

VOICE CONTROL SWITCH
CODE 409

LEVEL 1

The voice control switch is classified as a remote control circuit which monitors the work operation of a relay by audio generation, the sound of which can possibly be a hand-clap, or striking of materials with a built-in shape volume control available for the adjustment of the sensitivity as well.

Technical specifications:

- power supply: 12VDC.
- consumption: 50mA. max.
- adj. sensitivity: trimmer potentiometer
- maximum load: 10A@125VAC and 5A@220VAC
- PCB dimensions : 2.92 x 1.49 inches.

How to works:

This circuit utilizes a condenser microphone to work the reception function which necessitates a certain voltage for distributing to the condenser microphone and transmits the signal out from the condenser microphone through C1. The audio signal will enter TR1 for amplifier signal. After that this signal will be go out from the collector of TR1 through C2 entering VR1 to adjust the sensitivity of the circuit wherein the central terminal of the preset is connected to the base of TR2 so the signal will be amplified. The collector of TR2 is connected through C3, C4 with a flip-flop sector comprising of TR3, TR4 both of which will take turn to function according to the signal transmitted by condenser microphone. For instance, at first supposing TR4 works, the relay will attract the contact, and the LED will light on, since TR3 does not function thr the collector of TR3 will be present with high voltage to the bias at the base of TR4 to function also. TR3 is not passive of current because the base of the TR3 is connected to the collector of TR4 wherein at the collector during this stage the voltage at this spot is very low of even scarce. On the transmittal of audio signal through TR1 and TR2, the signal at the collector of TR2 will be amplified so there will be a low voltage for a moment while the current at the base of TR4 is drawn through D2 and C4 to the ground at the collector of TR2, there by making TR4 stop inducing the current. The voltage therefore will be high making TR3 to work to draw the power through the base of TR4 to the ground and resulting in TR3 to work instead of TR4. At this stage the relay will release the contact face so the LED will be unlighted. TR4 will stop working until the audio signal will be present to cause TR3 to stop the induction then TR4 will start functioning again.

PCB assembly:

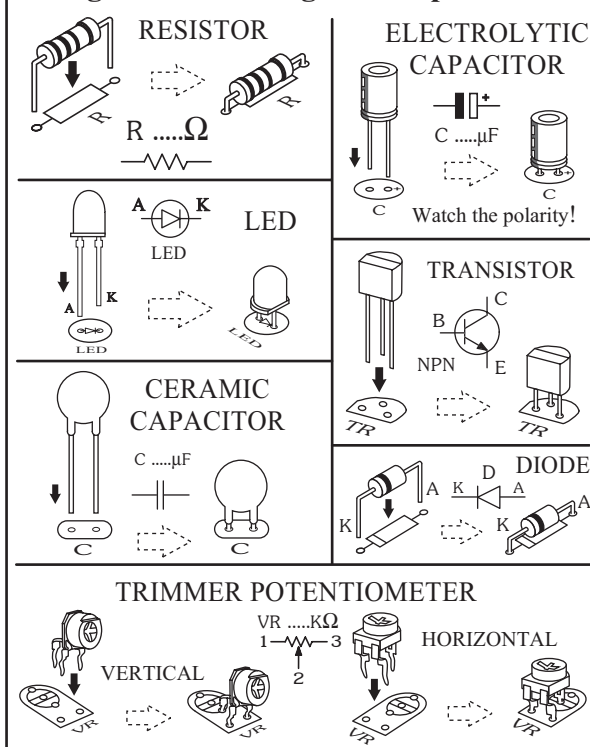
Shown in Figure 3 is the assembled PCB. Starting with

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 power supply 12VDC to circuit and adjust the VR1 to go slightly beyond the neutral stage. Supposing the relay is working and LED lights, make a test by clapping hands the relay will stop working and LED will be unlighted. Do the hand-clap again the relay will return to function again. If the circuit functions in this fashion indicates that it is practical. Connect the audio control circuit at OUT 220V terminal and connect the unit at the IN 220V terminal.

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 polarised components have been soldered the right way round.

