

**TRAFFIC LIGHT 4 WAY 12 LED**  
CODE 148 **LEVEL 2**

This circuit is the running light circuit. The shape is the same to traffic light at intersection. This circuit consist of 12 LEDs. Idea as light shows for model construction etc.

**Technical specifications:**

- power supply: 9-12VDC.
- consumption: 18-30mA max.
- dimensions of PCB : 1.26 x 3.54 inches.

**How to works:**

Multi-vibrator (TR3 and TR4) is configured as frequency generator. TR3 and TR4 will alternately operation one by one. The frequency generate is depending on C2, C3, R6 and R7. This frequency is fed to the base of TR5 through R9, causing TR5 to toggle on and off. The voltage at the collector of TR5 is connected to pin 14 of IC1.

IC1 is configured as decade counter. This counter has four outputs arising from pin 10 and pin 15 of IC1 is short circuit and therefore counts up from 0-3. Each of these four outputs is connected to an LED. Pin 2 and pin 7 of IC1 are also used to bias TR2 through R3, causing turns on TR1 and TR2 in unison. Multi-vibrator (TR3 and TR4) is generate the higher frequency. At the output of IC1 is very fast to the multi-vibrator circuit.

**PCB assembly:**

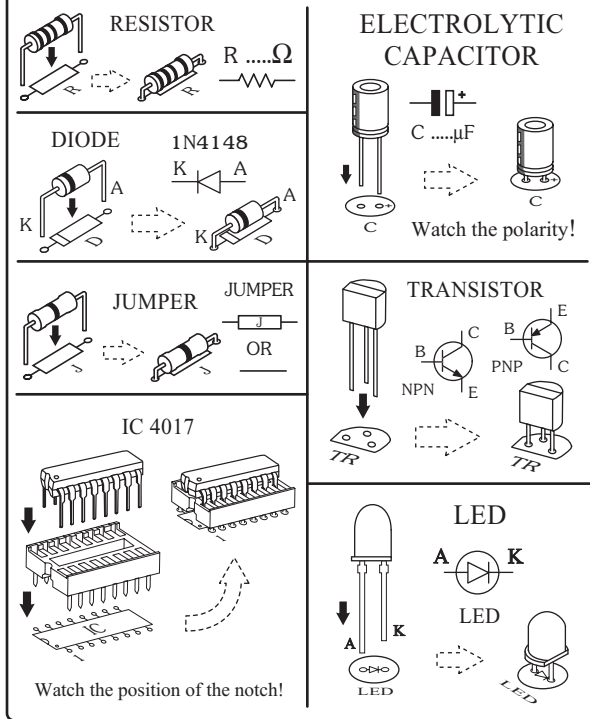
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. All components with axial leads should be carefully 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:**

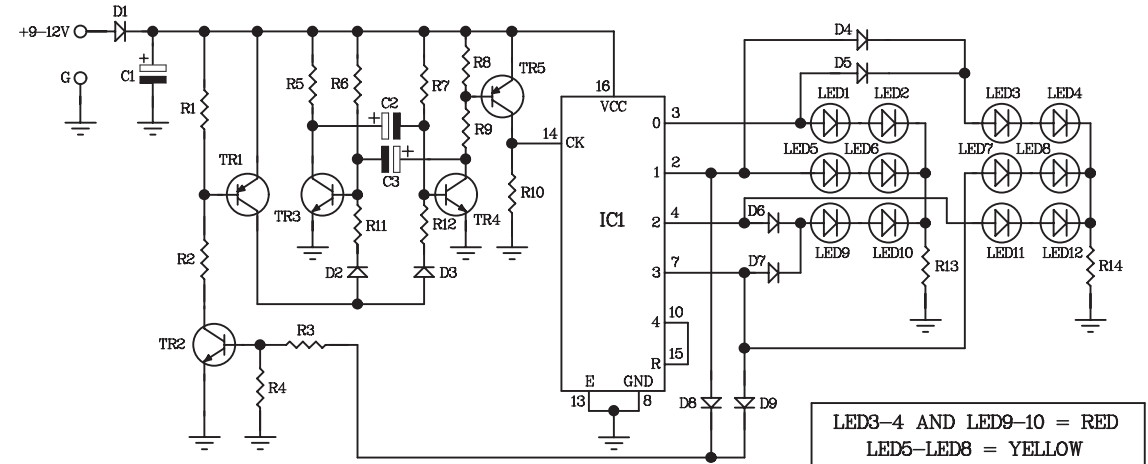
Connect 9-volt battery to circuit. With the position pole is connected to "+" point and the negative pole is connected to "-" point. All LEDs is blinking to the same traffic light. Red LEDs and green LEDs the light is on approximate 30 seconds. Yellow LEDs the light is on approximate 3 seconds. If you want to increase the time for red LEDs and green LEDs can be adjusted by altering the value of R6 and R7.

**Figure 1. Installing the componants**



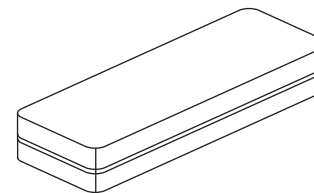
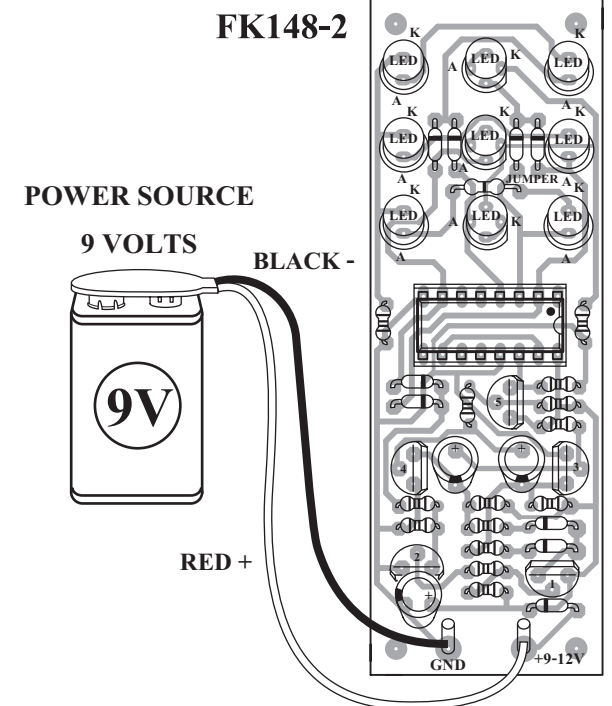
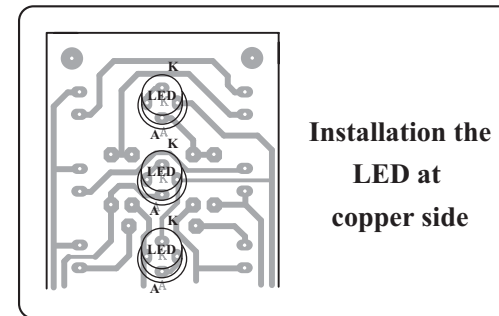
**Troubleshooting:**

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. Traffic light 4 way 12 LED circuit**

**Figure 3. Connections**



**NOTE:**

FUTURE BOX FB02 is suitable for this kit.

**NEW KIT SET**

CODE FK	DESCRIPTION	POWER
511	TWO FUNCTION INFRARED SENSOR	12VDC
674	POWER AMP. 2W MONO WITH SPEAKER	9-12VDC
675	POWER AMP. 2+2W STEREO WITH SPEAKER	9-12VDC