

## DELAY OFF SWITCH 0-10 MIN. CODE MX046

This delay off switch circuit is a timer off circuit. It can be apply to many using.

### Technical specifications:

- Mains voltage : 110-125VAC. or 220-240VAC. (select jumper)

- max. load : 500W.

- Delay time (without modifications) : adj. from 15 sec. to 10 min.

- LED indication for operating.

- PCB dimensions : 3.22 x 2.23 inches.

### How to works:

When has no voltage to circuit, the contact of relay is connected to "COM" and "NC" position. But if push switch SW to "ON" position, the voltage from the main voltage will supply the circuit through relay at "COM" and "NC", R1, D1 and SW1. This voltage is divided into two ways. The first way is fed to relay through D2 with has ZD1 is controlled this voltage not over 15 volts. The second way is charged C1 and C2 through R2 and fed to the base of TR1, causing TR1 and TR2 are working and relay is working too. Relay will be changed the contact to "COM" and "NO". In this time, at "OUT" point has the voltage to supply the load and the circuit is received from this point through R7, C4, D5, D6, D7, D8 and supply to relay. If switch SW is holding at "ON" point, the circuit is working.

When switch SW pushes "OFF" point, C2 and C3 has no charging but if discharge the voltage by R4 and VR1 to ground. This voltage will be fed to the base of TR1 through R3 when the voltage at C2 and C3 is lower 1.2 volts, TR1 and TR2 is not working and relay is not working too. The contact of relay will be charged to "COM" and "NC". The circuit is not working now.

For the time of delay is set by the value of C2, C3, R4 and VR1. VR1 is used to adjust the time of delay off. LED1 is showing when the circuit is working.

### 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 component is following figure 3. Before supply the voltage to circuit, push switch ON/OFF to "OFF" position, adjust trimmer potentiometer max. counterclockwise, and jump the

jumper J is the same the main voltage. Supply the main voltage to circuit. In this time, the lamp is light off and then push switch ON/OFF to "ON" position, LED and lamp are light on. After one minute, the lamp is holding light on, push switch ON/OFF to "OFF" position, LED and lamp is light on approximate 15 seconds and then are light off.

### Connector and tuning:

- SW point is used to connect the power switch.

- AC IN point used to connect the main voltage 110-125VAC or 220-240VAC.

- AC OUT point is used to connect the equipment at you want control.

- VR is used to adjust the timer of switch-off.

**NOTE:** This circuit is using the main voltage 110-125VAC or 220-240VAC, before testing and adjusting you must disconnect the main voltage everytime.

