

# INSTRUCTION MANUAL

## PT4208



Your **KIRISUN** radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as “Occupational Use Only”, meaning it must be used only during the course of employment by individuals aware of the hazards, and the ways to minimize such hazards. This radio is NOT intended for use by the “General Population” in an uncontrolled environment.

This radio has been tested and complies with the FCC RF exposure limits for “Occupational Use Only”. In addition, your **KIRISUN** radio complies with the following Standards and Guidelines with regard to RF energy and electromagnetic energy levels and evaluation of such levels for exposure to humans:

FCC OET Bulletin 65 Edition 97-01 Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.

American National Standards Institute (C95.1-1992), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. American National Standards Institute (C95.3-1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields– RF and Microwave.

The following accessories are authorized for use with this product. Use of accessories other than those (listed in the instruction) specified may result in RF exposure levels exceeding the FCC requirements for wireless RF exposure.



To ensure that your exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use, always adhere to the following guidelines

**DO NOT** operate the radio without a proper antenna attached, as this may damaged the radio and may also cause you to exceed FCC RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or antenna specifically authorized by the manufacturer for use with this radio.

**DO NOT** transmits for more than 50% of total radio use time (“50%duty cycle”). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is

transmitting when the “TX indicator” lights red. You can cause the radio to transmit by pressing the “PTT” switch.

**ALWAYS** keep the antenna at least 2.5 cm (1 inch) away from the body when transmitting and only use the **KIRISUN** belt-clip which is listed in instructions when attaching the radio to your belt, etc., to ensure FCC RF exposure compliance requirements are not exceeded. To provide the recipients of your transmission the best sound quality, hold the antenna at least 5 cm (2 inches) from your mouth, and slightly off to one side.

The information listed above provides the user with the information needed to make him or her aware of RF exposure, and what to do to as-sure that this radio operates with the FCC RF exposure limits of this radio.

**Electromagnetic Interference/Compatibility** During transmissions, your **KIRISUN** radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so. **DO NOT** operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

**Occupational/Controlled Use** The radio transmitter is used in situations in which persons are exposed as consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

### IMPORTANT

**READ ALL INSTRUCTIONS** carefully and completely before using the transceiver

**SAVE THIS INSTRUCTION MANUAL-** This instruction manual contains important operating instructions for the Two-Way Radio

### EXPLICIT DEFINITIONS

WORD	DEFINITION
<b>WARNING</b>	Personal injury, fire hazard or electric shock may occur.
<b>CAUTION</b>	Equipment damage may occur.
<b>NOTE</b>	If disregarded, inconvenience only. No risk of personal injury, fire or electric shock.

### OPERATING NOTES

When transmitting with a portable radio, hold the radio in a vertical position with its microphone 5 to 10 cm (2 to 4 inches) away from your mouth. Keep the antenna at least 2.5 cm (1 inch) from your head and body.

If you wear a portable two-way radio on your body, ensure that the antenna is at least 2.5 centimeters (1 inch) from your body when transmitting.

#### PRECAUTIONS WARNING!

**NEVER** hold the transceiver so that the antenna is very close to, or touching exposed parts of the body, especially the face or eyes, while transmitting. The transceiver will perform best if the microphone is 5 to 10 cm (2 to 4 inches) away from the lips and the transceiver is vertical.

#### WARNING!

**NEVER** operate the transceiver with a headset or other audio accessories at high volume levels.

#### CAUTION!

**NEVER** short the terminals of the battery pack. **NEVER** connect the transceiver to a power source other than the Battery listed below Such a connection will ruin the transceiver.

**DO NOT** push the PTT when not actually desiring to transmit.

**AVOID** using or placing the transceiver in direct sunlight or in areas with temperatures below  $-30^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$ ) or above  $+60^{\circ}\text{C}$  ( $+140^{\circ}\text{F}$ ).

**DO NOT** modify the transceiver for any reason.

**MAKE SURE** the flexible antenna and battery pack are securely attached to the transceiver, and that the antenna and battery pack are dry before attachment. Exposing the inside of the transceiver to water will result in serious damage to the transceiver.

**BE CAREFUL!** The series transceivers employ waterproof construction, which corresponds to IPX7 of the international standard IEC 60529 (2001), 1 m depth for 30 minutes. However, once the transceiver has been dropped, waterproofing cannot be guaranteed due to the fact that the transceiver may be cracked, or the waterproof seal damaged, etc. The use of non-**KIRISUN** battery.




