

## I、Function

- 1、 When there is no operation, it will automatically detect and receive signals.
- 2、 Press the 'intercom' button to initiate a voice conversation.
- 3、 Press the "Call" button, and the receiver's Interphone will ring.
- 4、 Can view intercom signal strength

## 二 ) Radio Function

- 1、 When the radio does not store any stations, it will automatically search for surrounding stations and store them (Up to 30 radio stations can be stored, exceeding this limit cannot be stored)
- 2、 List management radio station.
- 3、 Adjust the volume of the radio.
- 4、 Modify search channel threshold.
- 5、 Can view radio signal strength.
- 6、 Having sleep mode.
- 7、 OLED screen display

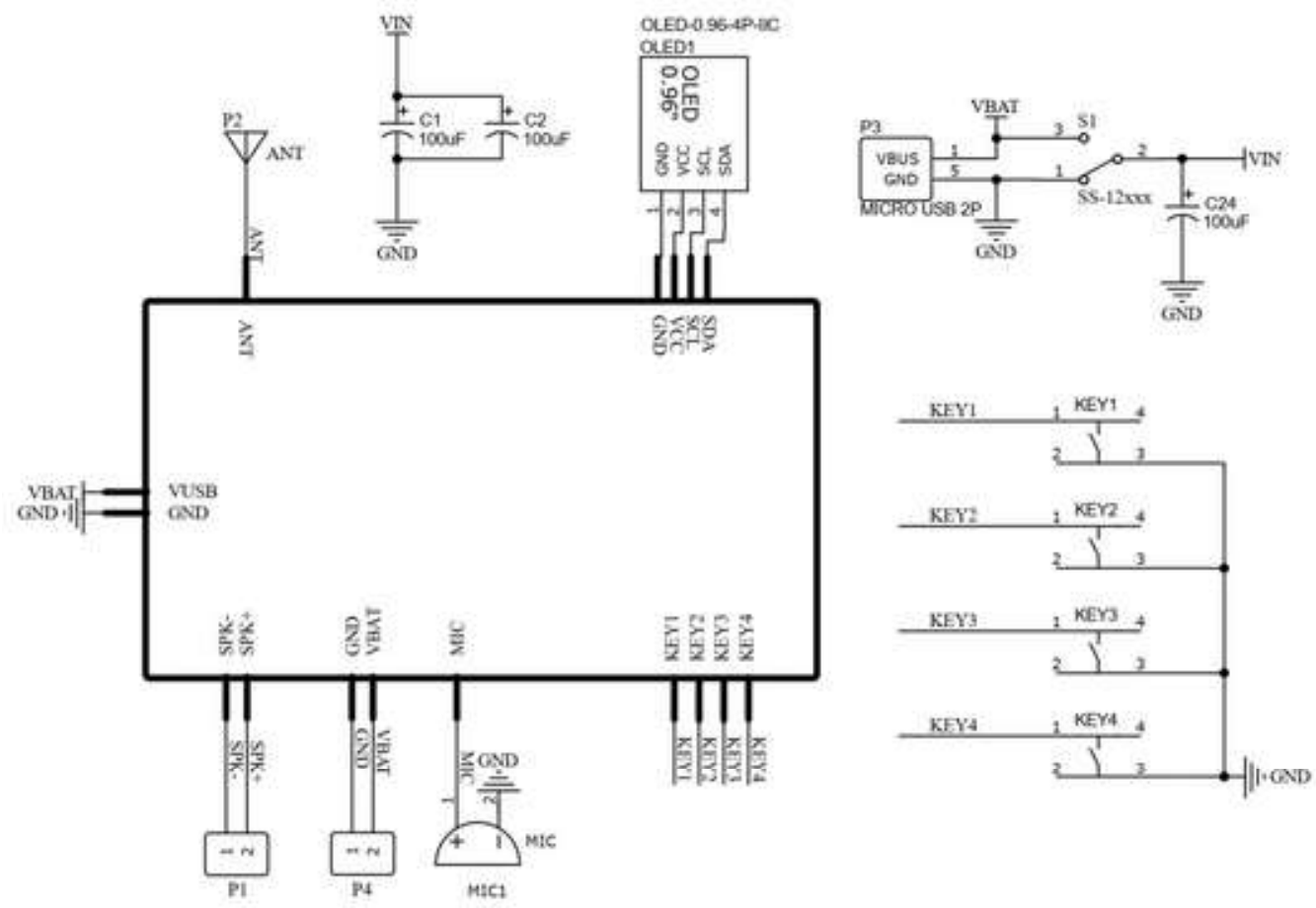
## II、Characteristic

- 1、 Paired with OLED screen, the functional display is clearer
- 2、 Paired with RDA5807 radio module, it has the advantages of noise cancellation, bass enhancement, high sensitivity, low noise, and strong anti-interference ability
- 3、 There are 15 sound levels that allow you to adjust the sound freely. (Radio mode)
- 4、 Equipped with power-off memory, automatic station search and storage function. (Radio mode)
- 5、 Equipped with sleep mode, making the whole machine more energy efficient. (Radio mode)
- 6、 Radio receiving frequency band: 87-108MHz.
- 7、 Paired with the BK4802P RF transceiver chip, it has core advantages such as excellent noise cancellation capability, strong audio processing performance, wide frequency band coverage, and outstanding anti-interference ability.
- 8、 The walkie talkie operates in the 409.85MHz frequency band.
- 9、 The communication distance of the Interphone is about 200 meters.
- 10、 Maximum operating current: approximately 200mA (with the sound set to maximum).
- 11、 Power supply method: Three 7th batteries or 5V USB power supply.
- 12、 PCB length: 95.5x61mm

III、BOM

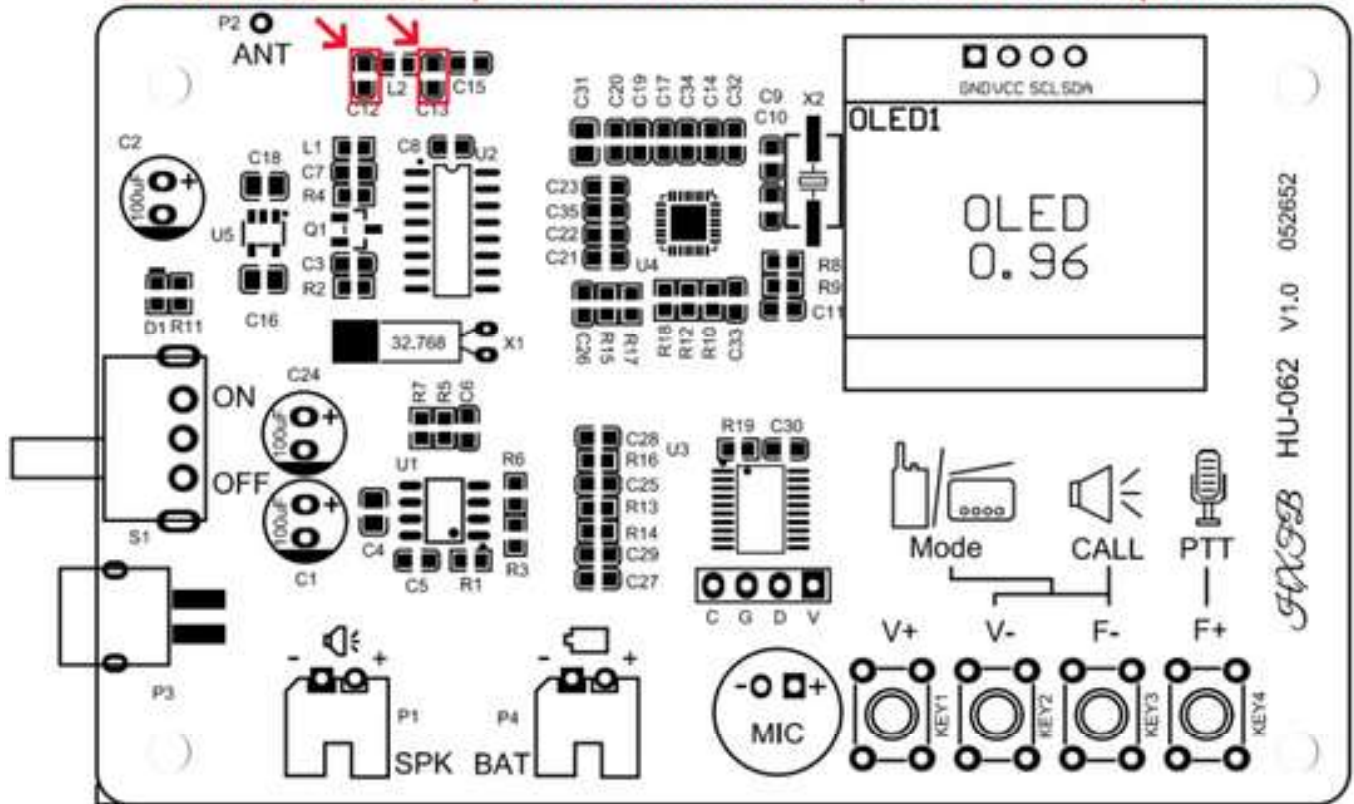
序号/Number	名称	Name	元件符号/Lable	数量/Number	备注/Note
1	直插电解电容100UF	Direct insertion electrolytic capacitor 100UF	C1,C2,C24	3	/
2	6*6*12.5按键	Key	KEY1, KEY2, KEY3, KEY4	4	/
3	麦克风	Microphone	MIC1	1	/
4	接线端子	Terminal	P1, P4	2	/
5	32.768K晶振	32.768K crystal oscillator	X1	1	/
6	弹簧天线	Spring Antenna	P2	1	/
7	USB母座	USB female socket	P3	1	/
8	拨动开关	Toggle Switch	S1	1	/
9	OLED屏	OLED screen	OLED1	1	/
10	4P排针	4P needle arrangement	OLED1	1	/
11	红黑单头端子线	Red and black single ended terminal wire	/	2	/
12	喇叭	Horn	/	1	/
13	按键帽	Button cap	/	4	/
14	电池弹片	Battery shrapnel	/	1	选配
15	外壳	Casing	/	1	选配
16	螺丝包	Screw pack	/	1	选配
17	电路板	PCB	/	1	/
18	USB电源线	USB power cord	/	1	/
19	说明书	Instructions	/	1	/

