

## MASSAGER

# Operation Description

## 1. General description:

There are 2 parts of this product. Receiver is the main product can be operation locally, Power on/off and motor control. The function of transmitter is control receiver's Motor on/off and mode switch.

## 2. Transmitter description:

The U1 is 8bit MCU. Incharge of the charge detection, LEDs control, remote code transmission. The Y1 is a 433MHz saw resonator, It provide the fundamental frequency for the transmitter circuit. Q1 is switching transistor, the MCU control the Q1 to transmit data, C4,C5 and L1 are the components to tuning the resonator frequency. The Antenna design as PCB antenna with less than 0dB gain. Antenna length tuning for 433MHz radiation. When user press button the LED flashing 1 time to notice user the button press successful, the MCU get the button press signal then control Q1 to send out remote code data, Remote code through the PCB antenna radiate over the air to the Receiver side. The transmitter include the 3.7V battery for power supply, the charger U3 used for battery charge. When 5V plug-in the charger start to charge battery, the charger send out the charge signal to MCU, the MCU stop function beside LED flashing to notice user the transmitter is during charging. When battery full which the charger send out the charger full signal the MCU control LED on to notice user the battery is full status.

## 3. Receiver description:

The U1 is 8 bit MCU. Incharge of the charge detection, LEDs control,MOTOR control, remove code decode. U5 is 433MHz receiver when receive the signal then translate RF signal to digital signal and send out to MCU, Y1 is a 27.1383MHz crystal which provide the fundamental frequency to 433MHz receiver. Antenna is PCB antenna the antenna length tune for 433MHz, C1,L1 is the matching circuit for the Antenna. When user long press the S1 or S2, receiver start to work, D1,D2,D3,D4 on, receiver in stand by mode, 433MHz receiver turn on,to short press S1 the telescopic motors start, keep short press the S1 the telescopic motors change mode. Short press S2 the vibrator start, keep short press the S2 the vibrator change mode. When transmitter send out the remote data the receiver base on decode results to control the motors. When receiver receive the data the related LED flashing 1 time to notice the remote control successful. Receiver include a 3.7V li-ion battery, the boost circuit generate the different voltage base on 3.7V battery,

When the different voltage provide to the telescopic motor to generate different speed of the motors, the vibrator use 3.7V battery without boost circuit. The MCU control the Q2 to control telescopic motor, Q3 for vibrator control. U2 is charger IC, When 5V plug-in the charger start to charge battery, the charger send out the charge signal to MCU, the MCU stop function beside LED flashing to notice user the transmitter is during charging. When battery full which the charger send out the charger full signal the MCU control LED on to notice user the battery is full status. When receiver work , long press S1 or S2 the receiver shutdown into the low power mode, 433MHz receiver power off, LEDs and motors stop work.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction