at between 45-180 degree this means that the bulb will light about 50%. Following this principle, therefore, our task in this case is seeking to find an circuit capable of adjusting the tricking duration for the triac to induce the current from 0-180 degree, using R1 and VR1 to work in combination with C1 as a relay set, to trick the triac at particular grid. The diac will function to increase the voltage to the triac.

PCB assembly:

Shown in Figure 5 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!

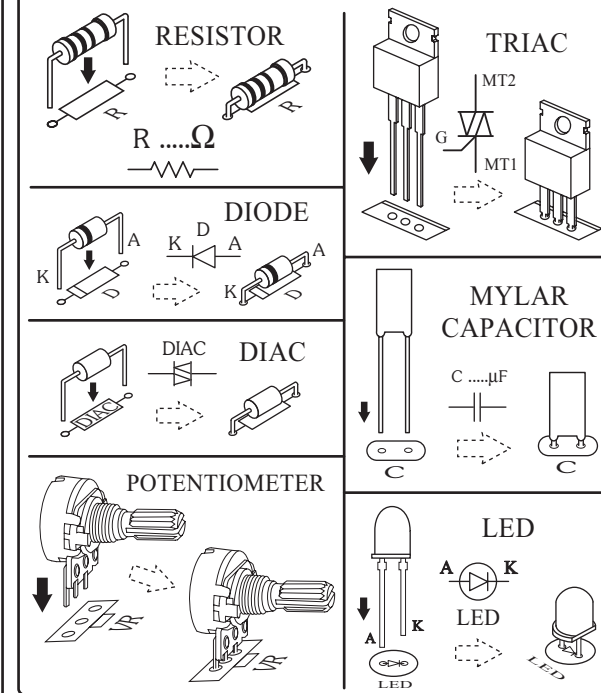
Testing:

Assemble the smaller components first then proceed with the assembly of larger component subsequently. VR1

should be provided with plastic knob for prevention of electric chock. On completion of the assembly, check again many times to ensure accurate and complete assembly. Bring a light bulb of a coil type to connect to the out terminal, connect the in terminal with a power source and try increasing and decreasing VR1. If light bulb dims and brightens up according to the adjusting operation, this proves be practical.

*On its voltage connection with 220VAC do not touch any of the components as an electric shock may take place.

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.

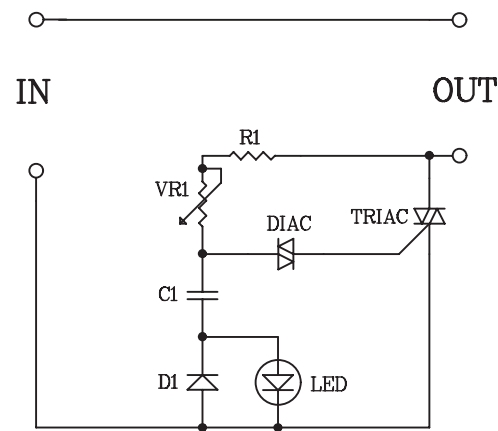


Figure 2. The light dimmer 1000 watt circuit

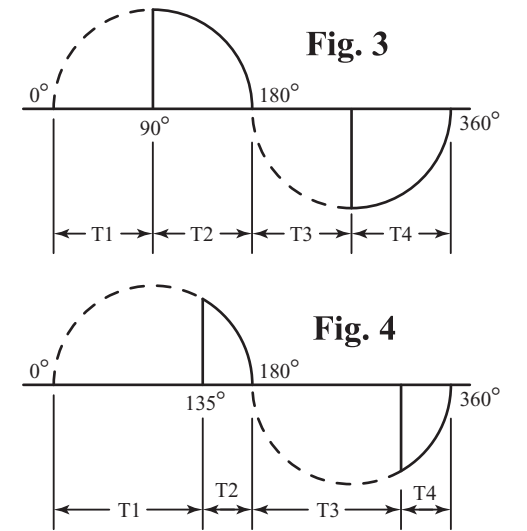
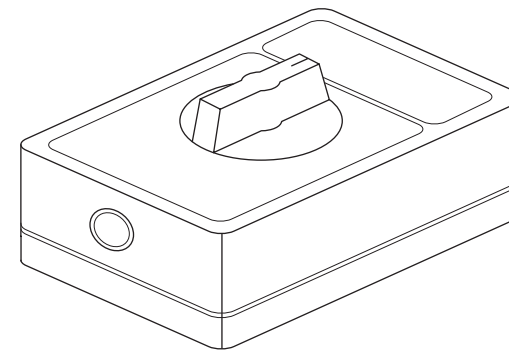
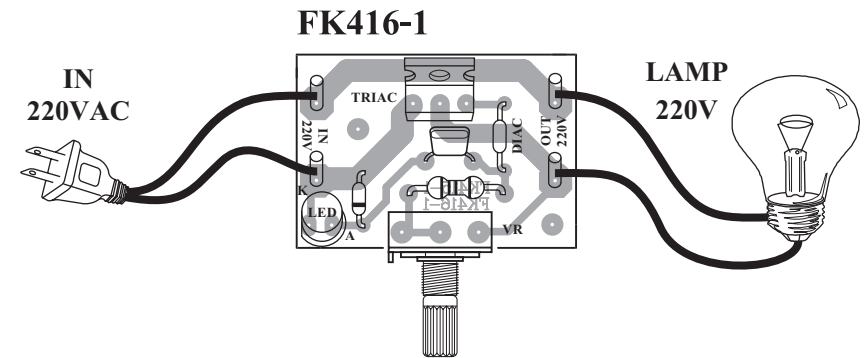


Figure 5. Connections



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