

**PR<sup>(•)</sup>NTO**

**PR<sup>(•)</sup>NTO**  
**P-9510D**

# **INSTRUCTION MANUAL**

**Dual Mode  
DMR Digital Radio**

## To the user:

Thanks for purchasing our transceiver. We believe it will provide great convenience to your work and life.

With novel design and stable performance, you will experience professional and humanized design from our transceiver. We believe that you will be satisfied with the quality and functions, and provide you with convenient, quick, reliable two way voice communication.

Please read the manual carefully before using the product, for better experience functionality and performance of this digital radio.

## User Instructions:

- Refer service to the well-trained professional technicians only. Do not disassemble the transceiver by yourselves.
- To avoid problems caused by electromagnetic interference or electromagnetic compatibility, please power off the radio at places where required, such as hospital and other health care sites, also when required by aircraft crew.
- When in car with airbag, do not put radio in the airbag expanded area.
- Power off the radio before entering flammable and explosive environment.
- Do not replace or charge battery in flammable and explosive environment.
- Power off the radio before approaching the blast zone and

lightning district.

- Do not use radio with damaged antenna, which contacts skin may cause minor burns.
- Ensure antenna well installed before using radio, radio will be damaged when transmitted without antenna installed.
- When transmitted, hold radio in the vertical state, keep microphone about 5cm away from mouth.
- When transmitted, keep antenna at least 2.5cm away from body.

## Battery:

- If some conductive materials on body contact with exposed battery terminal, they may be damaged and cause minor burns, including jewelry, keys and beaded necklace, they will short circuit the battery, rapidly warming and cause burn. Should be extremely cautious when put full charged battery in the pocket, wallet or other containers with metal objects. Can not be exposed to fire, disassembled and extrusion.
- Maximum ambient temperature for charger power supply or transformer should be no more than 40°C (104°F).
- Power off the radio when charging. Do not use radio while charging.
- Disconnect the charger when no need to charge, continuous charging will shorten battery life. Do not make charger as radio storage seat.

For optimum use and safety effects, we suggest replacing battery after one year use

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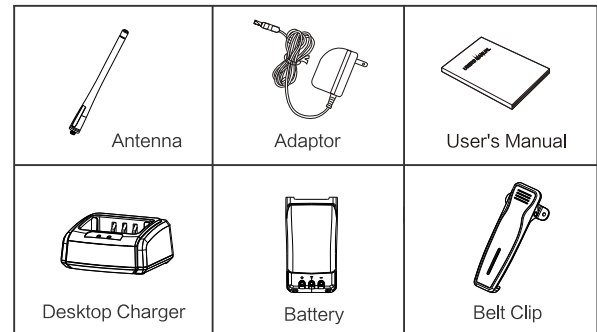
### Main Functions Features:

- Support Digital/Analog Modes
- Chinese/English Menu Display
- Multi-call Modes: Individual Call, Group Call, All Call
- Messages Function
- Remote Kill, Activate
- Emergency Alarm Function
- Call Voice Encryption
- DTMF Encoding and Decoding

### ■ Supplied Accessories

Please carefully unpack the product and check the main equipment and accessories listed in the following table. If any items are missing or have been damaged during shipment, please contact the dealer immediately.

Items	Quantity
Transceiver	1
Antenna	1
Adaptor	1
User's Manual	1
Desktop Charger	1
Battery	1
Belt Clip (With Screws)	1





### ■ Charging Precautions

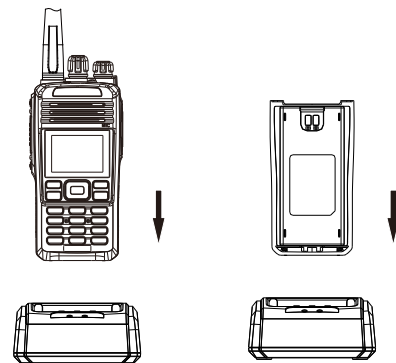
Please charge the battery before using new or long time no used transceiver. Charge and discharge cycle two or three times will make battery capacity to achieve the best state. When battery power low, need to charge the battery or replace with new one.

