FUTURE KIT

HIGH QUALITY ELECTRONIC KITS

FUTURE KIT

TWO FUNCTION INFRARED SENSOR

CODE 511 — LEVEL 2

This circuit is the multipurpose detector circuit. It can be applied at you want. Idel for alarm system, automatic light system, etc.

Technical specifications:

- power supply : 12VDC.
- consumption : 20mA.(standby), 55mA.(working)
- operating: barrier(50cm.max.) and reflective(8m.max.)
- max. load : 500 watts
- PCB dimensions : 2.33 x 2.77 inches.

How to works:

The operation of this circuit can be divided two sections. First section (transmitter), IC1/2 is used to generate the carrier 38kHz, IC1/4 is generated the frequency 250Hz, IC1/3 is generated the frequency 10Hz. All frequency will be mixed by IC1/1 and fed to the base of TR5. TR5 drives LED INFRARED.

Second section (receiver), MODULE is configured to receive the infrered signal from transmitter. The signal from MODULE is fed to C4, D4 and filter this signal by C5 to DC signal. DC signal is amplified the signal by TR3 and TR4 before send to jumper J2. Jumper J1 and J2 are selector the operation of circuit. If select J2 to "A" position, the circuit is operated to the barrier. But If select J2 to "B" position, the circuit is operated to the refletive. Jumper J1 is selected filp-flop mode(jumping J1) and normal mode(not jumping J1). TR1 and TR2 are the filp-flop 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:

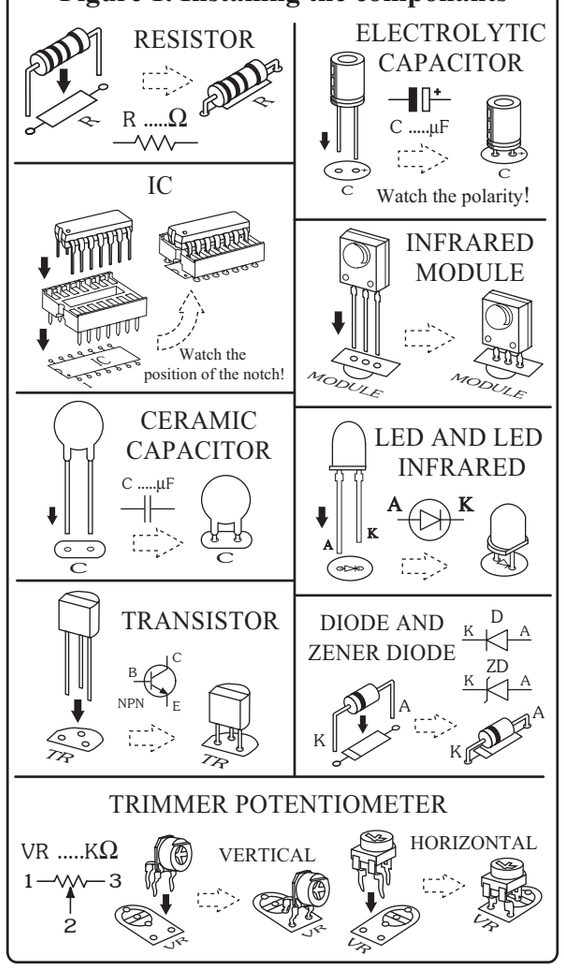
Before supply the power supply, jumping J1 and select J2 to "A" position. After that supply the power supply to the circuit, LED1 and LED2 are light off. If LED2 is blinking, at the face of LED INFRARED has the object to be hide. But if LED2 is light off continuous, take your hand to hide the face of LED INFRARED by distance 10 cm. LED2 will be blinking and LED1 is light on. If the circuit is not working, adjust VR1 and VR2.

Application:

Jumper J1 is selected filp-flop mode (jumping) and normal mode (not jumping).

Jumper J2 is selected the operation. Jumping to "A" position, the circuit is working to barrier mode and maximum distance 50 cm. If jumping to "B" position and take off LED INFRARED from PC-board and connect LED INFRARED AND PC-board with the mono chield cable, the circuit is working to reflective mode and maximum distance 7 to 8 m.

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.

