

AUTOMATIC SPRINKLER CONTROL
CODE 947 **LEVEL 1**

This circuit is used to control the water pump for watering plant and flower automatically. It measures the soil moisture in 3 levels with delay time.

Technical Specifications

- Power supply : 12VDC.
- Consumption : 46 mA. (working), 25 mA. (standby)
- With 3 LEDs for showing 3 different levels of soil moisture.
- Delay time : 4-240 seconds
- Maximum load : 1A.
- PCB dimensions : 2.31 x 1.29 in.

How to Work

The circuit diagram is shown in Figure 1. This circuit is based on conductive materials by moisture when the soil moisture content measured FROB. Voltage that flows through the humidity. Will be sent to the IC1/2, IC1/3 and IC1/4 to compare the level of pressure to flow through.

After comparing and offices. If a voltage greater than that set out to. It sends out voltage. If there is more moisture by LED1-3 will install all the moisture and moderate LED1 and LED2 lights and if the humidity low LED1 lights only one moon.

Switch SW1 serves to select the desired humidity level relay function. The relay will run when humidity not to the extent that we choose to (notice the LED1-LED3 turns chasing down) for VR1 will be a delay for the relay run. When the moisture to the point where we selected.

Circuit Assembling

External connecting and fitting of components are shown in Figure 2. It is recommended to assemble the circuit starting with a lower

component first i.e. diodes, resistor, electrolyte capacitors and transistors etc. Be careful while assembling and check for the matching of PCB poles and components before soldering as shown in Figure 3. Use a max. 40W. solder and soldering lead with a tin and lead ratio of 60/40 together with a joint solution inside. Recheck the assembled circuit for your own assurance. Better using a lead sucker or a lead wire absorber in case of misplacing component to protect PCB from damage.

Testing

When the assembly is complete.

1. Adjust VR1 and VR2 to the left move switch SW1 to position one.
2. Supply 12VDC to the circuit. LED4 and LED5 will be lighted on and relay will start working.
3. Jump into FROB position. LED1-3 will be lighted on. Then LED4 will be off and relay will stop working.

Usage

1. Connect the wire from FROB positions and insert the metal probe into the soil.
2. Supply power into the circuit and observe at LED1-3, if the soil is dry, LED1-3 will not be on. Then the water pump will start working according to the set-time and LED1-3 will be lighted on.

NOTE: in case of dry soil but LED1-3 is on, adjust VR2 until LED1-3 is off.

Controlling points

1. VR1 is used to control the time of watering.
2. VR1 is used to adjust the watering according to the soil conditions.
3. SW1 is to set the moisture level when watering, which can be adjusted into 3 different level:-
 - Level 1 for lowest moisture.
 - Level 2 for medium moisture.
 - Level 3 for highest moisture.
4. SW2 is used to stop the relay.
5. LED1-3 are soil moisture level indicators:-
 - LED1 for lowest.
 - LED2 for medium.
 - LED3 for highest.

