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FM9 LCD 工作原理描述

DESCRIPTION OF FM9 LCD WORKING PRINCIPLE

一、主控板工作原理描述/Main board working principle description

1. 电路描述：主控部分由升压电路、单片机电路、开关电路组成；被控部分由蜂鸣器、振动马达、LCD、RF 板组成。

Circuit description: The main board including the step-up circuit, microprocessor circuit, switching circuit; Under-Control parts including the following: buzzer, vibration motor, LCD, RF board.

2. 原理描述：升压电路把碱性电池 1.5V 升压到 3V 供单片机电路工作，单片机通过编程，把逻辑信号输到开关电路控制三极管的通断，从而达到控制蜂鸣器鸣叫、马达转动、RF 板发射、接收信号的目的。

Principle description: The alkaline battery's voltage has been changed from 1.5V to 3.0V by step-up circuit to drive the microprocessor, the microprocessor program the logic signal, then send to the transistor which controlled by switching circuit to open and close, then the buzzer beep , The motor running, RF board transmitting and receiving signals.

二、RF 板工作电理描述/RF board working principle description

1. 电路描述：RF 部分由发射电路、接收电路组成

Circuit description: RF board including transmitting circuit, receiving circuit.

2. 原理描述：/PRINCIPLE DESCRIPTION

1）发射电路：该电路由调制源、本振电路、滤波电路、高频放大电路组成；

主控板送过来的信号为调制源，而本振电路由 48.2133 MHz 晶体与高频三极管实现，调制源加载到本振电路后，通过电感、电容与高频三极管选择需要的频率（这里我们选择本振的第九倍频率）再通过高频放大管放大，然后通过电感、电容再次选择需要的频率，再放大，最后送到 433.92 MHz 的负载天线把信号通过电磁波的形式发送出去。

Transmitting circuit: Which including: modulation resource, local oscillator circuit, the filter circuit, radio-frequency amplifier circuit.

Modulation resource are the signals from the main board, the local oscillator are carried out by 48.2133 MHz crystal and the radio-frequency transistor. When the modulation resource load onto the local oscillator circuit and then through the inductors, capacitors and transistors to Select the right frequency needed. (here we have chosen the 9 times of local oscillator's frequency) then amplify the signal by the high-frequency transistor and send to 433.92 MHz antenna to transmit out as a kind of electromagnetic wave.

2）接收电路：该电路由高频放大电路、本振电路、混频电路、中频滤波电路、集成电路（包括二次中频、鉴频电路、解调电路组成）通过 433.92MHZ 的接收天线把有用的电磁波接收下来，再通过高频放大管放大接收到的射频信号，通过本振电路（由 45.8355 晶体与高频管起振再选择第九倍频）与混频电路得出 21.4MHZ 的中频后，通过中频滤波器送接收集成电路，由集成电路解调后送主控板。

receiving circuit: which including: High-frequency amplify circuit, local oscillator circuit, mixing circuit, intermediate frequency filter circuit, integrated circuit(including: second time intermediate frequency, discriminator circuit, Modem circuit) all the useful electromagnetic waves were been received by the 433.92 MHz antenna, then amplify the Radio signals by the high-frequency transistors, after that signal goes to local oscillator circuit(then choose the 9 times frequency after the 45.8355 crystal and the high-frequency transistor start-oscillation,) then through mixing circuit to get the 21.4 MHz intermediate frequency, and then send by intermediate frequency filter to receiving integrated circuit and go through it and decode by the integrated circuit then send to the Main control board.