3.CIRCUIT DESCRIPTION.

The circuit description of base communication module

The base communication is used for the communication between remote controller and main controller. It is power supplied from main controller and it has receiver parts and transmitter parts in it

3-1. RECEIVER.

The RX circuit has antenna switching circuit, pre-amplifier, filters and demodulators.

The received RF signal in the antenna is supplied to the pre-amplifier through antenna switching circuit. As the received RF signal is very weak, it is amplified by pre-amplifier. The pre-amplifier is composed of Tr (Q201) and several passive components (C219,C220,R207,R208,L206). The amplified RF signal is supplied to the receiving IC (U1) through SAW filter. The filter passes only wanted signal and eliminates spurious signals. The receiving IC has oscillator circuit and demodulating circuit in it. The X201 and several passive components are used to make local signal. The local signal and receiving RF signal is mixed inside of U1 and makes IF signal. IF signal is filtered by CF1 (10.7MHz) and fed to the demodulating circuit. The demodulating circuit makes recovered signal (original data signal) and the recovered signal is fed to the main controller through CON2. The base communication module is in receiving mode except transmit mode.

3-2. TRANSMITTER.

This base communication module is using ASK method for data transmission and data receiving. The TX circuit has oscillating circuit, amplifier, antenna switch and power enable circuit. The oscillating circuit is composed of Tr (Q101) and SAW resonator (X101 / 433.92MHz) and several passive components (C102 / C103 / L101 / L102 / R101 / R102 / R103). The power feeds through Q304 when the transmitting data is high and it is disable when the transmitting data is low or receiving circuit is enabled.

The oscillating circuit oscillates 433.92MHz directly and supplies to the amplifier circuit. The amplifier circuit is composed of Tr(Q102 & 103) and several passive components (C105-C110,R104-R107,L103-L104). It amplifies the RF signal and supplies to the antenna switching circuit. The antenna switching circuit is used to prepare the path of RF signal, for example, it passes RF signal from TX circuit to antenna and prevents RF signal from going to the RX circuit when TX mode and vice versa.

3-3. Pin description of CON2

1). PIN1 : LED enable / disable
2). PIN2 : GROUND
3). PIN3 : RX enable / disable
4). PIN4 : TX POWER enable / disable
5). PIN5 : POWER SUPPLY (More than +8V)
6). PIN6 : RX DATA
7). PIN7 : TX LOW POWER enable/disable
8). PIN8 : CALL SWITCH