

UHF REMOTE CONTROL 1 CH.
CODE 436 LEVEL 2

This circuit is a control circuit which uses UHF frequency is carrier for control receiver circuit. The operation is divided into two functions, causing suitable for multipurpose.

Technical specifications:

- power supply : 9VDC. (TX), 12VDC. (RX)
- consumption : 21mA (TX), 58mA (RX)
- frequency : approx. 400MHz
- distance TX/RX : 20m (65') (clearing)
- relay output : 220VAC/5A max.
- PCB dimensions : 1.93 x 1.24 inches. (TX)
3.35 x 1.84 inches. (RX)

How to works:

The circuit diagram shown in Figure 2 can be divided into two parts; transmitter circuit and receiver circuit. The operate of transmitter will operate when push switch SW ON/OFF, low frequency generator (TR1 and TR2) is created the low frequency approximate 750Hz which this low frequency is set by the value of C3, C4, R2 and R3. This low frequency will be mixed with carrier frequency 400MHz, causing the frequency 400MHz to toggle on and off in accordance with the low frequency 750Hz. And then all frequency is transmitted to receiver circuit.

When receiver circuit is received the frequency from transmitter circuit, TR3 is amplified the all frequency and C11 will filter the high frequency to ground but the low frequency is fed to pin 13 of IC1/1 for amplifier. The output of IC1/1 is fed to comparator circuit (IC1/2) for compare the level voltage at pin 10 with pin 9 of (IC1/2). If the level voltage more than voltage at pin 9, the output of IC1/2 has the voltage. This voltage is fed to buffer circuit (IC1/3). TR1 and TR2 is connected as a flip-flop circuit and drive relay. Jumper J1 is used to select operation function between push-on push-off mode and push switch mode. IC1/4 is configured as a delay time when first connect the power supply to the 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:

Jump the jumper J at "J" point. And then connect the power supply to both circuit. The receiver circuit will delay operation approximate 2 to 3 seconds. Push and hold switch SW ON-OFF at transmitter circuit. Adjust

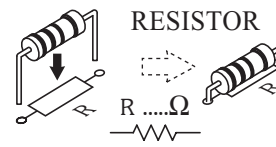
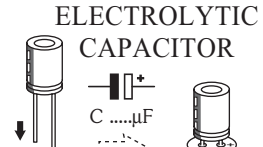
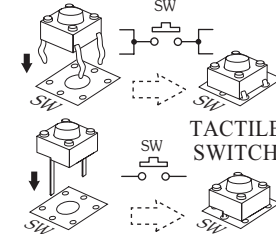
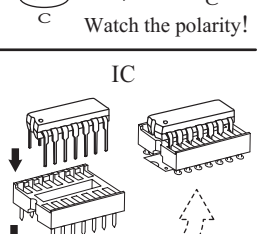
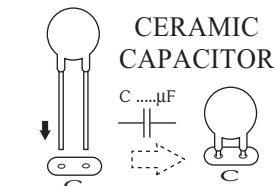
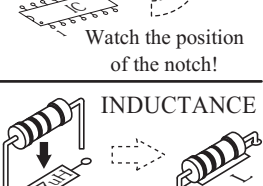
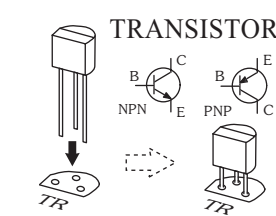
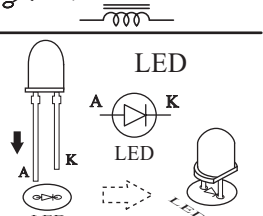
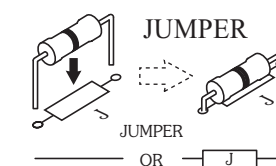
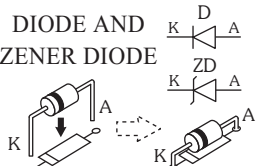
trimmer at transmitter circuit until relay at receiver is working. Increase distance both circuit until relay is stop working and adjust trimmer at transmitter again until distance at you want.