**FCC CAUTION:** Changes or modifications to this device, not expressly approved by **KIRISUN**, could void your authority to operate this transceiver under FCC regulations.

**FCC INFORMATION FOR Q5EPT420803**

This device compliance with Part 90 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 except any interference received, including interference that may cause undesired operation.

**FCC ID: Q5EPT420803**

## Preface

We are very grateful for your purchasing  brand two-way radios  produced by Kirisun Electronics (Shenzhen) Co., Ltd. We believe two-way radio, which always incorporates the latest technology, can bring great convenience to your life and work; we also believe that the quality and function of  two-way radio can meet your demands for reliable communication.

## **PRECAUTIONS**

Please observe the following precautions to prevent fire, personal injury, and radio damage.

Do not operate your radio while taking on fuel, or being charged.

Do not expose the radio for a long period to direct sunlight, nor place the radio close to heating appliances.

Do not place the radio in excessively dusty areas, humid areas, or on unstable surfaces.

Do not modify this radio for any reason.

Refer service to qualified licensed or certificated technicians only.

## **Notices to the User**

Government laws prohibit radio communication without permission in government districts.

Illegal operation is subject to punishment by fine and/or imprisonment.

Refer service to the well-trained professional technicians only.

## **Safety**

It is important that the user is aware of and understands hazards common to the operation of any radios.

## **Warning!**

Turn off your radio before entering any area with a potentially explosive atmosphere (where the air contains gas, dust and smog, etc.), such as while taking on fuel, or while parking at a gas station.

## **Precaution in Use**

Please comply with the following attentions to avoid fire, bodily injury and damage to the radio.

The radio is recommended to transmit for 1 minute and receive for 4 minutes. Long time transmitting or continuous working in high power mode will make the rear side of the radio generate heat.

Please don't disassemble or assemble the radio under any circumstances.

Please don't expose the radio to direct sunlight for a long time; don't place the radio near any heating devices, either.

Please don't put the radio in extremely dusty, moist or dabbled places; don't place it on any unstable surfaces, either.

If the radio emits smoke or strange odors, turn it off and remove the battery from the radio and promptly contact your local authorized Kirsun dealer.

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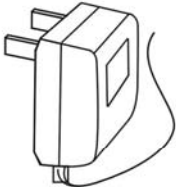




## 1. Package-opened Inspection

Please check the host in the package and the supplied accessories in the following table before using.

Any articles are found lost or damaged, please contact the distributor without delay.

### Supplied Accessories

Accessories	Quantity
Antenna	1
battery	1
back clip	1
intelligent charger	1
Power switch	1
Strap	1
User's Manual	1

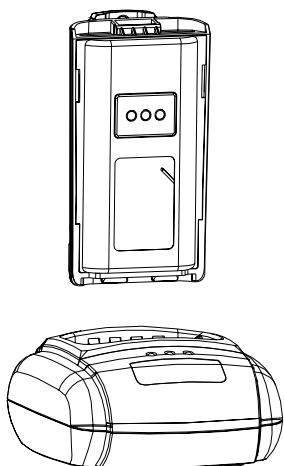
 <p>Antenna</p>	 <p>Adapter</p>	 <p>Lithium battery</p>
 <p>Charger</p>	 <p>Strap</p>	 <p>Leather case</p>

## 2. Preparation

### 2.1 Charge the battery

Insert the cable of the power adaptor into the adaptor jack at the back of the charger, insert the power adaptor into applicable AC power output socket, the 3 LED lights will flash for about 1 second, the green light will be on constantly when normal.

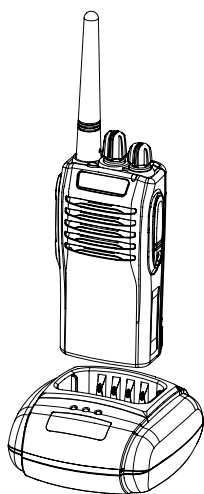




Insert the battery to be charged or the phone in the charger, please switch off the phone before installing it into the charger.

Make sure that the terminals of the battery and the charger can contact with each other reliably, when the red LED is on, the charging starts.

After about 5 hours of charging, the red LED will be out, and the green LED will be on, which indicates that the battery is fully charged.



