

## Operational Description

### 1. Organization and Summary

#### 1) Included

- a. TRx Module : Transmitter and Receiver
- b. Remocon : Transmitter

#### 2) Summary

This product is for remote control door lock system for Home Security and use 447.35MHz as the band of frequency.

Main function is controlling the door lock by remote controller or phone (wire or wireless), auto-locking, detecting the trespasser and setting alarm ON/OFF.

### 2. Circuits

#### 1) TRx Module : Transmitter

When "High" signal is supplied from Pin 1 of J102 and Base Bias is supplied to Q108 via R128, Y102 is oscillated and transmitting frequency (447.35MHz) is generated by Q108 and other parameter.

At this time, when Pin 1 of J102 is converted to "Low" signal, transmitting frequency is OFF. When Pin 1 of J102 is converted to "High" signal, transmitting frequency is ON. By using this method, it generates F1D frequency and transmit the data from Pin 3 of J102.

Transmitting frequency(447.35MHz) oscillated by Q108 and Y102 comes out from C145, at this time, the transmitter power goes through R129. And the output of C145 is amplified by Q109 like the function of Q108, at this time, its power goes through R130. And this output of C150 is amplified by Q110 like that, at this time, its power goes through R132 and Forward Bias is filtered by D101, and then the current is flow to L115.

After all, the last output power is amplified three times.

#### 2) TRx Module : Receiver

When Pin 1 and Pin 4 of J101 is simultaneously "High" signal, the power is supplied to Receiver. When receiving frequency(447.35MHz) caused from antenna comes in through C102, the signal is amplified by the high frequency amplifier(Q101,Q102). And the amplified signal is come into the mixer transistor(Q103) via the band-pass filter(L-C filter : L103,C105) and mixed with the local signal oscillated by the oscillation circuit.

As for the local amplifier, the crystal oscillator(Y101) is oscillated and

amplified by Q106. And the amplified signal goes through the tuner circuits (L203-C126,L205-C132) and is multiplied by it. And so it is amplified by Q107 and multiplied by the tuner circuit(L206-C134). And then the output signal goes to the Base of the mixer transistor(Q103).

The high frequency signal and the output signal from the local oscillation circuit is put into the mixer transistor(Q103) and it generates the IF (10.7MHz). And the output signal goes through the BPF(CF101) and is put in the IF amplifier and amplified. This signal is put in Pin 20 of IF IC(U101) and is mixed with the frequency generated by the 2nd local oscillator (Y103). and it generates the frequency(455KHz). So this signal is put in the Pin 5 of IF IC(U101) via the filter(CF102) and demodulated. And then the demodulated signal is generated from the Pin 15 of IF IC(U101) and transferred to the microcontroller.

## 2) Remocon : Transmitter

This is same to the method which is used at the "1) of Circuit"