1. Do not short circuit the battery terminals or put it into fire.
2. Radio with battery can be charged also, but need to power off to ensure full charge.
3. Do not put radio and battery on desktop charger when no need to charge, continuous charging will shorten battery life.
4. Do not put full charged battery back on desktop charger, this will significantly reduce battery cycle life.
5. Put battery in indoor environment of over 25°C if possible, battery easy to fail when temperature is lower than -10°C for long time.

When temperature higher than 35°C or lower than -10°C, battery discharge capacity may be reduced, this is determined by the physical characteristics of lithium batteries.

### ■ Charging the Battery

1. Well connect supplied adaptor output cable and desktop charger, connect adaptor to AC power, light up red light and green light simultaneously for 2 seconds then out, indicating normal connection.
2. Insert battery pack or transceiver with battery into battery groove, make sure well connected and stable, charger red light on, start charging.
3. Green light on and red light out when full charging.

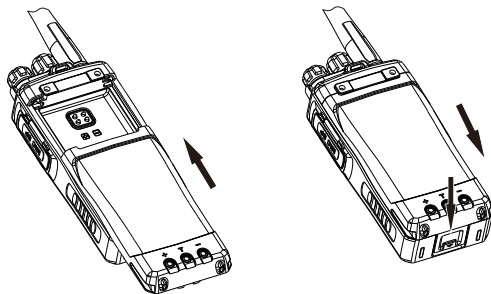


#### ※ Notice:

It is suggested to power off before charging, or else battery status can't be well judged by charger and charging time will be extended.

### ■ Install/Remove Battery Pack

1. Align battery protruding upper two bits with corresponding upper slots on radio aluminum shell, push forward into slots.  
Press down battery low end until hearing clicked sound when locked by push clip.
2. Press push clip downwards to remove battery pack from radio.



#### ※ Notice:

- Never short circuit battery terminal and throw battery in fire.
- Never try to disassemble battery shell, never assemble battery pack in dangerous environment, spark will cause explosion.

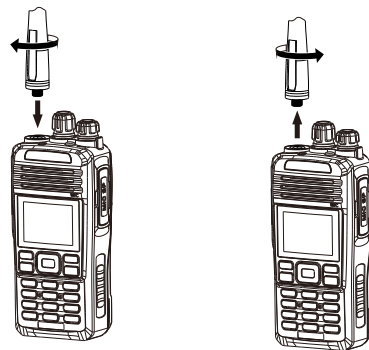
### ■ Install Antenna

#### ◆ Install Antenna

Insert supplied antenna into antenna base, tighten antenna by rotating in clockwise direction until consistent with the base.

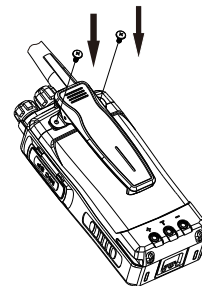
#### ◆ Remove Antenna

Rotate in anti-clockwise direction to remove antenna.



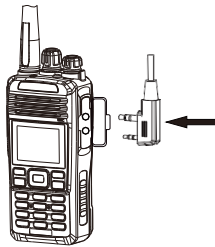
### ■ Install Belt Clip

Remove battery first and aim belt clip at two screw holes on equipment, then screw on by screwdriver. Unscrew to remove belt clip.

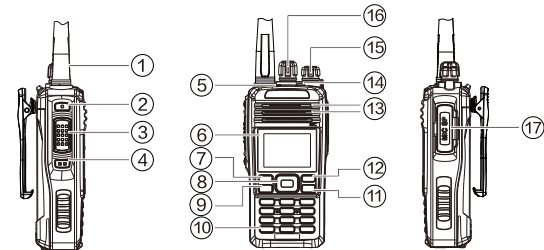


## ■ Install External Loudspeaker/Microphone

Open rubber plug and insert loudspeaker/microphone into jacks.



## ■ External View



- ① Antenna
- ② [PF1] Side Key:  
Programmable key can be set as different functions by PC programming software, check details in chapter of "Programmable Key" .
- ③ [PTT] Key:  
Press to transmit signal, release to switch receive standby status.
- ④ [PF2] Side Key:  
Programmable key can be set as different functions by PC programming software, check details in chapter of "Programmable Key" .
- ⑤ LED Indicator Light:  
Red light on while transmitting, green light on while receiving.
- ⑥ LCD Screen:  
Check display details in chapter of "LCD Screen" .
- ⑦ [Menu] Menu Key:  
Press this key to enter menu mode while in normal mode.
- ⑧ [Selection] Selection Key:  
Menu items Up/Down/Left/Right selection while in menu mode.
- ⑨ [Contacts Inquiry] Contacts Inquiry Key:  
Press this key to enter contacts menu directly in regular mode.

- ⑩ [0~9]\*[#]Numeric/Letter Keypad:  
Press numeric/letter keypad to input number, English, Chinese messages in messages editing mode.
- ⑪ [↵]Return Key:  
Press this key to return main interface.
- ⑫ [BACK]Back/Delete Key:  
Press this key to return to previous menu while in menu mode, to delete the number or text input while in messages editing or ID number key in mode.
- ⑬ Loudspeaker/Microphone
- ⑭ Alarm Button:  
Short press to activate alarm mode, long press to close alarm mode.
- ⑮ Power/Volume Control Knob:  
For power on/off and adjust the volume.
- ⑯ Channel Knob:  
Rotate to choose channels, channel number can be set, max. 128 channels for each zone.
- ⑰ Loudspeaker/Microphone Jack:  
For external loudspeaker/microphone jack

## ■ Programmable Buttons

Programmable Buttons: Can be programmed as radio function shortcut key according to the duration of button press.

Note: Short Press - Quickly press and release.

Long Press - Press and hold for certain time, duration time can be set by PC software, between 0.25~3.75 seconds.

Top Button, PF1 Side Key, PF2 Side Key long and short press function can be defined by programming software, programmable functions as below:





- None: No any functions.
- All Tones/Alerts ON/OFF: Open or close all tones.

- High/Low Power Selectable: Switch high/low RF power.
- Monitor: Monitor all activities of selected channel.
- One-click Access Function 1~6: Can be set as Digital/Analog Mode, Contacts, Call Type, Messages/Encode.
- Repeat/Talk Around: Switch between communication by repeater and directly with other radios.
- Scan ON/OFF: open or close scan.
- Tight/Normal Squelch: Switch between deep squelch and normal squelch.
- Encryption ON/OFF: open or close encryption.
- VOX ON/OFF: open or close VOX.
- Individual Call Manual Dialing: You can achieve individual call and manual dialing when activated.
- Lone Worker ON/OFF: You can hear prompt tone when no operation for certain time.

## ■ Display Screen













Icon	Description
	RSSI Signal Strength Indicator, the more signal scrollbar, the stronger signal.
	Means current channel is analog channel.
	Means current channel is digital channel.
	Means current channel sets call.
	Means unread message.
	Means read message.
	Means start scanning.
	Display when current channel with high power.
	Display when current channel with low power.
	Display when talk around function activated.
469.50000	Channel frequency displayed.
Zone1 8	Zone number and channel number displayed.

## Text Input Mode






Various text inputs selectable for different functions use, such as writing messages, editing channel name and so on. Three kinds of text input modes are included: English, Chinese, and Number. Enter text input interface (Writing messages for example), press  to switch text input mode, corresponding icons displayed on upper right corner of the screen: English , Number , Chinese .





### English Input Mode

Input English letters and marks by Number/Letter keypad, some characters need to press one key for many times, details as below.