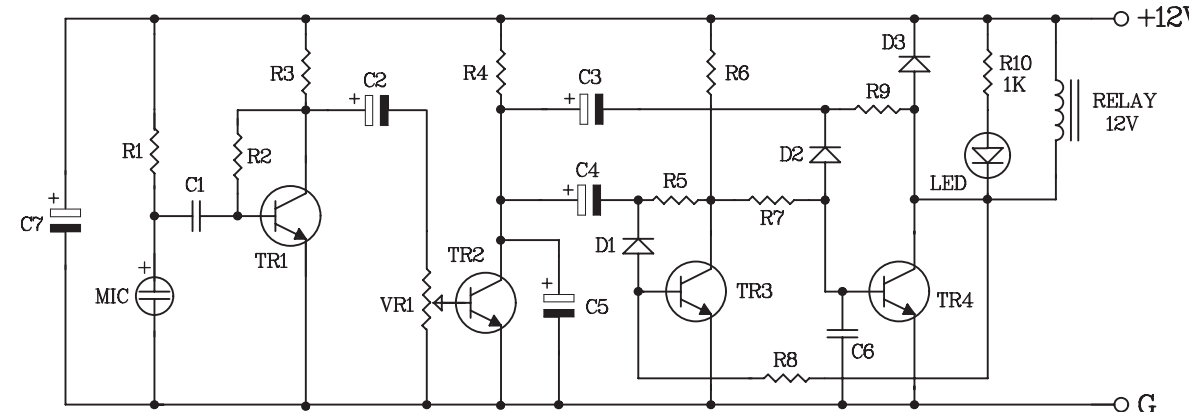
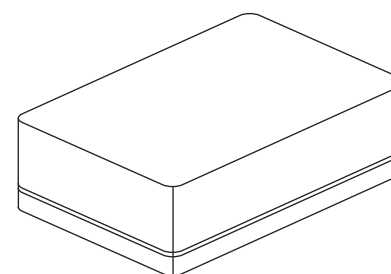
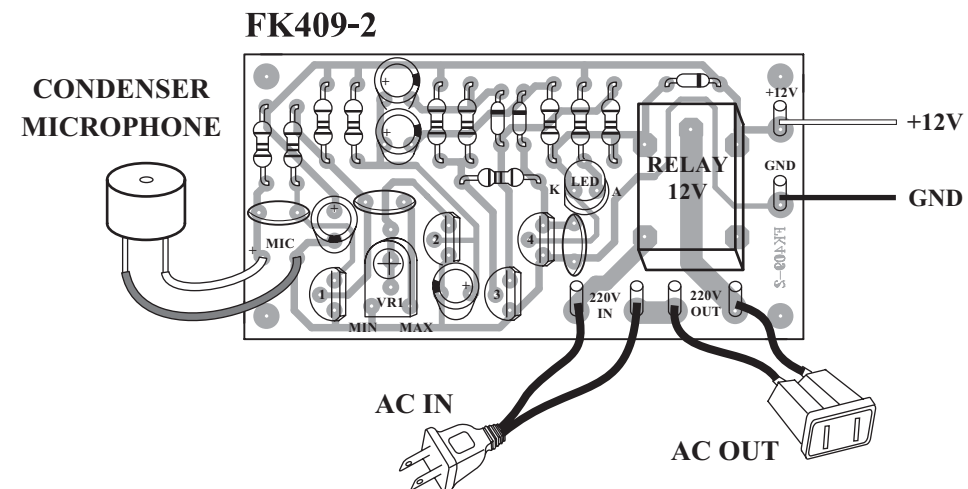


Figure 2. The voice control switch circuit

Figure 3. Connections



NOTE:

FUTURE BOX FB04 is suitable for this kit.

NEW KIT SET

CODE FK	DESCRIPTION	POWER
170	DANGER FLASHER 42 LED	9-12VDC.
171	TWO LAMP FLASHER	3VDC.
172	THREE STEP FLASHER 19 LED	9-12VDC.
173	HALLOWEEN PUMPKIN FLASHER 23 LED	9-12VDC.
174	ANIMATED LED SIGNBOARD (5x7 DOT MATRIX)	3-5VDC.
327	DUAL STATION INTERCOM (TRANSISTOR)	4.5-6VDC.
512	DING/DONG DOOR CHIME (PIR SENSOR)	4.5-6VDC.
816	VARIABLE REGULATOR 0-50V. 3A.	50VDC.
817	TRANSFORMERLESS POWER SUPPLY 6-9-12V 50mA	220-240VAC.