IV、Circuit schematic



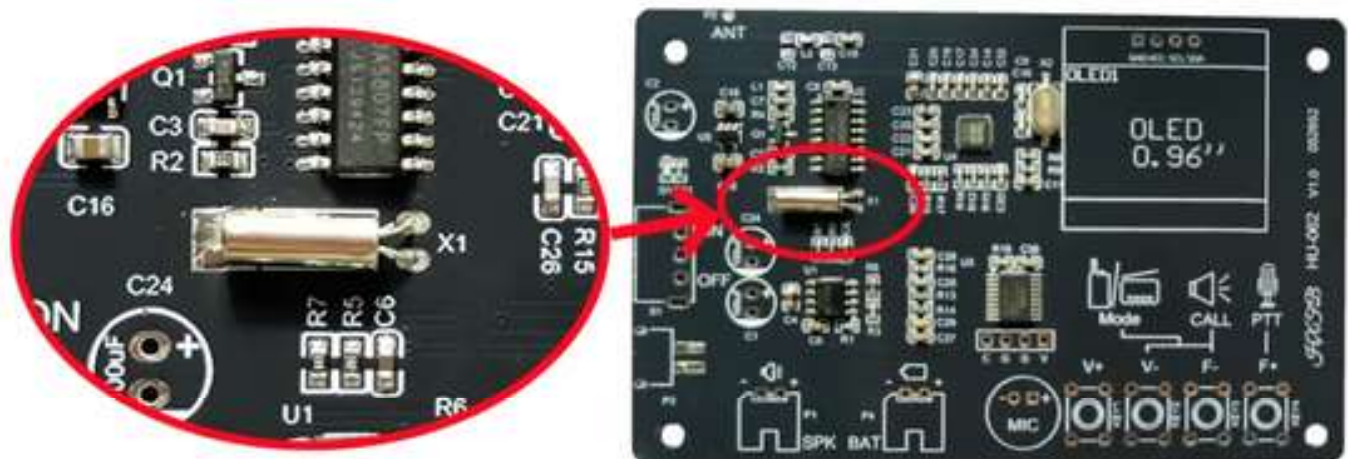
、Component distribution diagram

C12、C13为预留测试使用 C12 and C13 are reserved for testing purposes, and the presence or absence of components is a normal phenomenon



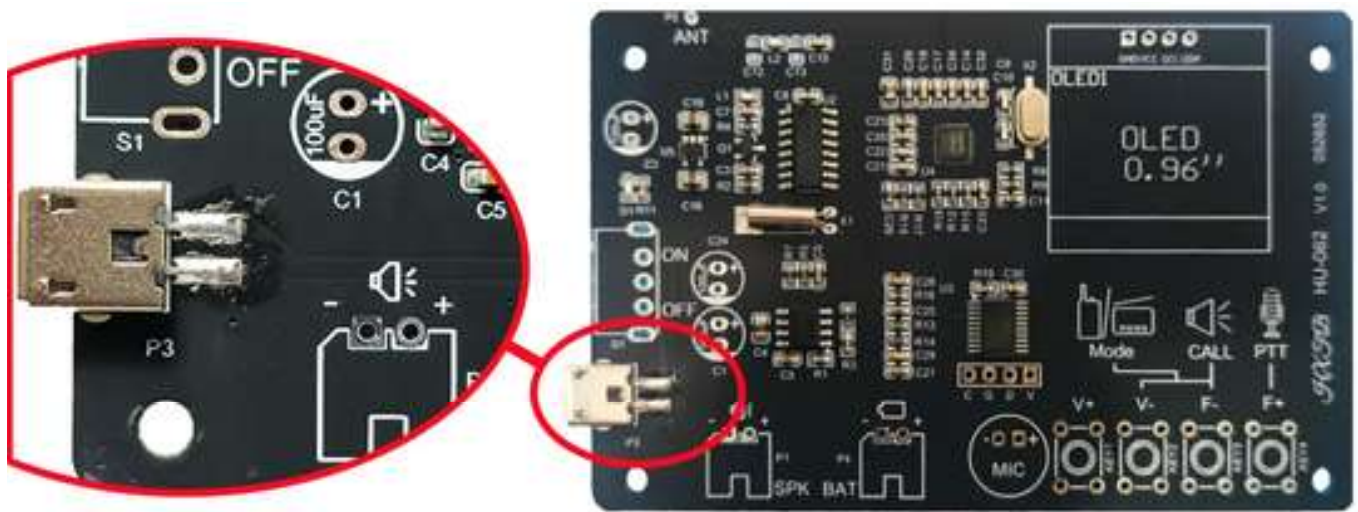
## VI、Circuit board soldering steps

1、Solder the crystal oscillator and bend it.

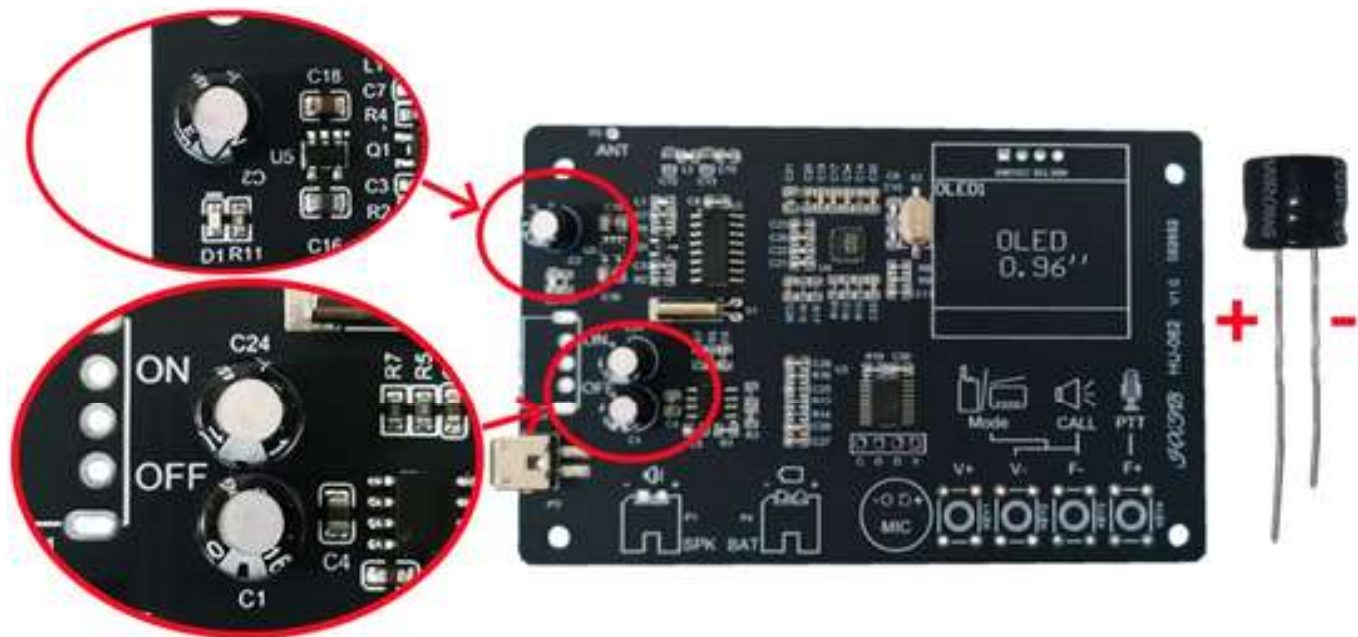


2、Solder USB socket.