When the green LED is on, you can remove the battery, when the battery reaches its best performance, then you can remove the power adaptor from the AC power output socket.

If the yellow LED flashes, that indicates abnormal charging temperature or circuit, and the charger is in the protected status, in which you should not charge the battery compulsorily, please remove the battery and shut the power of the charger.

Note:

The phone has not been charged when leaving the factory, please charge the battery before using the phone for the first time.

Both KB-70A nickel-hydrogen battery and KB-70B Li-polymer battery of the company are applicable to this phone.

After being purchased or before the first charging after being laid aside for a long time (2 months), the battery can reach its normal capacity after several times of charging, please ensure to charge the battery for at least once every three months.

When the battery is fully charged or not used till the low battery alarm status of the phone, it's better not to recharge it so as to avoid influence its longevity and performance. Please remove the battery from the charger after the charging.

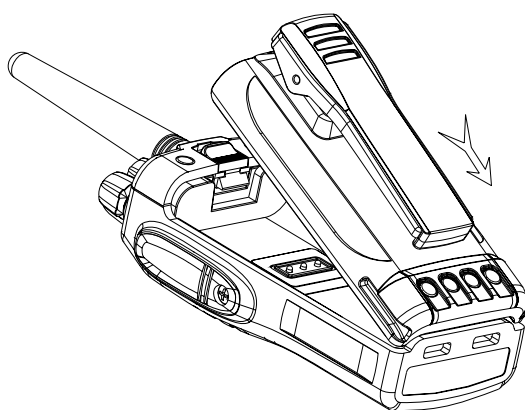
If using KB-70A, when the phone enters the low battery alarm status, please recharge the battery before reusing it, do not switch on the phone compulsorily, which may influence the longevity and performance of the battery.

KB-70B battery is provided with internal protective circuit, in the low battery status, it will cut the power automatically, if it's charged on the charger now, the red LED will not be on immediately, about 1-5 minutes later, the charging indicators will turn normal.

## 2.2 Install/remove the battery

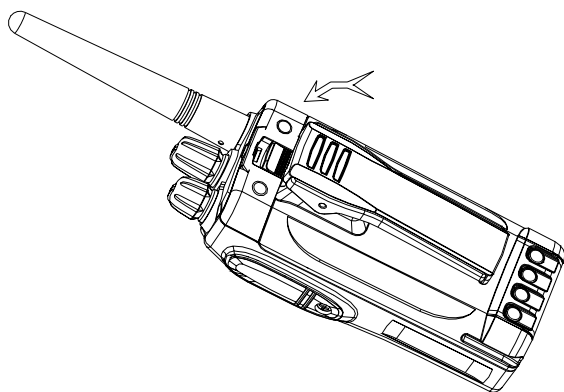
### Install the battery

Align the two protrusions at the lower end of the battery to the slot at the lower part of the shell of the phone and insert in.



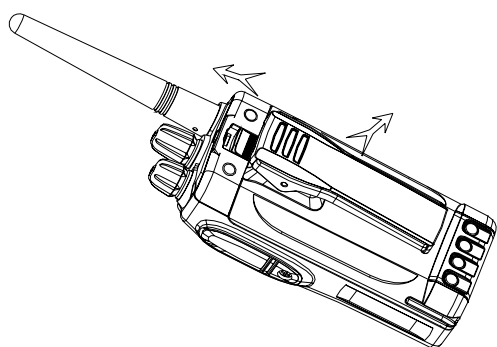
### Install the battery

Press the upper end of the battery down till the push button on the phone completely bounce out and locked.



### **Remove the battery**

To remove the battery, slightly press the battery and pull the push button upwards, and then remove the battery from the phone.



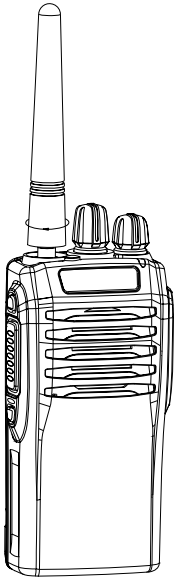
Note:

Please avoid short circuit of terminals of the battery or throw the battery in fire.

Do not remove the shell of the battery by yourself.

### **2.3 Install the Antenna**

Holding the base of the antenna, screw the antenna clockwise into the connector on top of the phone till it's fastened.

