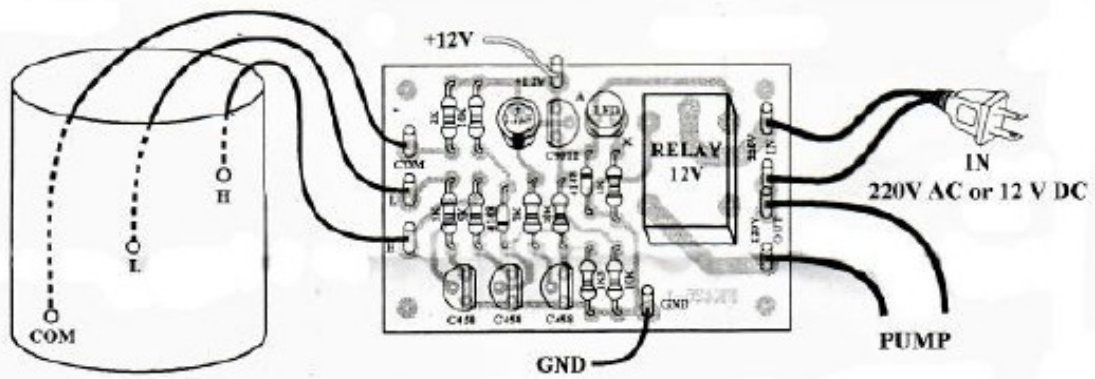


FK425



WATER PUMP CONTROL CIRCUIT



elta kit

WATER PUMP LEVEL CONTROL CODE 425

Control water pump circuit, it is controls water pump automatically to pump water up till tank is full, then it will automatically stopping, whenever the water in tank is respect till at level, water pump will start pumping water up again.

Technical specifications:

- power supply : 12VDC.
- consumption : 45mA max.
- maximum load : 500W with 120VAC.
- 2 levels detect.
- PCB dimension : 2.42 x 1.61 inches.

How to work:

If there is no level water in the tank, TR1 and TR2 will not working at the beginning stage because the base of TR1 and TR2 have no voltage, the collector of TR1 will having high voltage. This high voltage will transfer through D1 to the base of TR2 and make TR2 and TR1 conduct current, LED displays, relay works and water pump is working. Water level will rise pass I. level and cause TR1 conduct current, short the collector of TR1 to ground while TR2 and TR1 still work by having feedback voltage to R2 and providing by diode D1. Water pump is continuously working till water reaches II level, TR2 conducts current in short at the base of TR2 to ground. TR2 and TR1 will stop conducting current, LED shuts down and relay does not work, so water pump is stop working too. When water in tank is reduced respectively from II to I. level, TR2 will stop conducting current, the collector then has high voltage which will transfer to diode D1 to the base of TR2. All facilities will be repeated as above.

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 or touch these tracks. If the pins will not enter the holes with ease, use a small drill to slightly enlarge the opening. All components with axial leads should be carefully bent in 90° (or parallel to the PCB) and soldered on both sides. Make sure that the electrolytic capacitors are inserted the correct way around. Some components are particularly

sensitive to heat (i.e. Transistors, IC's, diodes etc.) extra care must be taken to only apply the heat for as little time as possible, using a pair of pliers to grip the leads will help conduct heat away. Trim components leads with wire cutters to prevent excess lengths causing a short circuit. Now check that you really did mount them all the right way round!

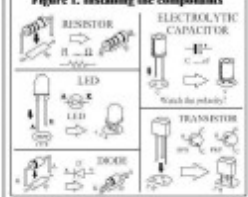
Testing:

Check connected 12VDC to the circuit.

1. At the beginning stage, LED displays and relay works. Connecting II pole with COM pin, LED will shut down and relay stop working. Taking it off from COM, LED displays and relay will work again.

2. Shorting I. pole with COM, relay is working. Shorting II pole to COM again. Now, COM, I. and II are connected, LED shuts down and relay stop working. Taking II pole off, relay does not work and LED does not display. Taking I. pole off from COM, now LED displays while relay works.

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 polarized components have been soldered the right way round.