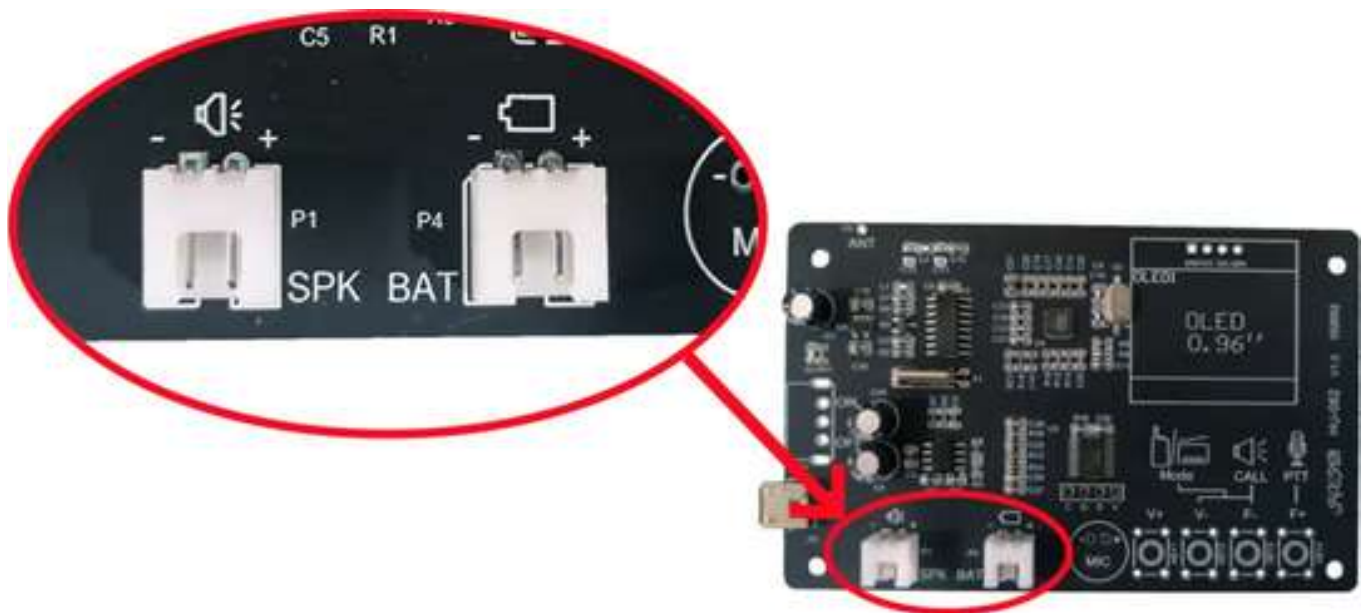




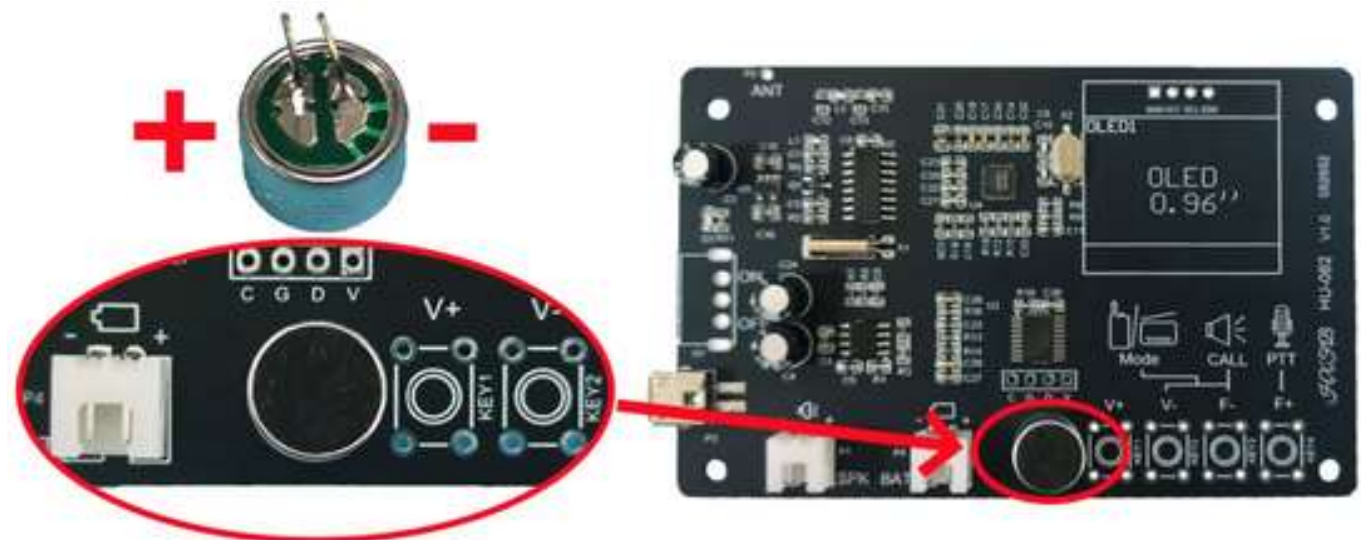
3、 Solder three 100uF electrolytic capacitors. (Pin length+ short-)



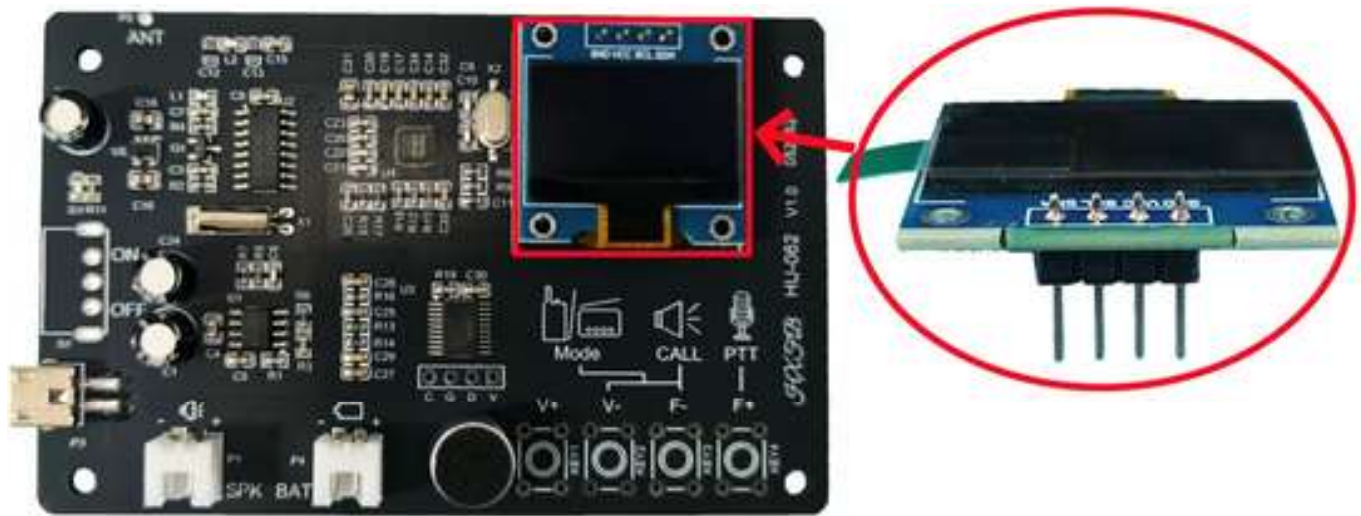
4、 Solder terminal blocks.



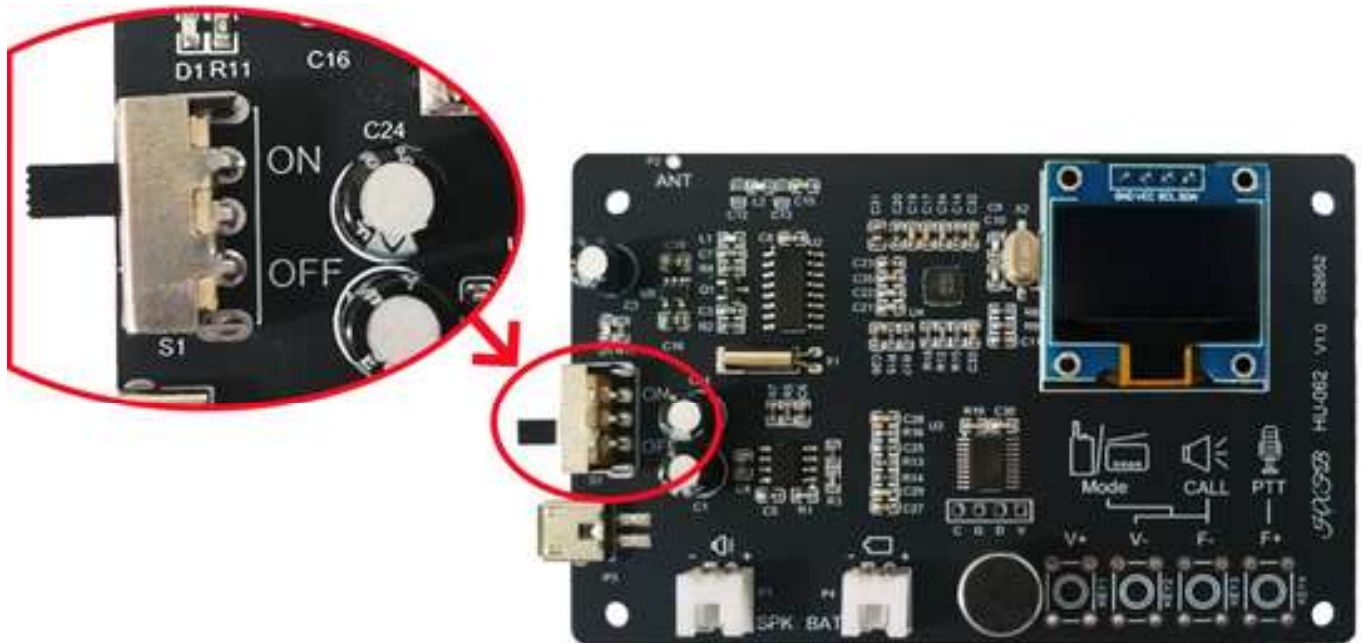
5、 Solder microphone. (The three horizontal lines on the microphone pins are negative)



6、 First, solder the 4P pins onto the OLED, and then solder the OLED onto the board.