### Figure 1. Installing the componants

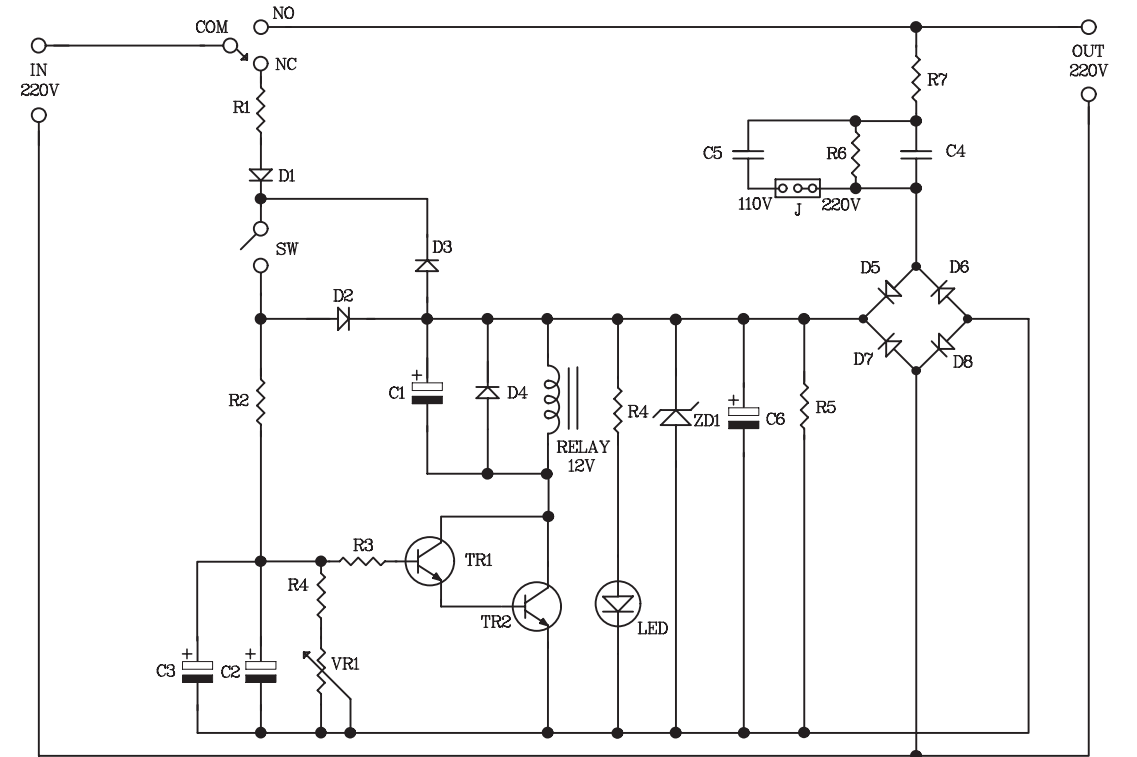
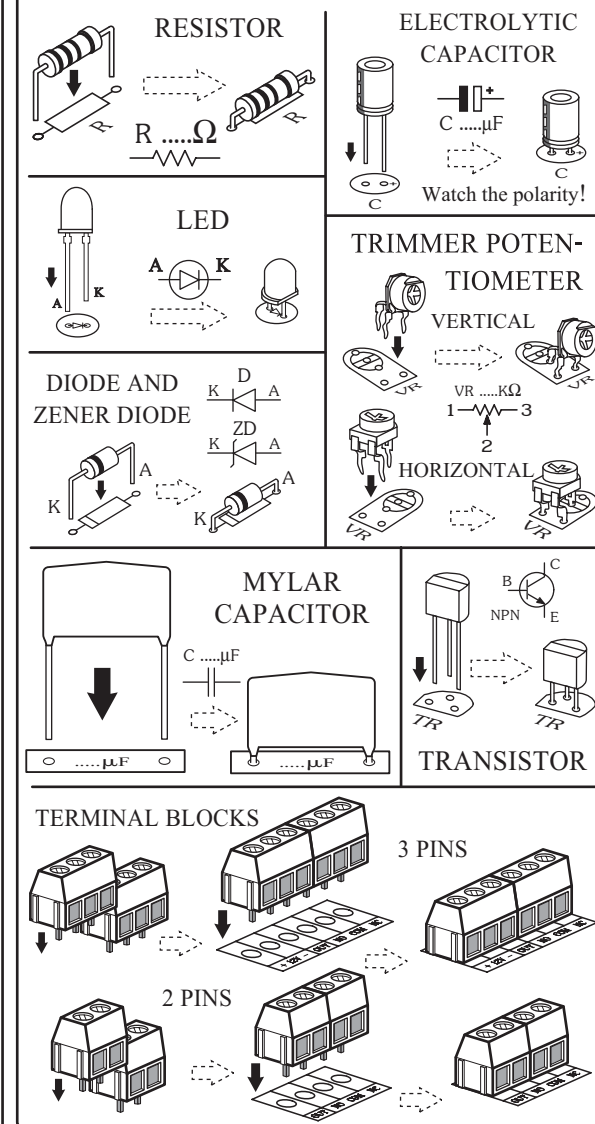
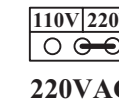
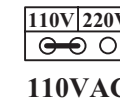
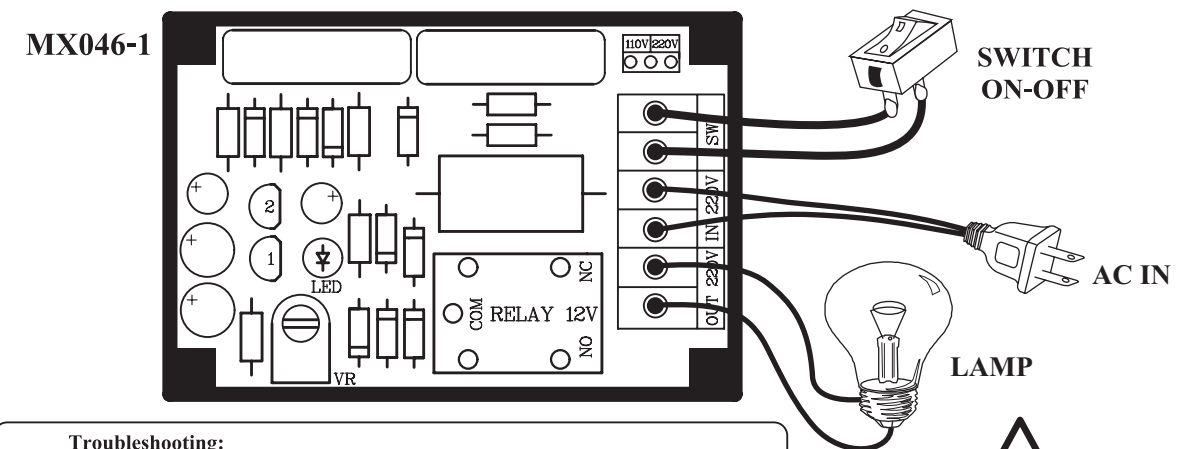


Figure 2. The delay off switch 0-10 min. circuit

### Select jumper for selecting the power supply



### Figure 3. Connections



### 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.