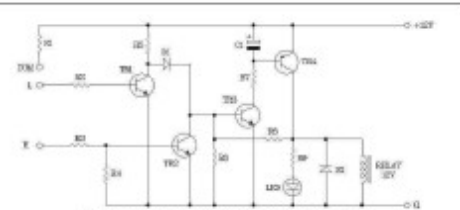


Figure 2. The water pump level control circuit

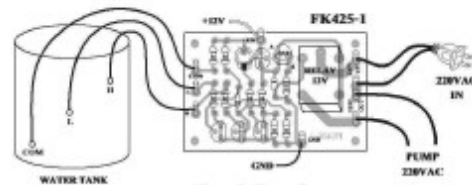


Figure 3. Connections



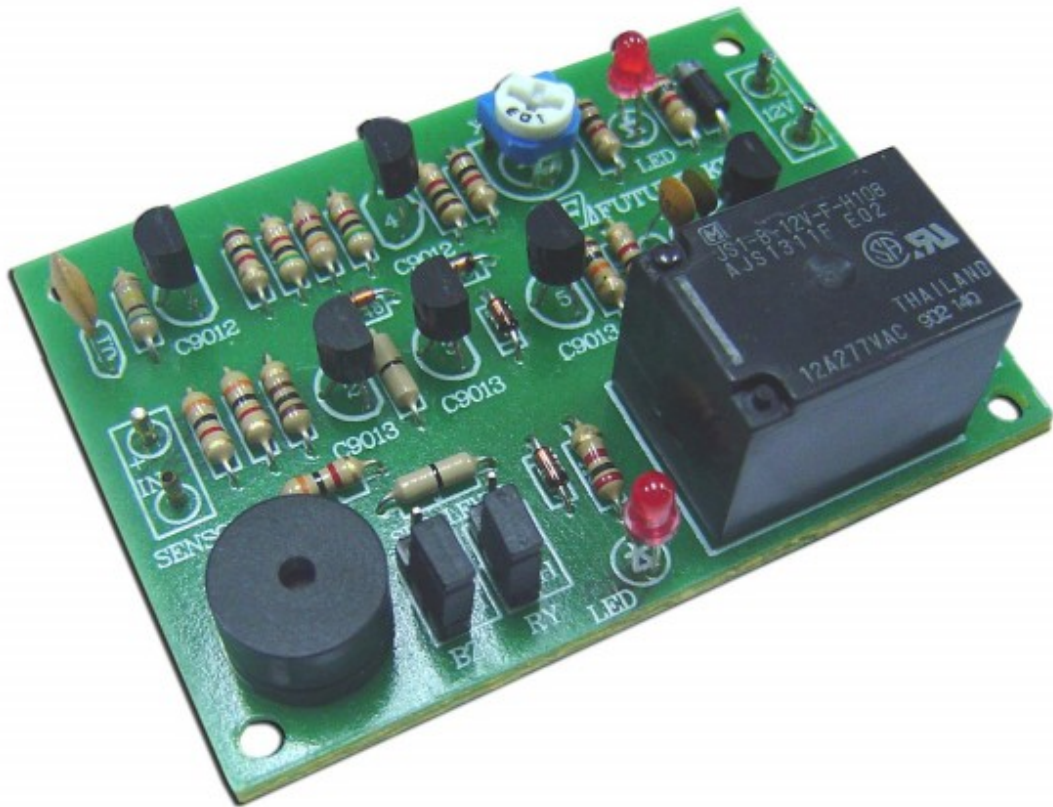
NOTE:

FUTURE BOX PINK is suitable for this kit.

