Kenwo industries Limited

Technical Description of Remote (VAK05)

MCU section

The unit contains a powerful MCU (micro-controller with built-in LCD driver) (U2), which controls all the functions of the whole unit, a TX section sends RF signals to Main unit and a RX section receives RF signals from main unit. A 32.768KHz crystal (X4, C63, C64 and U2) provides a time base signal for the MCU. MCU decodes the signals from main unit and thus display corresponding icons on the LCD (LCD1). On the other hand, MCU detects any key pressed (SW1, SW2, SW3, SW4 and its related components) and send RF signals to control the main unit. Besides a buzzer (Q14, BZ1 and its related components) and vibrator (Q13, M1 and its related components) echo and alert user when necessary. Furthermore a DC-DC converter (U4, Q15, L22 and its related components) setup voltage makes the remote operate in a 1.5V single cell. And an EL back light (EL, U5, Q17. L23 and its related components) for easy readable at dark environment.

TX section

MCU opens the +ve power (U4, Q11, Q16 and its related components) for TX section first. MCU encode the data and the data is FM modulates (VD1 and its related components) the 433.92MHz oscillator (X3, Q8, VC3 and its related components). The modulated FM wave is amplified thought driver (Q7, L13 and its related components) and PA (Q6, L11 and its related components). Then it feed to antenna (ANT1) through T/R switch (D1 and its related components).

Rx section

MCU open the +ve power (U4, Q12 and its related components) for Rx section first. The IC built-in a voltage stabilizer (U5, Q10 and its related components) provides a stable operating voltage for RF oscillation and RF circuitry. Antenna (ANT1) picks up RF signal from atmosphere. LNA (Q1, Q9 and its related components) amplify the signal and then mixed with 423.22MHz signal from local oscillator 1 (Q4, Q5, X2 and its related components). The mixer (Q2 and its related components) mix and output a 1st 10.7MHz IF signal (intermediate frequency). The 1st IF signal filter by a ceramic IF filter (CF1) and band pass amplifier (Q3 and its related components) and then fed to a IF IC (U1), which down convert to a second 455KHz IF by mixed with 10.245MHz signal from local oscillator 2 (U1, X1 and its related components). The 2nd IF signal filter by a ceramic IF filter (CF3) and FM demodulate inside the IF IC (U1, CF2 and its related components). The demodulate signal is fed to MCU (U2) for code decoding.