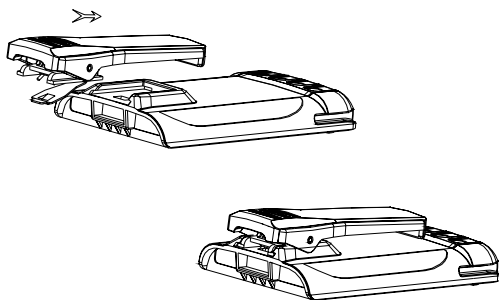


## 2.4 Install external speaker/MIC

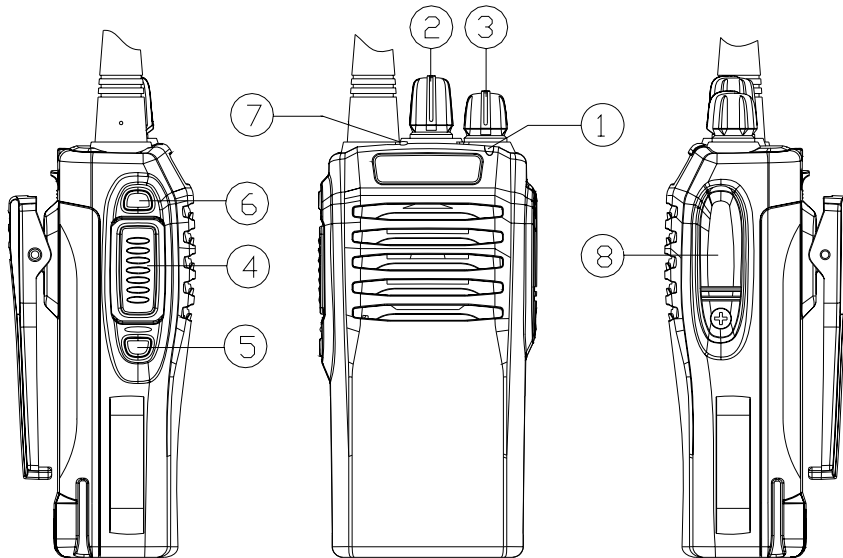
Open the soft rubber cover of external speaker or MIC with your fingernail, insert the pin of matching external speaker or MIC into the pinhole of the phone.

## 2.5 Install the belt clip

Align the guide rail of the support of the belt clip to the guide slot on the back of the battery and push downwards properly; to remove the belt clip, insert your fingernail or a tool into the slot on the upper part of the belt clip and push the card upward, at the same time, push the belt clip upward by force to remove it.



## 3. Radio Overview



#### 1. LED INDICATOR

Red LED on when transmitting, green LED on when receiving signals.

Red LED flashes when low battery.

#### 2. Channel selector knob

Turning to select channels 1-16.

#### 3. Power/Volume knob

Turn clockwise to turn on the phone, keep turning to adjust the volume. To turn off the phone, just turn the knob anticlockwise till a sound of “Ka-Da” is produced.

#### 4. PTT (PUSH-TO-TALK) key

Press the PTT key and talk towards the MIC to send the voice to the recipient.

#### 5. Side key 1 (programmable key)

#### 6. Side key 2 (programmable key)

#### 7. Top key (programmable key)

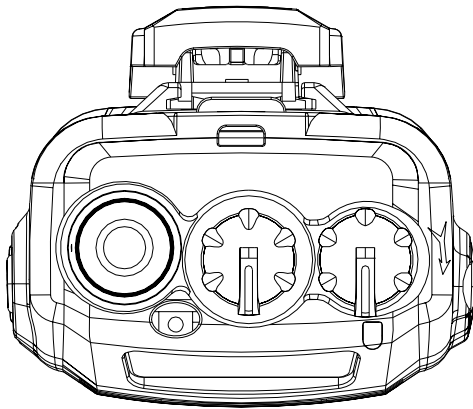
#### 8. Speaker/MIC connector

Connecting external speaker and MIC.

## 4. Basic Operation

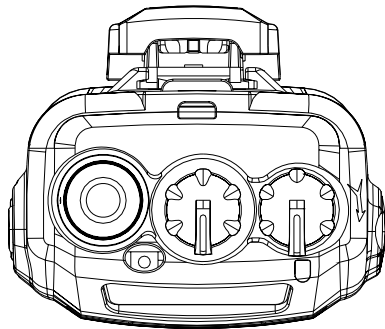
### 1. Startup:

Turn the Power/Volume knob clockwise to turn on the phone. If the dealer has set the prompt sound, a sound of “Bee” will be produced.



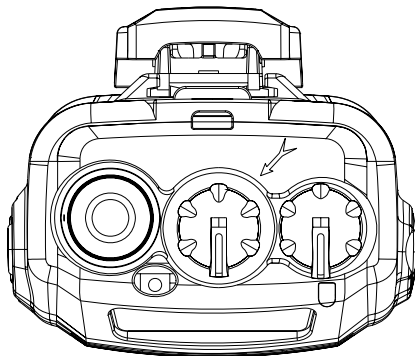
2. Volume:

You can press the key programmed to “cancel squelch” to receive background noise and then turn the Power/Volume key to adjust the volume.



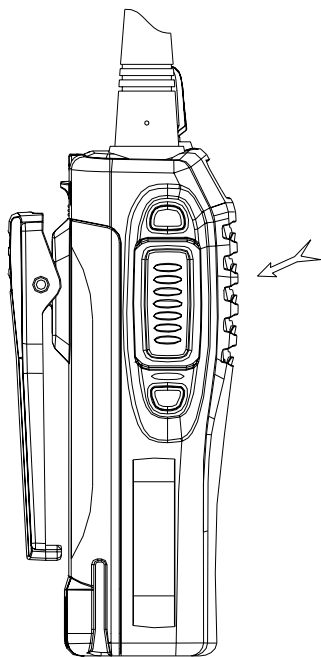
3. Channel:

Turn the channel selector knob to select the required channel. When the correct signal is received, you can hear sounds from the speaker.



4. Transmission:

To send a call, press the PTT key and speak to the microphone in the normal voice. Please keep the microphone about 3 or 4 cm far from your mouth.



#### 5. Receive:

The radio will return to the receiving state after you loosen the PTT key. The distributor may have set the CTCSS/DCS signaling in the programmed radio of your radio. On the channels with CTCSS/DCS are set, you can only hear the call from other radio with the same CTCSS/DCS.

## 5. Programmable Key Function

**Top key, side key 1, side key 2** can be programmed as one of the following functions.

Keys	Function Description
0. None	No function
1. Voice announcement selector	Press this programmable key to switch between different languages and modes of voice announcement and hear the number of channels being broadcast.
2. Talkaround	Switch the radio between talkaround and repeater mode.
3. Call Key 1	Sends the DTMF/2Tone code assigned to call 1 key.
4. Call Key 2	Sends the DTMF/2Tone code assigned to call 2 key.
5. Lone worker	Enables Lone worker function
6. Emergency Alarm	Press the key programmed as “Emergency Alarm” to set alarm tone according to the programming software or send your own ID or background tone to your friend or the system.
7. Emergency Alarm Off	Press this key to quit the Emergency Alarm mode.
8. Reverse play	Press this key programmed for “reverse play” to enter the working mode of reverse play (optional)
9. Scan	Start/end the scanning function of system.
10. Nuisance Delete	Press this key Nuisance Delete when the car-mounted station eatables

		the scan function and stays at the noise channel.
11. Hi-Low Power Switch		Press to switch between high and low power of the sending power of the station
12. Monitor momentary		Press to disable QT, DQT signaling and release according to the setting and release to resume normal operation.
13. Monitor		Press to disable QT, DQT signaling to receive signals that cannot be heard by normal operation, press again to resume normal operation.
14. Squelch momentary	off	Press to enable squelch and release to resume normal operation.
15. Squelch off		Hold this key to open the squelch. Loosen this key to return to the normal operation. Press this key in the selective call state to quit such a state.
16. Lone worker reset		After enabling the Lone worker, press this key to reset the Lone worker timer and the timing resumes.

## 6. Auxiliary functions

### 6.1 TOT Timer

#### 1) TOT Transmission time limit:

- a) TOT timer is provided to prevent the talker from talking too long and occupying the channel for a long time, and at the same time to avoid too long continuous transmission of the phone.
- b) Setting the time for continuous transmission. When the transmission exceeds the preset time limit, the phone will alarm and stop transmission.

#### 2) TOT repressing time:

- a) Limiting the time period in which the phone is prohibited to transmit after the TOT timer actions.
- b) During the period in which the phone is prohibited to transmit, if the PTT key is pressed, a prompt will be generated and the transmission is prohibited.