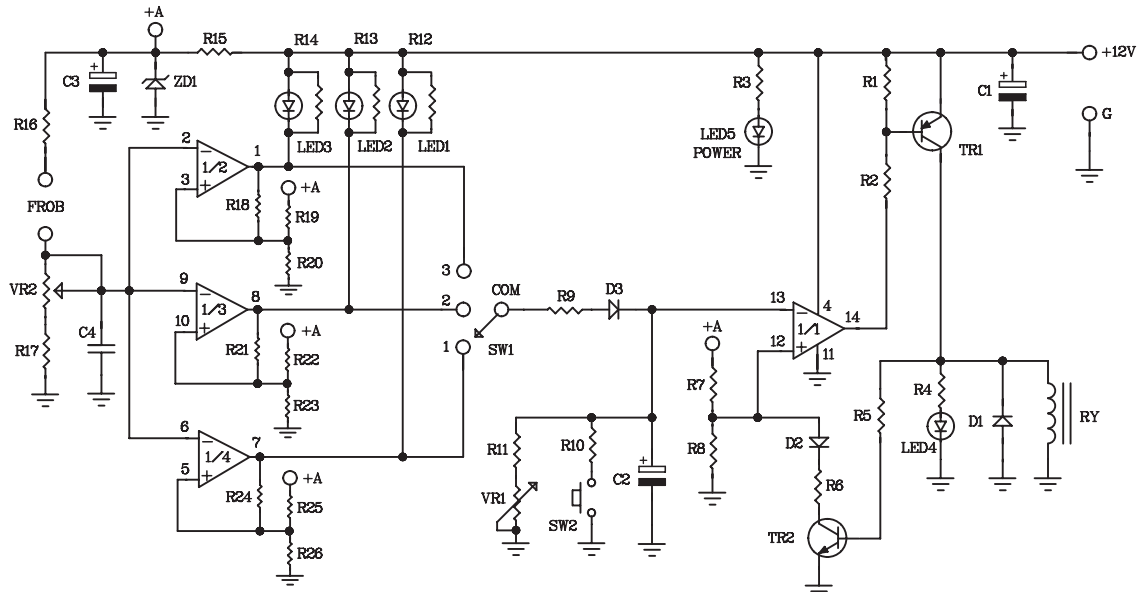
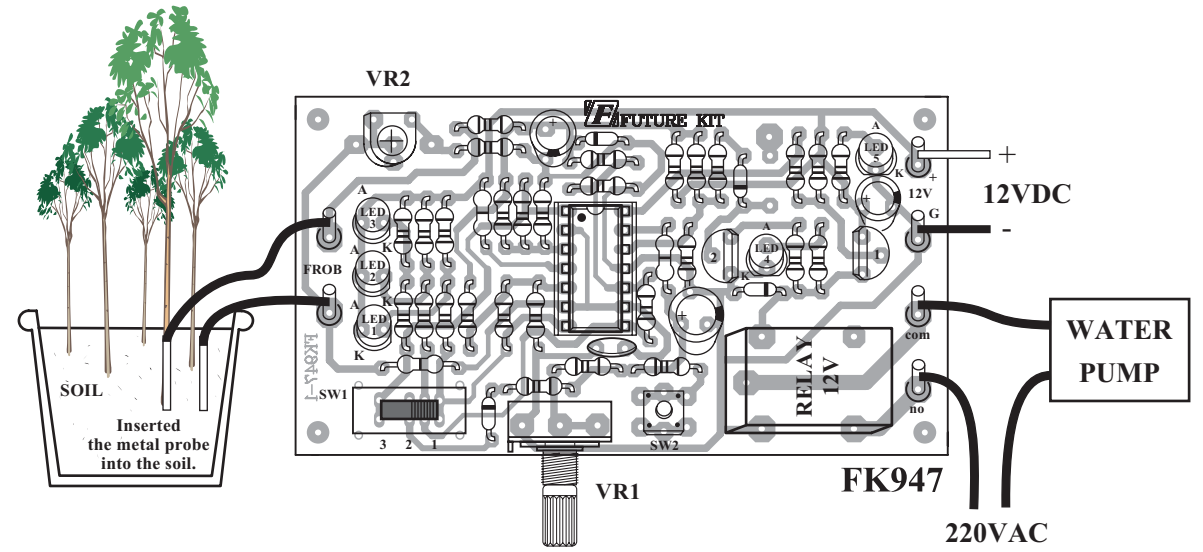


Figure 1. Automatic Sprinkler Control Circuit



NO.1

Troubleshooting:

As the circuit has only a few components, the main cause of troubles will come from component misplacing and defaulted soldering. When found out that the circuit does not work, check for the proper component placings and various soldering points.

NOTE:

FUTURE BOX FB04 is suitable for this kit.

Figure 3. Components Installing