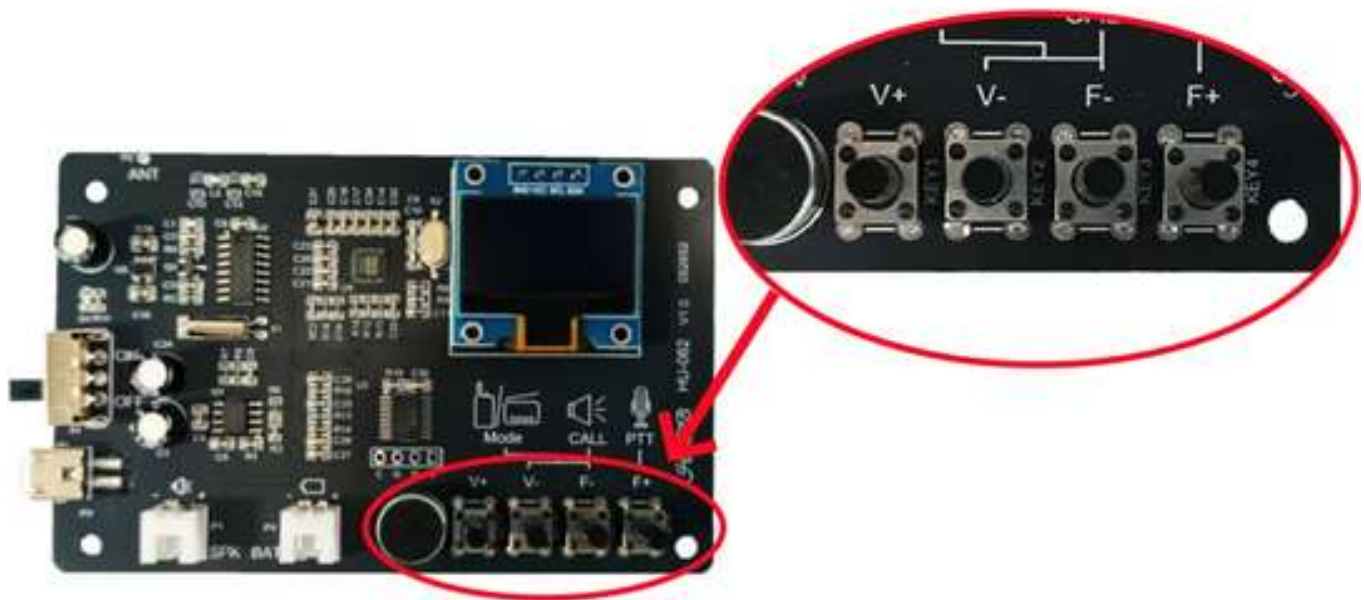


7、Solder toggle switch.

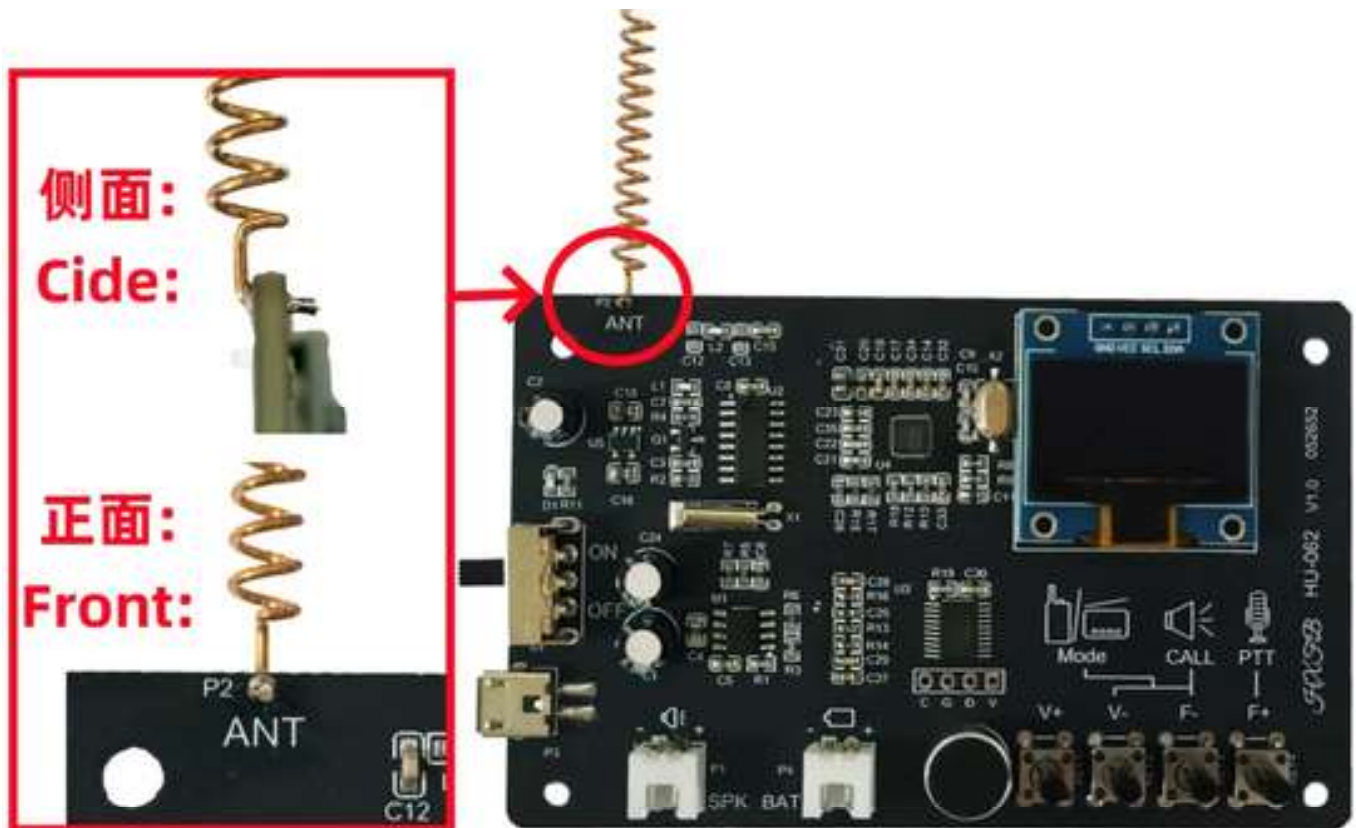


8、Solder 6 \* 6 \* 12.5 buttons.





9、Solder spring antenna. (Insert the antenna from the bottom)



10、Insert the battery shrapnel into the corresponding position on the casing.



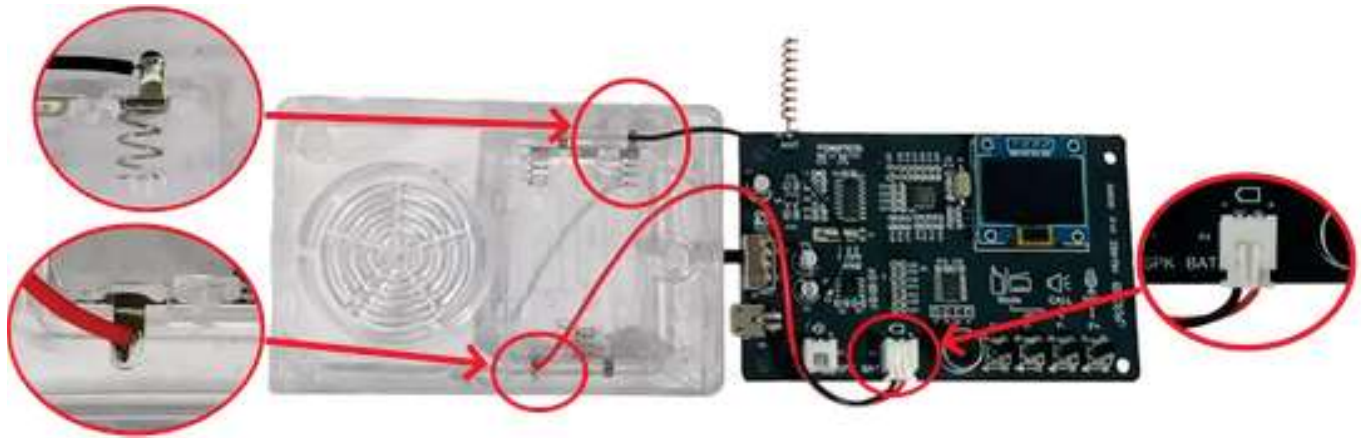
凸起的电池弹片对应外壳+极

The protruding battery shrapnel corresponds to the shell + pole

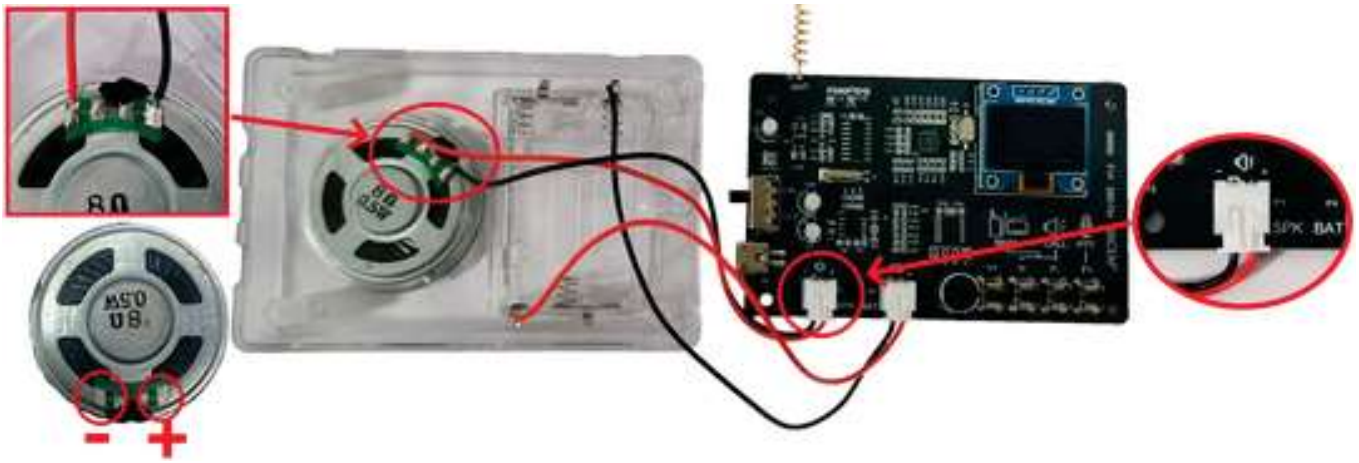


帶有彈簧的電池彈片對應外殼-極  
The battery spring with spring corresponds to the shell - pole

11、Weld one end of the red and black single ended terminal wire to the battery spring, and plug the other end into the circuit board. (Red+ Black-)