NEW KIT SET

CODE FK	DESCRIPTION	POWER
01	BELLWORKER JELLY	5-12VDC
02	SAVINGS REGISTER JELLY	5-12VDC
03	UNIVERSAL FLASHER JELLY	5-12VDC
04	GENERIC FLASHER (REAR) KIT	220V AC
05	GENERIC FLASHER (FRONT) KIT	220V AC
06	GENERIC FLASHER (REAR) KIT	220V AC
07	GENERIC FLASHER (FRONT) KIT	220V AC

FK438



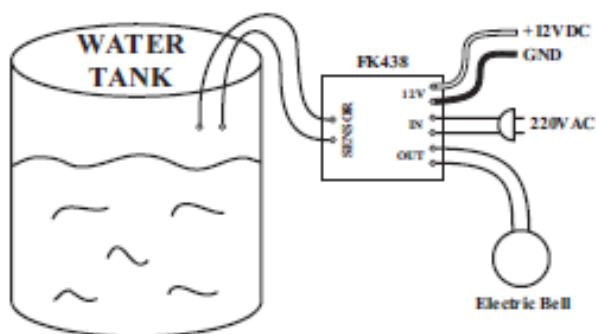


Figure 4.

Installation for Water Level Alarm

- Water overflow, jumping RY and BZ to H position.
- Water decrease, jumping RY and BZ to L position.

Figure 5. Installation for Control Water Pump (using not more than 200 watts)

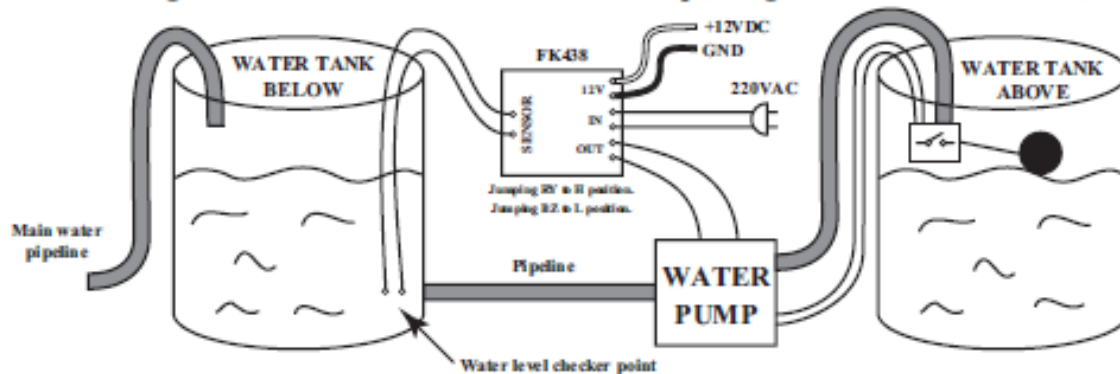
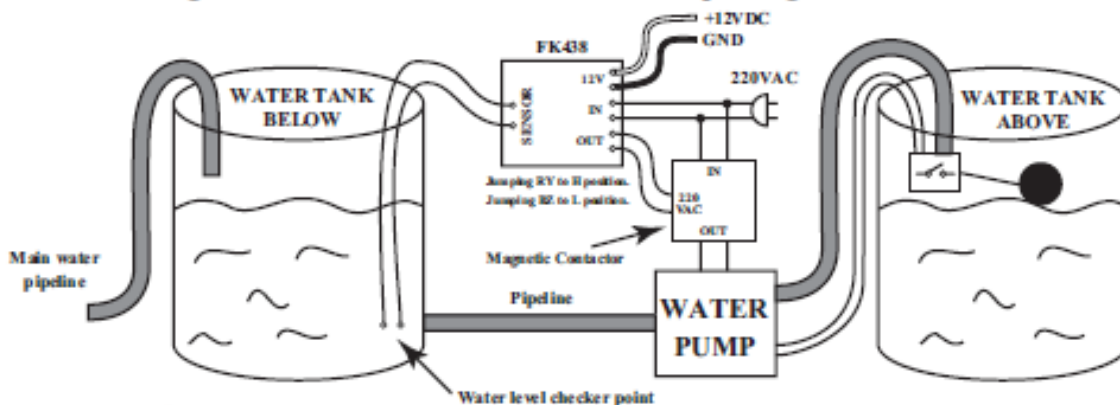


