

## RF GAMEPAD ACTION INTERPRETATION

### Transmitter

01. MCU will scan the key matrix. If any signal changes come above mention. It will turn convert the data package with checking the low battery status data, and prepare for modulate to the VCO directly.
02. When MCU received the signal of any key, MCU will turn on the RF power, program the synethizer code of PLL(phase lock loop), PLL will lock the exact frequency.(e.g.433.358MHz)
03. The reference LO(local oscillator) will support the exact 5.12MHz to the PLL and VCO, to compare the phase to let VCO to lock the exact frequency (e.g.433.358MHz)
04. Buffer amplifier is to change the impedance between VCO (high imprudence) to low imprudence.
05. (PA)Power amplifier is to support enough current to crave the antenna.
06. Matching circuit is to match the imprudence between PA and antenna.

### Receiver

01. When the PC power on, the receiver will start the PnP process. No-matter the interface is USB.
02. MCU will program the synothizer code of PLL (phase lock loop), PLL will lock the exact frequency. (e.g.422.656MHz) Of VCO.
03. When the RF signal comes (e.g.433.358MHz), the low noise amplifier (LNA) will amplify the signal about 14 dB.
04. The adding signal to pass through mixer I will generate 10.7MHz intermediate frequency (IF). It means that the original signal (433.358MHz) will down convert to 10.7MHz.
05. IF1 filter is performing a filtering function of 10.7MHz (IF1).
06. Reference crystal not only performs the reference function, and also with the local oscillator (LO) functions.
07. After the IF1 amplifier will work for an AGC (auto gain control) function, and the signal more stable.
08. When the IF1 (10.7MHz) pall through discriminator, the demodulating signal will come out. We called it base band signal.
09. AF AMP will work as a data slicer, it amplify the signal to square wave digital signal.
10. This digital signal will send to MCU. MCU will sample the signal to check it is valid or not.
11. IF the signal it valid, MCU will convert the signal of the interface to PC. NO-matter is USB and let PC to do their exact activity.
12. MCU also scan the reset lock key to check user has to press this key or not.