#### 3) TOT Pre-warning

- a) The phone will alarm in advance before the TOT timer pauses the transmission.
- b) After the alarm, when the time of transmission exceeds the preset time, the TOT timer will act.

#### 4) TOT reset time:

- a) Limiting the time delay from the PTT key is loosened to the timer resets.
- b) If the time of releasing the PTT key is shorter than that of the reset, the countdown continues.



## **6.2 battery saving**

The dealer may set the energy saving modes of the battery by programming.

If this function is enabled, the phone will enter the battery saving mode if not receiving any signal or any operation for 10 seconds. The phone will automatically quit the battery saving mode if receiving any signal or operation.

There are 4 modes of battery saving: 1:1, 1:2, 1:4 and off.

This function can reduce the power consumption of the battery.

## **6.3 Low battery alarm**

In the low battery status, the indicator will flash for prompt. If the battery level is so low as to reach the preset value during transmission of signals, the red indicator will flash. When the battery level is too low, the phone is not capable of transmitting signals

## **6.4 Number announcement**

This feature can be enabled or disabled by the dealer and has 2 modes: Chinese and English.

When changing the channel with the channel selector, after the channel is changed, the phone will announce the number of the channel selected.

## **6.5 Quite Talk (QT) / Digital Quiet Talk (DQT)**

The dealer may have programmed QT or DQT signals on channels of the phone, you can ignore calls of other irritant stations using the same channel.

When a certain channel is provided with QT or DQT signals, the squelch is only enabled when receiving correct QT or DQT signals. Similarly, only stations with the QT/DQT signals conforming to that of your phone can receive your signal.

Note: Although it appears that once you use QT/DQT, you can have your own channel, if other stations set the same QT or DQT signals, they can still hear your calling.

## **6.6 Dual Tone Multi-Frequency (DTMF) Coding**

DTMF signaling can be set into code sequence by the dealer, when the coding template contains

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DTMF signaling, press corresponding programmable keys “Call 1” “Call2”, the codes can be transmitted.

## 6.7 Talkaround

In the communication network, you can expand communication range through the repeater, but when the mobile radio is out of the communication range, you can connect with other radio in the talkaround method.

Switch the talkaround or repeater mode through “Talkaround” key.

## 6.8 Scan

The station can be programmed to scan multiple channels to receive signals from them.

### 6.8.1 Start/End Scan Function

a) Press the key programmed to “Scan”, the Scan function is entered. During the scan, channels in the scan list of the phone will stop will signals are found, the phone will stay at the channel with signals till the signals disappear, if the time delay between the signals disappear and the scan resumes, the phone will stay at the current channel if no signal is received during the time delay.

b) Priority Scan:

You can select one channel in the scan list as the priority channel, which has the highest priority during the scan, during the scan, a non-priority channel in the scan list will be scanned first, and then the priority channel, and then the next non-priority channel, and then the priority channel again, and the scan goes on in this cycle.

If the priority channel and the flyback period are set in the Scan list, when the phone receives signals in a non-priority channel, it is in the Scan Stopped status and will fly back the priority channel in a certain cycle, if there are signals in the priority channel, it will stay at the priority channel, if there are no, it will return to the original channel.

c) There are the following options for the back channel during the scan set by the dealer (i.e., the transmitting channel during the scan):

**Select the preset channel:** The phone transmits signals from the channel where the scan is started.

**Preset channel + current channel:** if the phone is at the Scan Staying status, it will transmit signals from the current channel, otherwise, it will transmit signals from the channel where the scan is started.

**Priority channel:** The priority channel preset in the Scan list.

**Priority channel+ current channel:** if the phone is at the Scan Staying status, it will transmit signals from the current channel, otherwise, it will transmit signals from the priority channel.

**Last calling receiving channel:** The channel where the phone has received signals for the last time.

**Last transmission + Current channel:** if the phone is at the Scan Staying status, it will transmit signals from the current channel, otherwise, it will transmit signals from the channel where it has transmitted signals for the last time.

### 6.8.2 Nuisance Delete

If a channel continuously generates noise or interference, press the key to remove this channel from the scan list temporarily.

Note: the priority channel can't be removed and the last one in the scan list, either.

Quit the Scan mode and enter it again, the deleted channel will be added to the scan list again.