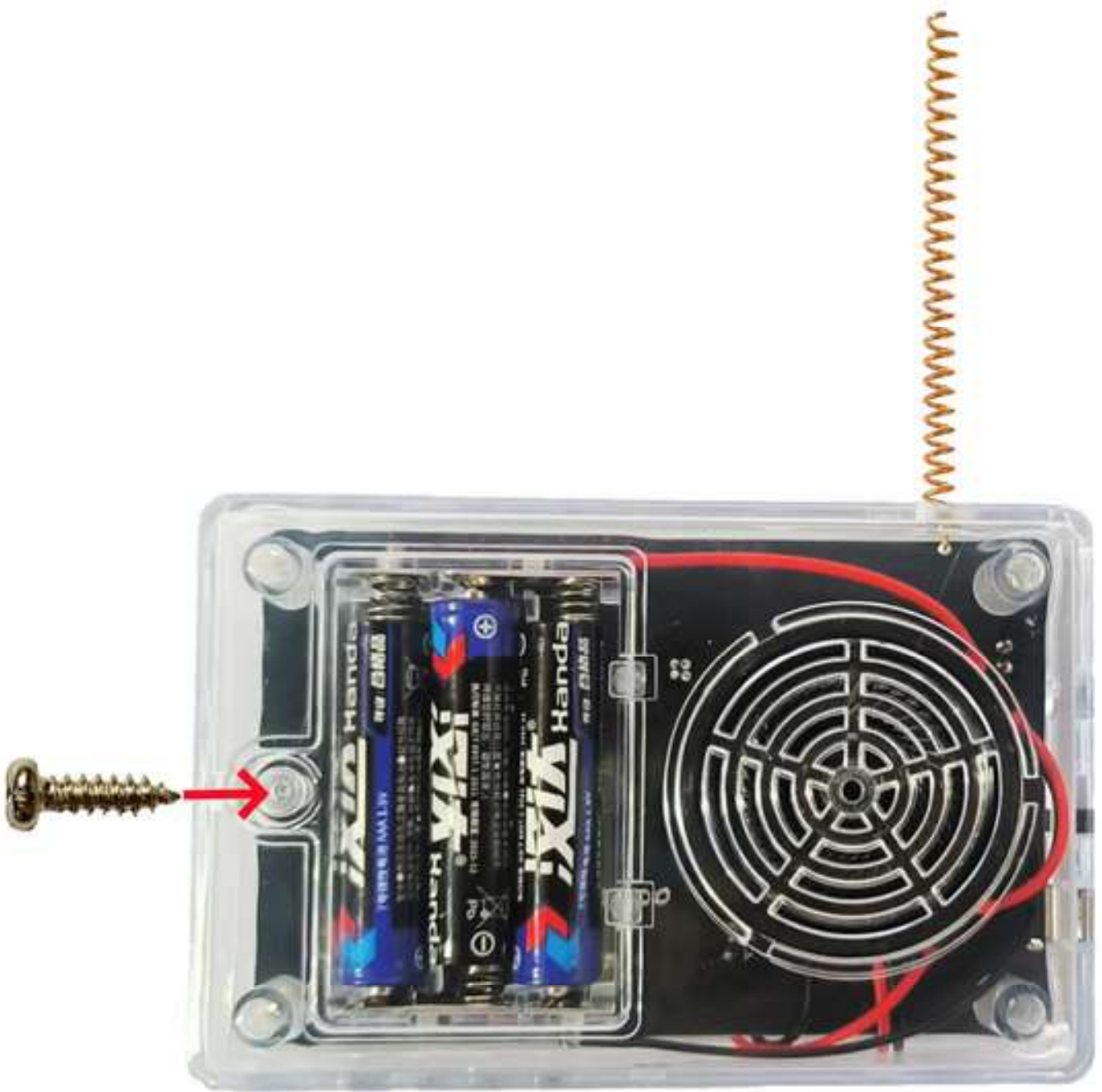
12、Weld one end of the red and black single ended terminal wire to the horn, plug the other end into the circuit board, and then insert the horn into the slot. (Red+ Black-)



13、 Install the casing and secure it with self-tapping screws.



14、 After installing the battery, attach the battery cover and secure it with self-tapping screw.



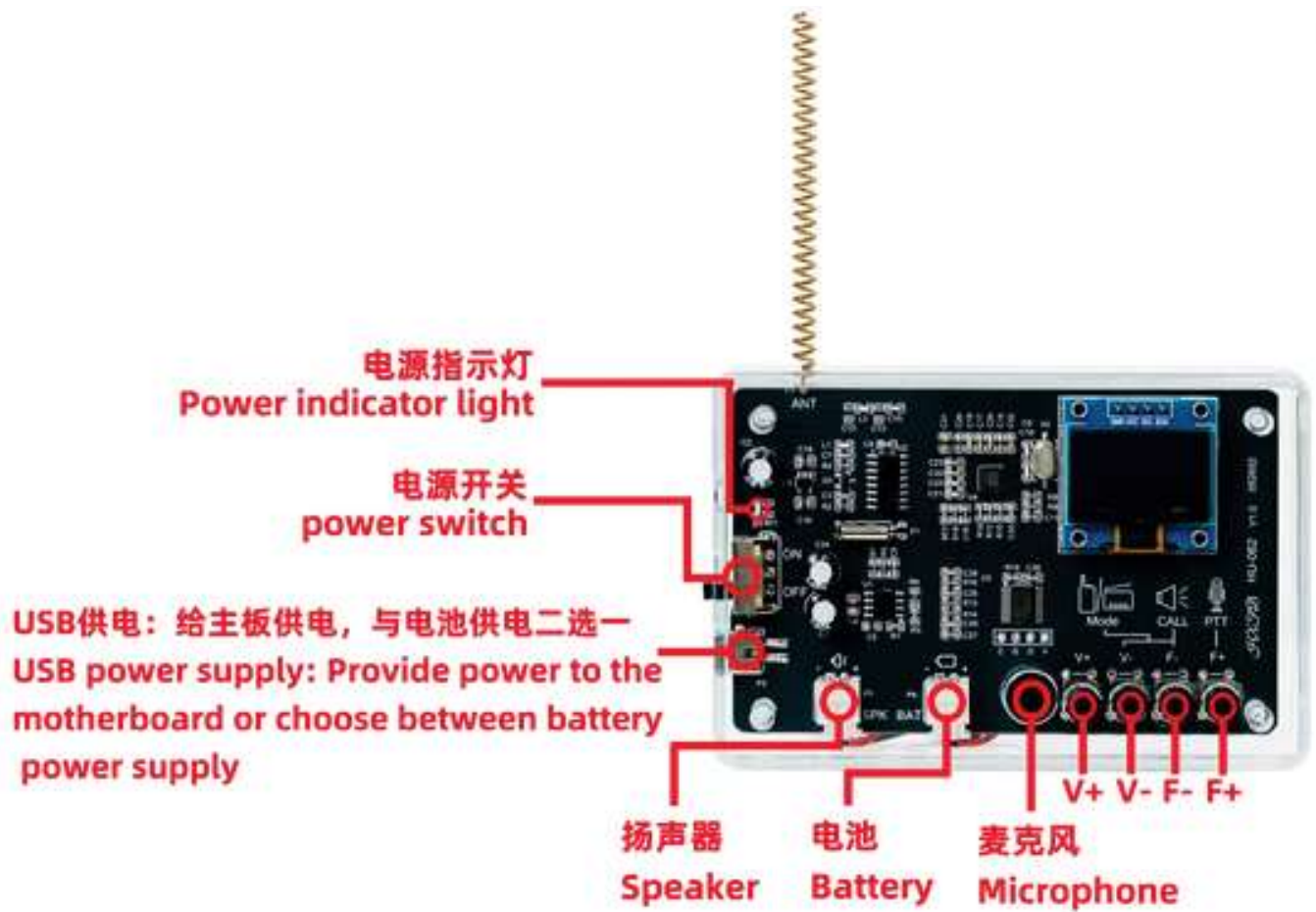
15、 Install the button cap.





## 、Function Introduction

### 1、Interface Description



Attention: The USB interface cannot be powered on at the same time as the battery. You need to choose one or the other, otherwise the interphone may be damaged.

## 2、Interphone instructions

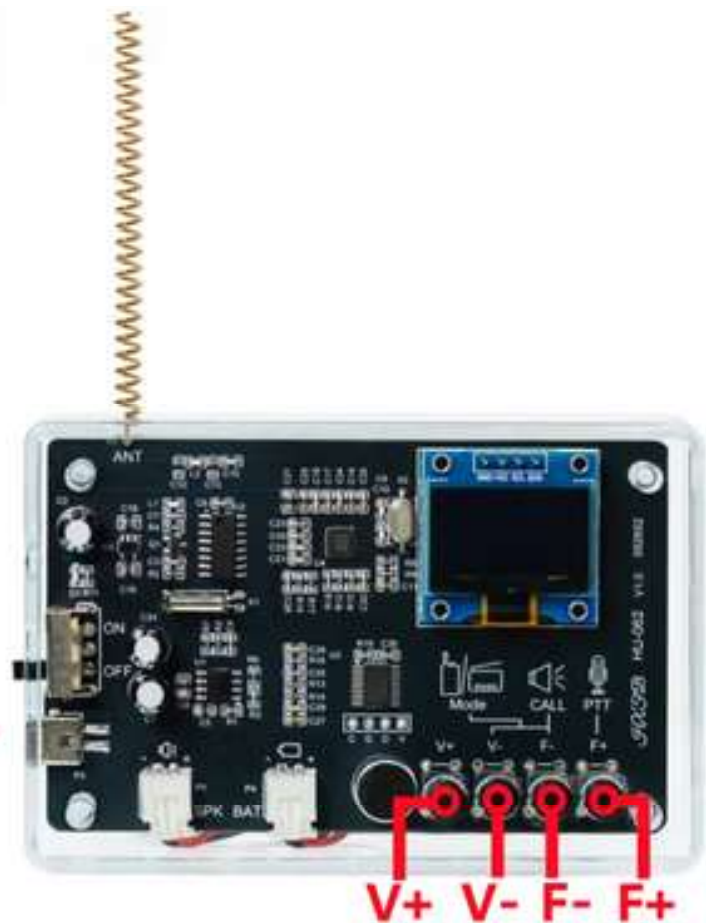
**对讲机模式：  
Interphone mode:**

对讲：按下 F+  
Intercom: Press F+

呼叫：按下 F-  
Call: Press F-

切换收音机模式：长按 V- 和 F-  
Switch radio mode:  
Long press V- and F+

晶振偏差补偿模式：长按 F- 和 F+  
Crystal oscillator deviation  
compensation mode: long  
press F - and F+



( 1 ) Enter the Interphone interface

Enter the Interphone interface			
Function	Interface display/status	Operation	Description
Enter Interphone mode	Interphone interface	Long press V- and F-	Need to operate in the radio interface to enter intercom mode.