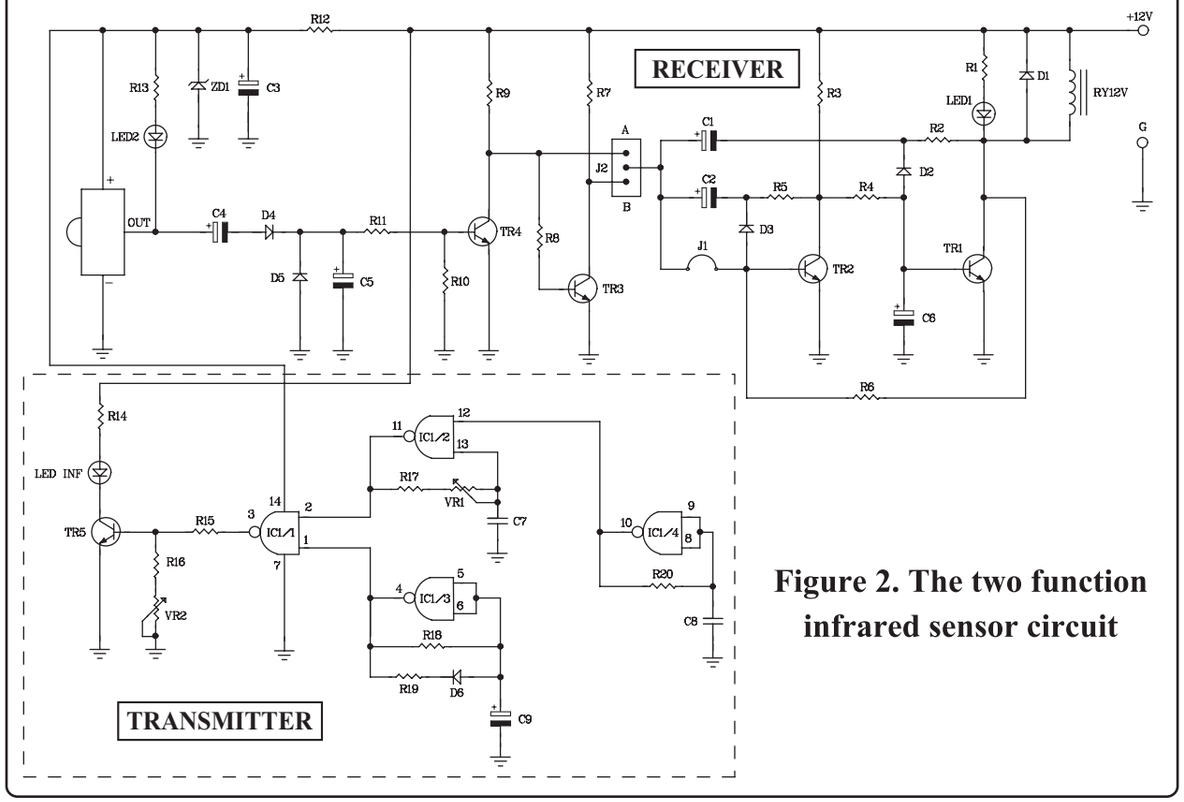
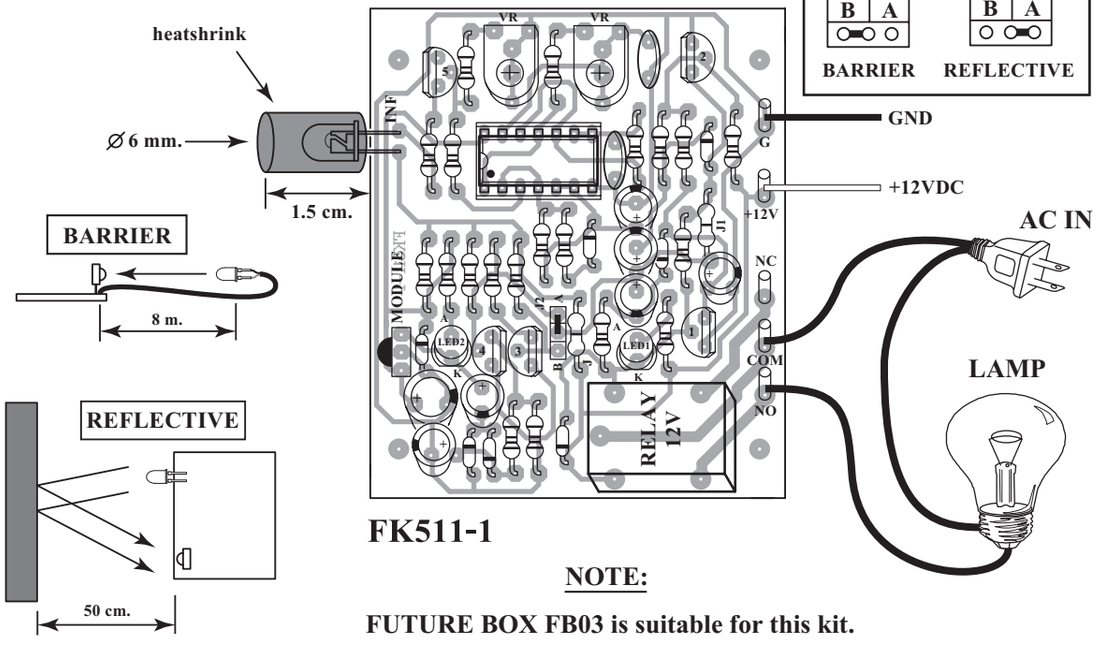


Figure 2. The two function infrared sensor circuit

Figure 3. Connections



NOTE:

FUTURE BOX FB03 is suitable for this kit.