Application:

When you use this circuit, sometime this circuit may has the problem from noise signal which the circuit is operated automatic, so this circuit is suitable for education only.

For "ANT" point is connected the antenna length 15 cm., diameter 1.5 mm.

Figure 1. Installing the components

<p>RESISTOR</p> 	<p>ELECTROLYTIC CAPACITOR</p>  <p>Watch the polarity!</p>
<p>TACTILE SWITCH</p> 	<p>IC</p>  <p>Watch the position of the notch!</p>
<p>CERAMIC CAPACITOR</p> 	<p>INDUCTANCE</p> 
<p>TRANSISTOR</p> 	<p>LED</p> 
<p>JUMPER</p> 	<p>DIODE AND ZENER DIODE</p> 

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.

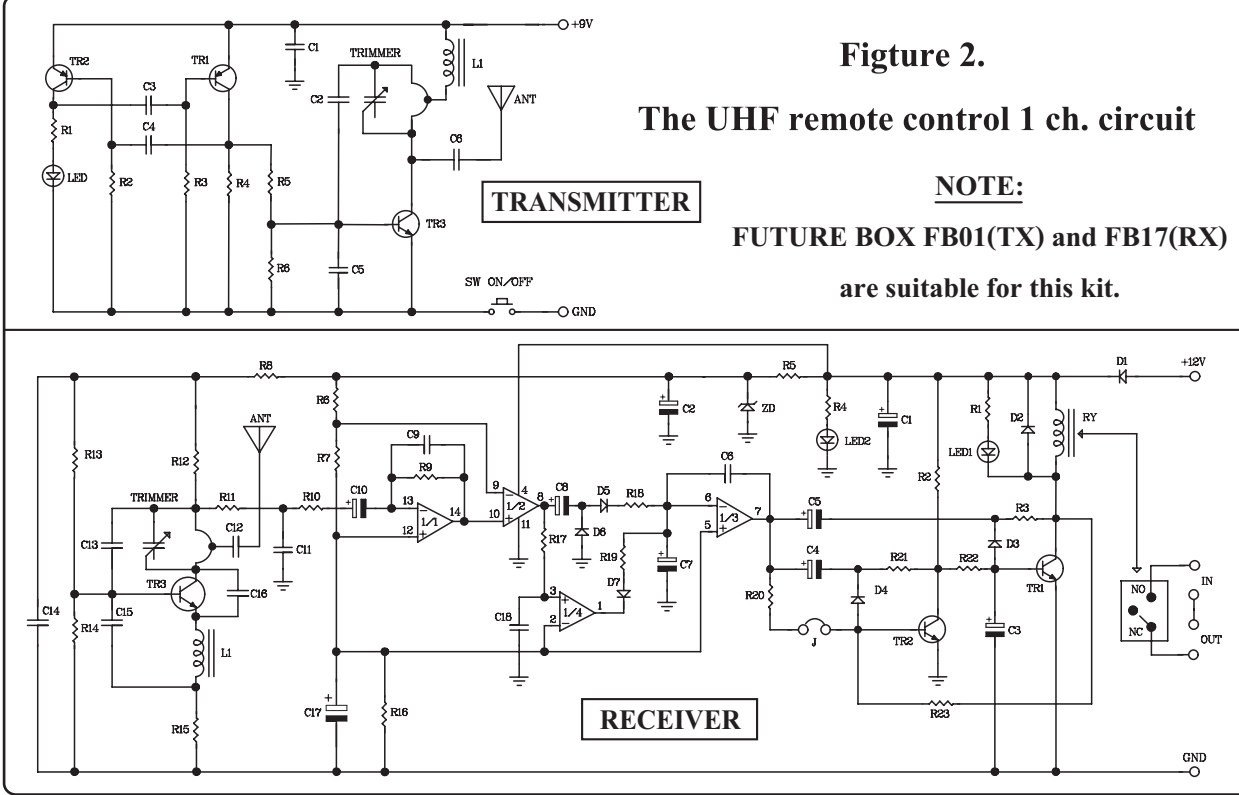


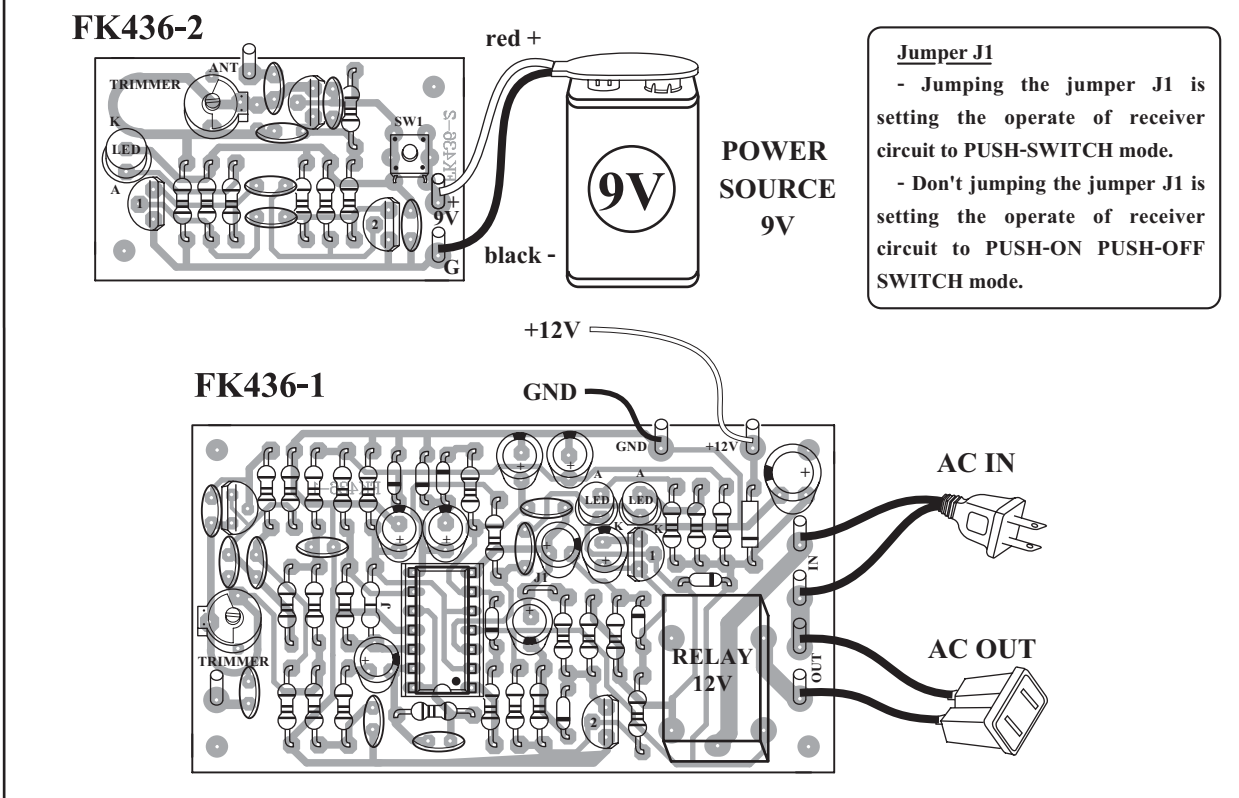
Figure 2.

The UHF remote control 1 ch. circuit

NOTE:

FUTURE BOX FB01(TX) and FB17(RX) are suitable for this kit.

Figure 3. Connections



Jumper J1

- Jumping the jumper J1 is setting the operate of receiver circuit to PUSH-SWITCH mode.
- Don't jumping the jumper J1 is setting the operate of receiver circuit to PUSH-ON PUSH-OFF SWITCH mode.