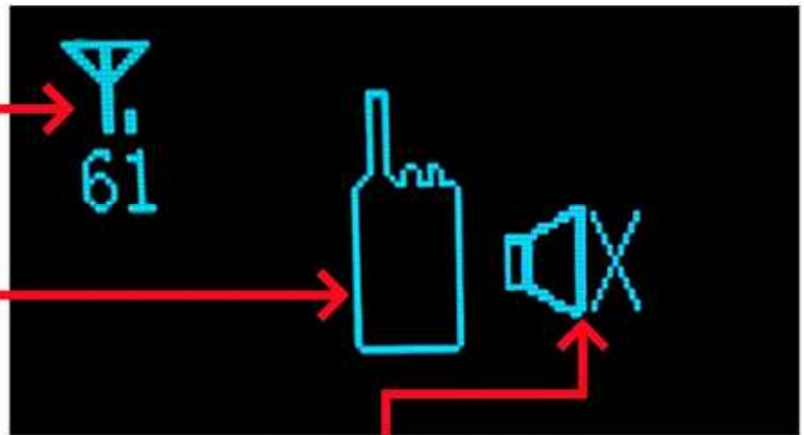
( 2 ) Interphone interface

对讲机信号强度

Interphone  
signal strength

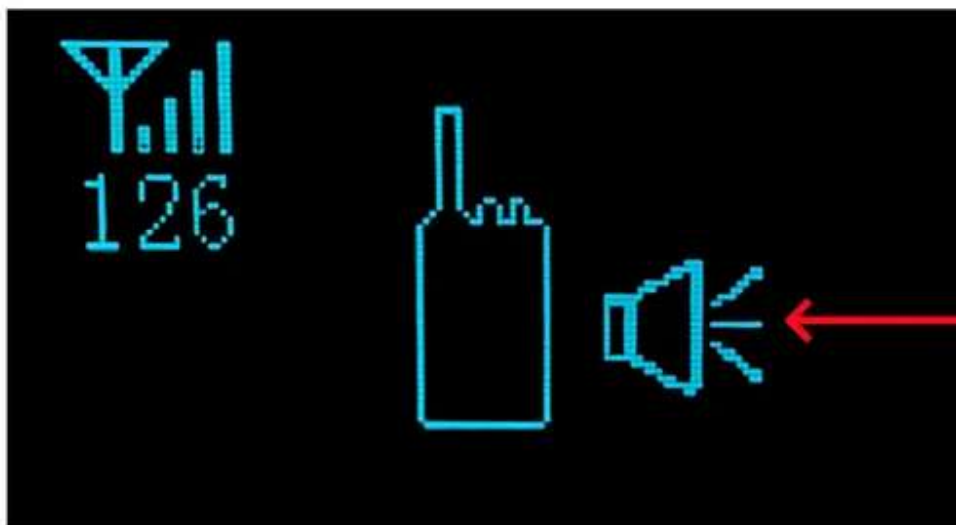
当前处于对讲机模式

Currently in  
intercom mode



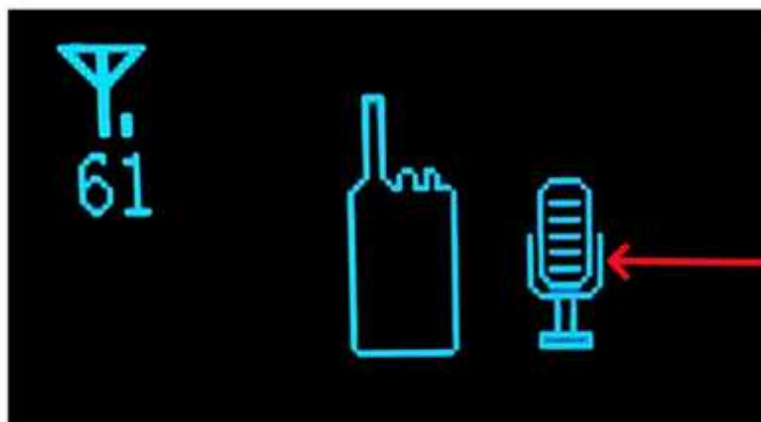
无声音信号输入

No sound signal input



有声音信号输入

There if an audio  
signal inout







长按F-: 提醒接收者做好准备

Long press F-:Remind the  
recipient to be prepared

长按F+: 语音输出

Long Press F+:Voice output



Interphone interface			
Function	Interface display/status	Operation	Description
receive		no-operation	The Interphone is on standby. If it receives a valid signal, the speaker will play the voice content of the other party. In this mode, no additional operation is required as the device automatically detects and receives the signal.
Intercom		Press the F- or F+ keys briefly to activate the microphone, and then speak into the microphone	The sender should pay attention to the distance and angle of speech to ensure that the voice is transmitted clearly.
call		Long press F-	The receiver's walkie talkie rings.
Crystal oscillator deviation compensation mode		Long press F- and F+	Enter the crystal oscillator deviation compensation mode
Switch radio mode	Radio interface	Long press V- and F-	Switch from Interphone to radio

( 3 ) Crystal oscillator deviation compensation interface

## 晶振偏差补偿 Crystal oscillator deviation compensation

增加补偿值：短按/长按V+  
Increase compensation value:  
short press/long press V+

减小补偿值：短按/长按V-  
Reduce compensation value:  
short press/long press V-

切换发射/接收模式：短按F-  
Switch transmission/reception  
mode: Short press F-

对讲：按下F+  
Intercom: Press F+

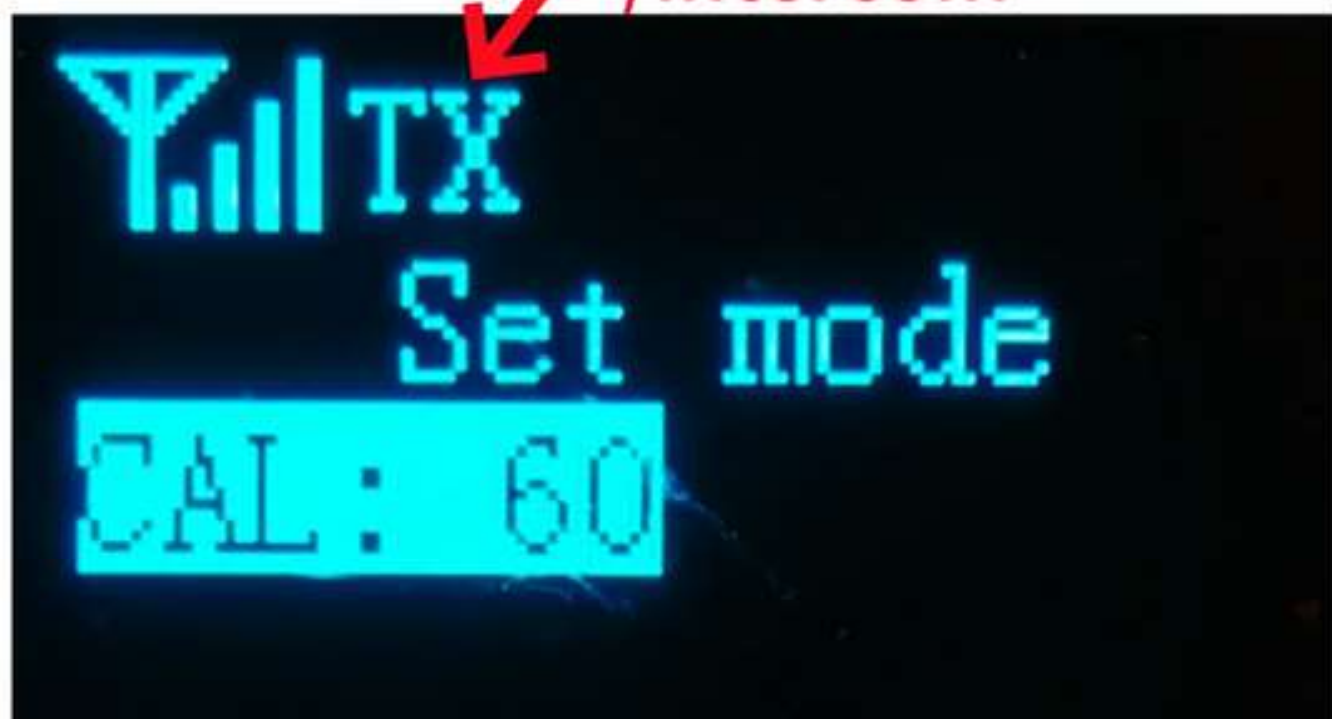
保存并退出：长按F-和F+  
Save and exit: Long press F -  
and F+








1)Crystal oscillator deviation compensation



发射模式/对讲  
Transmission mode  
/intercom



接收模式，当补偿  
值调节适当时显示  
Reception mode,  
displayed when  
the compensation  
value is adjusted  
appropriately