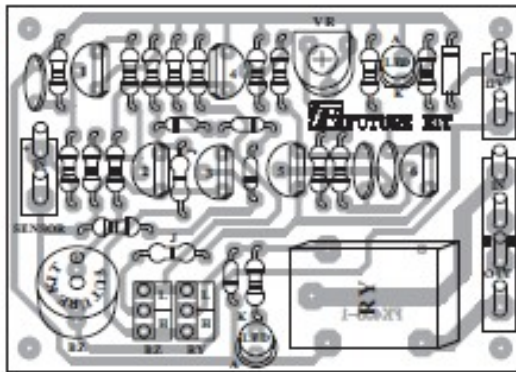
Figure 6. Installation for Control Water Pump (using more than 200 watts)



Troubleshooting:

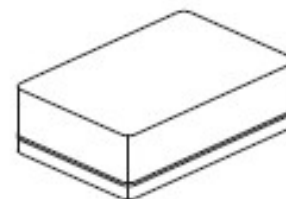
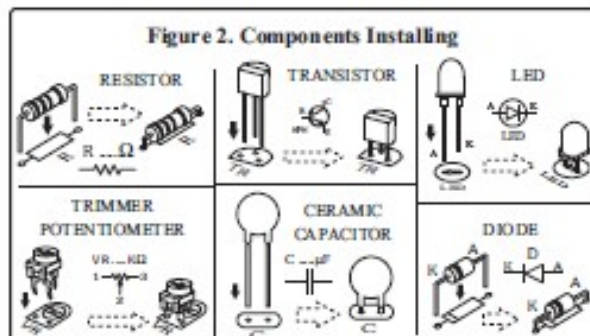
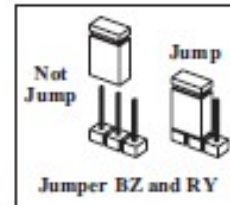
As the circuit has only a few components, the main cause of troubles will come from component misplacing and defaulted soldering. When found out that the circuit does not work, check for the proper component placings and various soldering points.

FK438



NO.1

Figure 1.
Circuit Assembling



NOTE:

FUTURE BOX FB03 is suitable for this kit.



WATER LEVEL PUMP CONTROL WITH ALARM
CODE 438 LEVEL 1

This is a water level detector circuit for pump control and warning device for high or low water levels. Applications include controlling levels in header tanks, detection of overflow conditions and for warning of low water tank levels. The high level low level relay functionality is jumper selected. A jumper selected audible alert is provided by an on-board mini sounder.

Technical Specifications:

- Power supply : 12VDC.
- Consumption : max. 150mA. (working), max. 11mA. (standby).
- Can be set the operation of relay and alarm sound when the water in tank is full or empty.
- Loading : 1A.
- PCB dimensions : 2.64 x 1.87 in.

Circuit Assembling:

External connecting and fitting of components are shown in Figure 1. 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 2. 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.

How to Work:

The circuit diagram is shown in Figure 3. SENSOR point will check the water level. When SENSOR detects the water in pipeline or tank is empty, TR1 and TR2 aren't working, causing TR3 is working. Whenever SENSOR detects the water in pipeline or tank, TR1 and TR2 are working, causing TR3 not working.

Using:

Supply 12VDC to the circuit that having connected positive pole to position +12V and negative one to position G. Adjust VR to middle point.

1) In case of setting the alarm when water decrease, (See Figure 4), jump BZ and RY to L position. Connect the electric wire between sensor point and the water level point. When the water is lower than the set level, relay and alarm will be working. If the water is higher than the set level, both relay and alarm will not working.

2) In case of setting the alarm when water overflow, (See Figure 4), jump BZ and RY to H position. Connect the electric wire between sensor point and the water level point. When the water is higher than the set level, relay and alarm will be working. If the water is lower than the set level, both relay and alarm will not working.

3) In case of setting the alarm to check the water flow in the pipe and the emptiness of the tank, (See Figure 5), jump BZ to L and RY to H positions. Then connect the electric wire to the water level in the pipe. The pump will be working when the water is flowing, when the water stop flowing the alarm will not working.

NOTE: This circuit can be used with the maximum 200 watts water pump only. If over 200 watts, the magnetic contactor should be added. (See Figure 6).

Figure 3.
Water Level Pump Control
With Alarm Circuit