## 6.9 Transmission Begin and Transmission End Signals (PTT ID)

Transmission Begin and transmission End identification signals are used for continuing with or stopping certain repeaters and phone systems.

If Transmission Begin has been set, when you press the PTT switch, the ID signals will be transmitted.

If Transmission End has been set, when you release the PTT switch, the ID signals will be transmitted.

If both have been set, the ID signals will be transmitted respectively when you press and release the PTT switch.

## 6.10 Lone worker

If Lone worker is set to be enabled, press the key “Lone worker” to enable the Lone Worker Mode. Start the Lone worker timer and when the preset Lone worker time is reached, the station will alarm, after the alarm time, the station will enter the Emergency Alarm Mode and give out the Emergency Alarm.

In the Lone worker Mode, press the “Lone worker” key again to quit the Lone worker mode.

In the Lone worker Mode, press the key programmed for “Lone worker reset” (the specific key to select lone worker reset mode) or any key (any key to select lone worker reset mode), the Lone worker timer will start timing again.

## 6.11 Emergency Alarm

Press the key programmed for “Emergency Alarm” (the time of pressing must be longer than the de-bounce time of the emergency alarm switch) to enter the Emergency Alarm mode. “E” will be displayed. You can set alarm tone according to the programming software or send your own ID or background tone to your friend or the system.

In the Emergency Alarm Mode, press the key “Emergency Alarm Off” to quit the Emergency Alarm Mode and disable the alarm tone or stop sending it and resume normal operation.

## 7. Wired Clone Mode

If the wired clone function is enabled, the radio will not quit after entering the wired clone mode. To return to normal user mode, the user needs to restart the machine.

The operating steps go as follows:

1. Press [P1] keys for power-on until show “C” and enter the clone mode. If the function is disabled, it will enter the user mode.
2. Connect the slave radio with the wired clone cable first, and then turn on.
3. Press key [P2] on the master radio for starting clone. During transmitting the data, the master radio lightens red, and the slave radio lightens green and indicates “P”. After the slave radio receiving all the data, the red light on the master radio is off, and the slave radio restarts.
4. You can keep copying according to step 3 above.

Note: The master displays success and the slave automatically restart upon successfully receipt of all data.

## 8. Trouble Shooting Guide

No.	Problem	Solution
1	Power on Failure	A. Unreliable connection between the battery and the phone, please reinstall the batter. B. The protective tube of power cable is burnt out. Please change it. C. Power switch in failure, please change it. D. The rechargeable battery is out of power. Please recharge or change a new one. E. CPU is broken, Please change the IC.
2	Phase lock loop unlocked (Beeping)	A. Channel frequency beyond the range, reset channel data. B. The crystal X4 of phase lock loop is broken. Please change it. C. The oscillator tube is broken. Please change it. D. The IC1 of phase lock loop is broken. Please change IC.
3	No talkback	A. The frequency is not right. Please reselect the channel of the same frequency. B. The CTCSS/DCS code is not the same. Please reset it. C. It is out of the effective communication range.
4	No receiving signal	A. The antenna is not in good contact. Please fasten the antenna head. B. The high-frequency amplifying tube Q20 is broken. Please change it. C. The squelch level is set to high Please reset the squelch level. D. The mixed tube Q19 is broken. Please change it. E. The FM IC5 is broken. Please change IC.
5	The red transmission Indicator lights but no sound is heard.	A. Power module Q11 damaged, no power output, please change the module. B. MIC damaged, please change it.
6	The green receiving indicator lights but no sound is heard.	A. The speaker is broken. Please change it. B. The audio power amplifierIC8 is broken. Please change IC.

## 9. Major Specifications

	PT4208
General Specifications	
Frequency	136~174MHz, V 400~450MHz, U 420~470MHz, U
Channel Number	16
Channel Spacing	25kHz(broadband) /12.5kHz(narrowband)
External Dimension (HXWXD)	119mm×54.5mm×34mm
Weight	247g (including the battery and the Antenna )
Operating Temperature	-25℃ ~ +55℃
Receiving sensitivity	≤0.28μV
Frequency stability	2.5ppm
TX power	4W (UHF) , 5W (VHF)

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Max. frequency deviation	$\pm 2.5$ KHz (narrowband) / $\pm 5$ KHz (broadband)
Max. audio power	$\geq 1000$ mW
Power	DC7.4V