Crystal oscillator deviation compensation			
Function	Interface display/ state	Operate	Explanation
Add compensation value		Short press or long press V+	Adjustment range 0-120, default value is 60, adjust to match the walkie talkie
Reduce compensation value		Short press or long press V-	
Switch transmission/reception mode	 / 	Short press F-	Deviation compensation requires one walkie talkie for transmission mode and one for transmission mode
Intercom		Short press F+	The sender should pay attention to the distance and angle of speech to ensure that the voice is transmitted clearly
save and exit	Interphone interface	Long press F - and F+	Save and exit the crystal oscillator deviation compensation

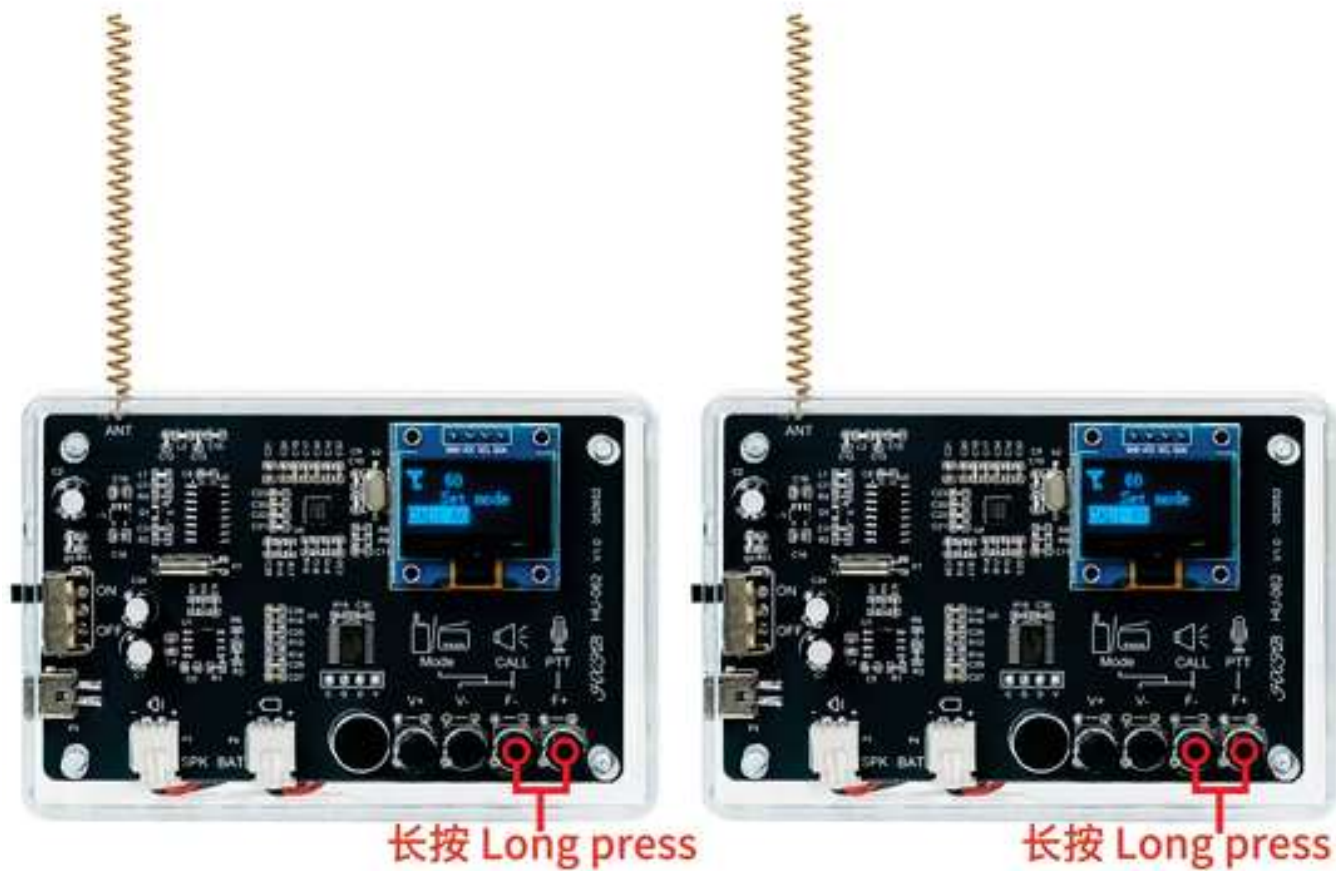
2)Operating instructions:

ØBring two radios closer together

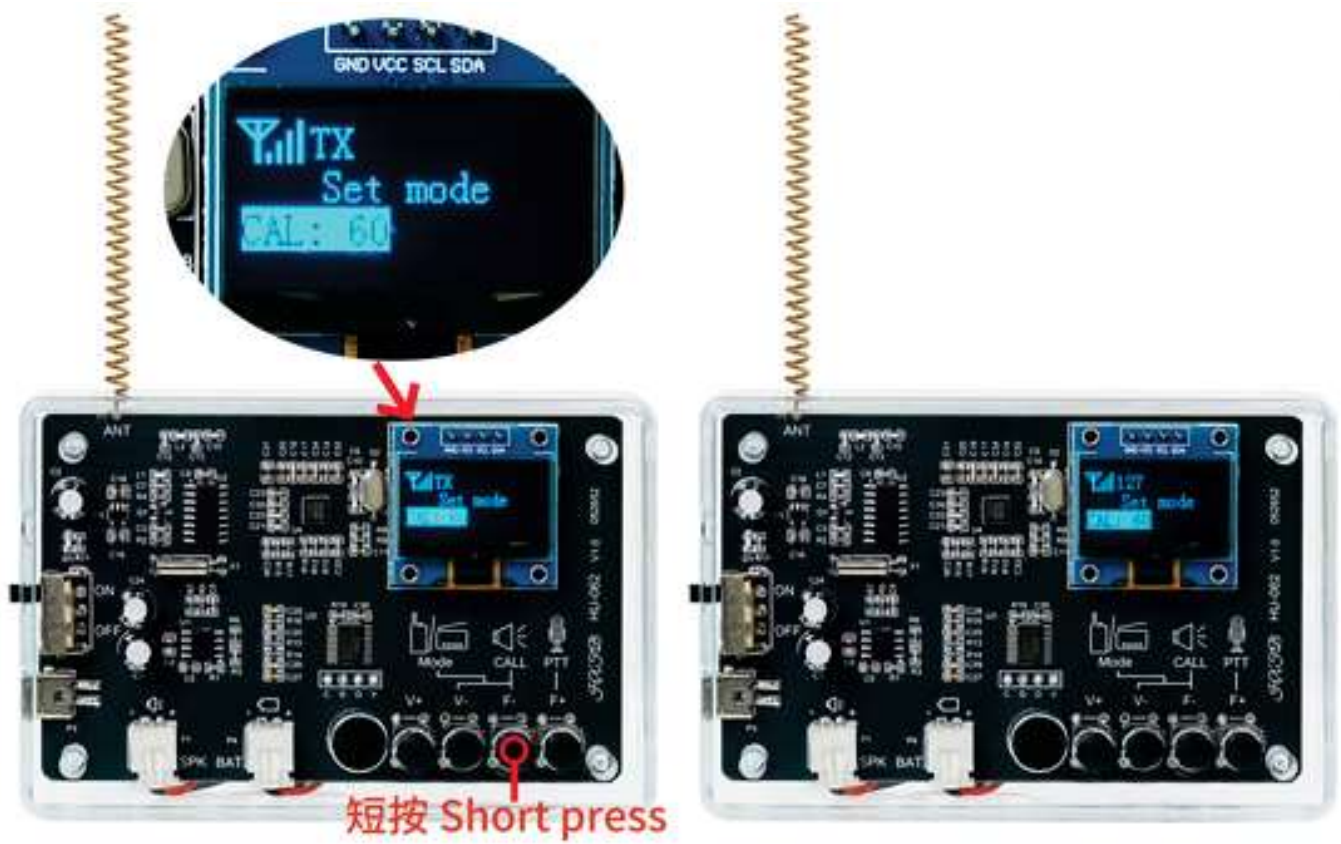




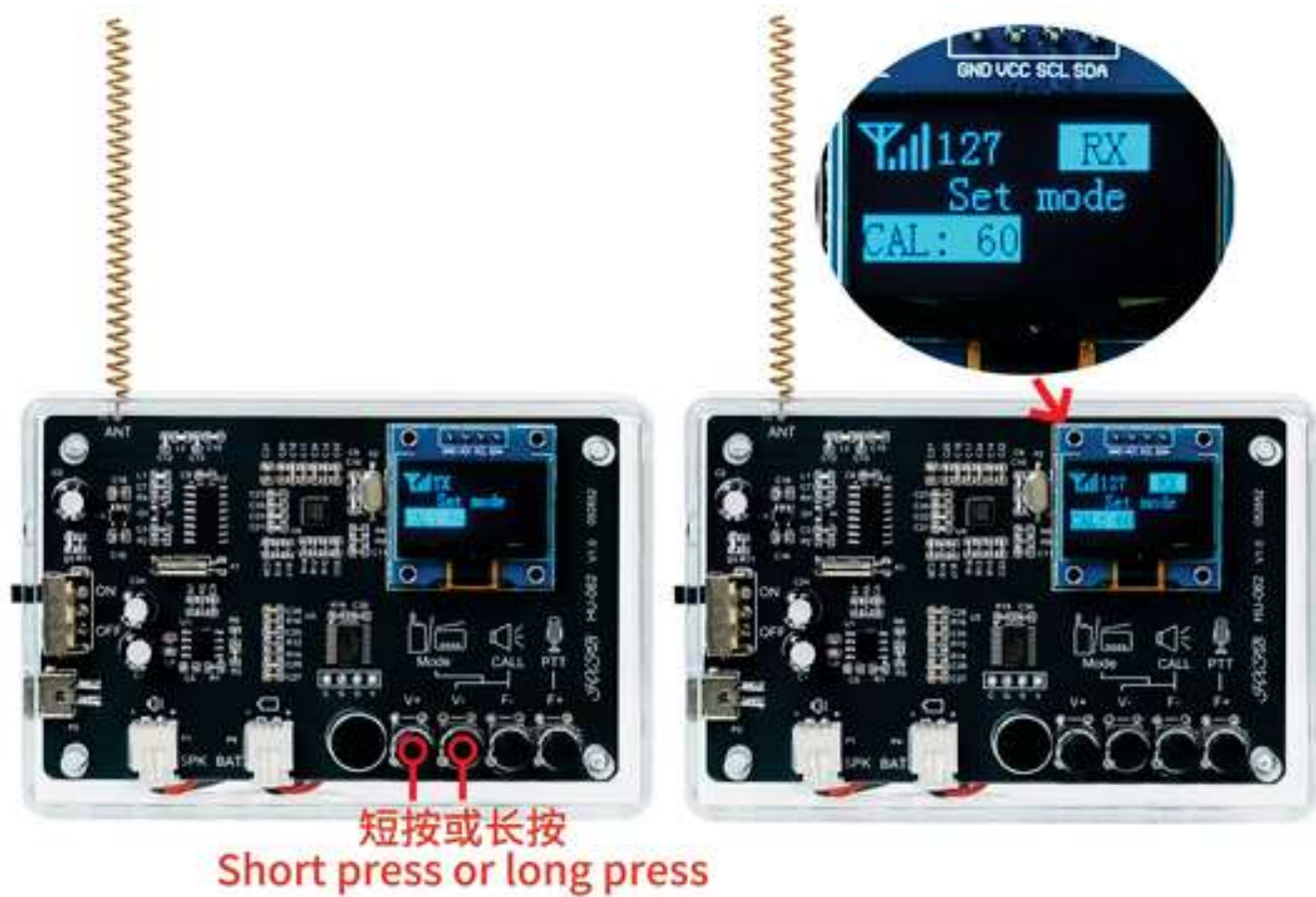
Ø Turn on the switch and in intercom mode, long press F - and F+ to enter crystal oscillator deviation compensation mode



ØThe default receiving mode of the walkie talkie, short press F - to switch one of the walkie talkies to the transmitting mode, and the TX icon will be displayed in the upper left corner of the transmitting mode



Ø Adjust the compensation value through V+or V - until a stable RX icon is displayed in the upper right corner of the receiving mode walkie talkie



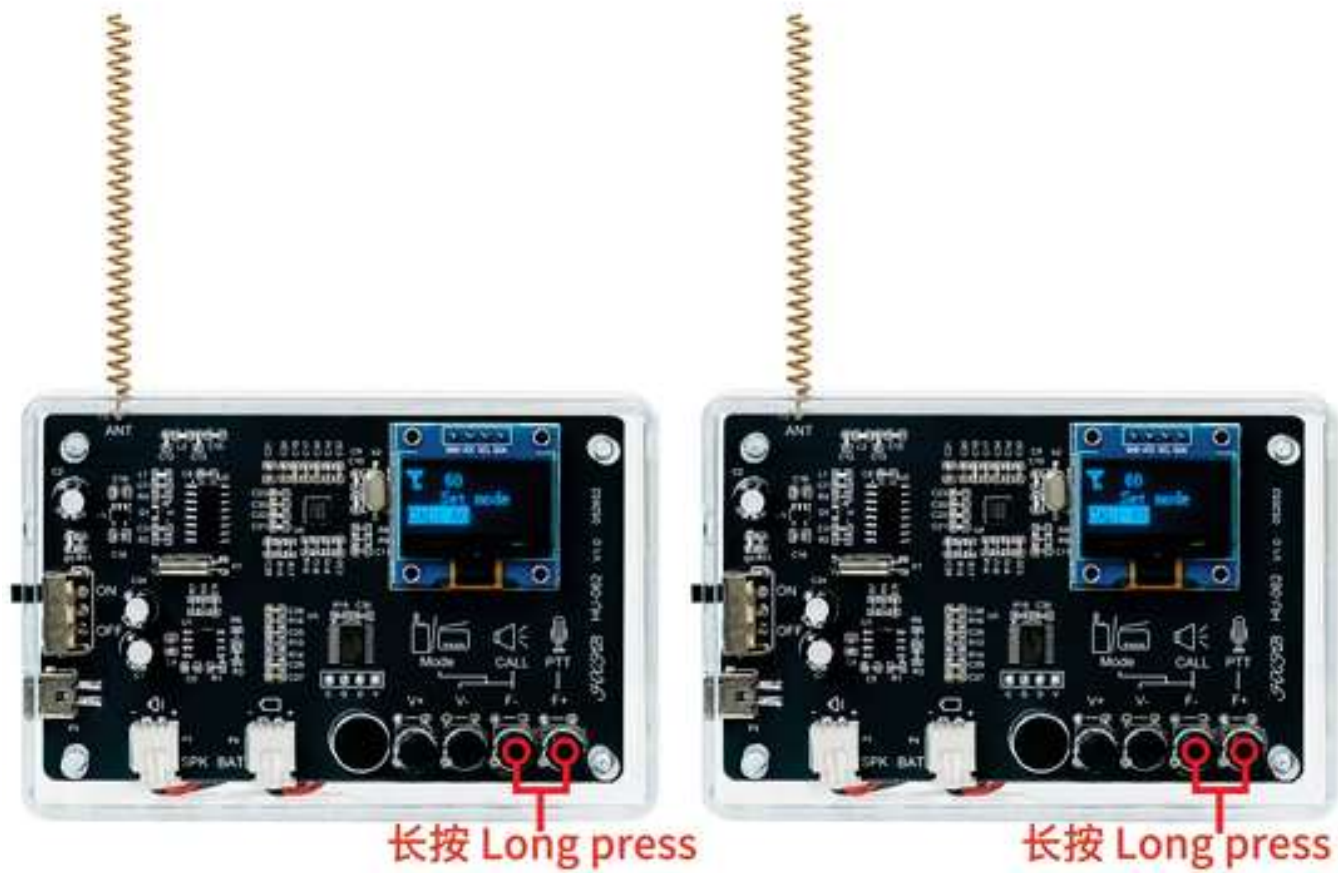
Ø Short press F - to switch the transmission and reception modes of the two walkie talkies, and check if the RX of the other walkie talkie is stable. If it is unstable, continue adjusting the compensation value until it stabilizes





短按或长按  
Short press or long press

Ø Long press F+ and F- to save and exit. If the communication distance is still short or the sound is unclear after adjustment, you can adjust the compensation value within the stable RX icon range by yourself.



### 3、Radio Instructions

## 收音机模式： Radio mode:

音量加：短按 / 长按 V+

Volume up:

Short press / long press V+

音量减：短按 / 长按 V-

Volume down:

Short press / long press V-

切换到下一个电台：短按 F-

Switch to the next radio station:

Short press F-

切换到上一个电台：短按 F+

Switch to the previous radio station:

Short press F+

重新搜索电台：长按 V+ 和 F+

Search for radio stations again:

long press V+ and F+

切换对讲机模式：长按 V- 和 F-

Switch intercom mode: Long press

V- and F-



(1) Radio interface





Radio interface			
Function	Interface Display/Status	Operation	Explanation
Volume Up	Current volume	Short press or long press V+	The adjustment range is 0-15. The default value is 8. The larger the value, the higher the volume; the smaller the value, the lower the volume.
Volume Down	Current volume	Short press or long press V-	
Previous Radio Station	Current frequency	Short press F-	Switch among the stored radio stations.
Next Radio Station	Current frequency	Short press F+	
Search for Radio Station Downward	Current frequency	Long press F-	The searched radio stations will not be stored automatically.
Search for Radio Station Upward	Current frequency	Long press F+	
Research for Radio Stations	Current frequency	Long press V+ and F+	It will automatically clear the stored radio stations and search for new radio stations.
Enter the Setting Mode	Setting interface	Long press V+ and V-	The sleep mode and radio reception threshold can be set.
Channel Management Mode	Current frequency	Long press F- and F+	You can add or delete radio stations by yourself.
Switch intercom mode	Interphone interface	Long press V- and F-	Switch from radio to Interphone

( 2 ) Settings interface



睡眠模式  
Sleep  
收音阈值  
Reception  
threshold



Set mode			
Function	Interface display/status	Operation	Description
SLEEP	SLEEP	Short press F- or F+ to select, and then short press V+ or V- to modify it.	The adjustment range is OFF/ON, and the default value is OFF. OFF means to turn off the sleep mode, and ON means to turn on the sleep mode. If there is no operation for 13 seconds in the sleep mode, the OLED screen will automatically turn off.
Radio threshold	FM-Value	Short press F- or F+ to select, and then short press V+ or V- to modify it.	The adjustment range is 0 to 15. The default value is 4; the larger the value, the fewer stations can be found, and the fewer invalid or poor-signal stations. The smaller the value, the more stations can be found, and the more invalid or poor-signal stations can be found.
Exit and Save	Radio interface	Long press F - and F+	Return to the radio interface

( 3 ) Channel management mode

当前频道列表序号

Current channel

list serial number

收音频率

Radio frequency

P:0

91.7 MHz

当前频道不在列表中

The current  
channel is not in  
the list

P:X

102.7 MHz

Channel management mode			
Function	Interface display/status	Operation	Description
The previous radio station	Current frequency	Short press F-	Switch among the stored radio stations.
The next station	Current frequency	Short press F+	
Search down for stations	Current frequency	Long press F-	Searched stations will not be automatically saved.
Search up stations	Current frequency	Long press F+	
Plus frequency	Current frequency	Short press V+	Can be adjusted to the desired channel, new channels will not be automatically stored.
Minus frequency	Current frequency	Short press V-	
Add Channel	Current channel sequence	Long press V+	Add channels to the list (up to 30 channels can be stored).
Delete Channel	Current channel sequence	Long press V-	Remove the channel from the list
Exit and Save	Radio interface	Long press F-和F+	Return to the radio interface.