Times \ Keypad	1	2	3	4	5	6	7	8	9	10	11	12	13
	1	.	,	?	!	@	&	'	%	-	:	*	#
	a	b	c	2	A	B	C						
	d	e	f	3	D	E	F						
	g	h	i	4	G	H	I						
	j	k	l	5	J	K	L						
	m	n	o	6	M	N	O						
	p	q	r	7	P	Q	R	S					
	t	u	v	8	T	U	V						
	w	x	y	9	W	X	Y	Z					
	0	Space											
	*												
	Used for switching input mode.												

### Chinese Input Mode


Pinyin for Chinese input mode. Press  to input punctuation, press  to  to input corresponding Pinyin. When in Pinyin input interface, first line shows Pinyin content, second line shows corresponding Chinese character. When anti-explicit content on first line, users can choose needed Pinyin by  or , Press [BACK] to delete input Pinyin sequentially one by one, when all input Pinyin deleted, Pinyin input interface disappeared. Press [MENU] key confirm selecting Pinyin, anti-explicit

content on second line, users can choose needed Chinese character by  or , press [BACK] to return Pinyin selection, press [MENU] to select anti-explicit Chinese character and displayed in editing area, finish input and Pinyin input display disappeared. Press  to display \*, press  to display space.

### Number Input Mode

In number input mode, press number keys directly to input needed number. Only number input mode can be used when input ID code by keypad.

#### ※ Remark:

When input user's name, ID or messages, if no content in editing area, press [BACK] to return previous menu, if there is content in editing area, press [BACK] to delete characters one by one until no content, then press [BACK] to return previous menu. You can press  to directly return main interface.

### ■ Power ON/OFF

1. Rotate Power/Volume Control Knob in clockwise direction to power on, and a beep prompt tone, green light is flashing, after screen displays startup screen, radio access to working status.
2. Rotate this knob in anti-clockwise direction until click sound heard to power off.

#### ※ Notice:

- If all LED indicator lights disabled, screen backlights won't be lighted up, only with power on prompt tone.
- If tones/alerts turned off, then no prompt tone when power on.





### ■ Volume Adjustment

Rotate Power/Volume Control Knob to adjust volume.

### ■ Zone Selection

Several talk channels can be composed as one zone, this radio support max. 250 zones, max. 128 channels can be set in each zone.

Use menu function:

1. Press [MENU] to enter menu mode.
2. Press [] or [] to Zone, then press [MENU] to select.
3. Display current zone with zone name.
4. Press [] or [] to needed zone, then press [MENU] to select.
5. "Selected zone" displayed immediately and then back to main interface.

### ■ Select Channel, User's ID, Talk Group ID

1. After zone selected, rotate channel knob to select channels, user alias or ID, talk group alias or ID.
2. 1000 channels support for this radio.

1. After zone selected, rotate channel knob to select required channels, user alias or ID, talk group alias or ID.
2. This radio has three call modes: Individual Call, Group Call, All Call.
  - Individual call is separate call from one radio to another.
  - Group call is several radios configured as several call groups, same group members can make group call to each other. To receive and initiate group call, this radio should be configured as needed call group, can configure "Channel Member" by "Channel Information" and "Group Information" in PC programming software.
  - All call is call from one radio to all radios on the channel. It is used for announcing important notice that requires special attention from users.

#### ※ Notice:


- When initiate or reply all calls and intercom, please hold radio in a vertical position and keep 1 to 2 inches (2.5 to 5.0cm) from mouth.
- When release [PTT] to receive various calls, if "Channel Idle Prompt Tone" activated, when target radio release [PTT], you will hear a short prompt tone, means this channel idle and wait for your reply. You can press [PTT] to reply, if no voice activity in scheduled time limit, then call terminated.

### ■ Receive and Reply Group Call

When group call received:

1. LED indicator light as green. RSSI icon, talk group name, caller ID (talk group alias), group call icon (For digital mode only) displayed on screen.
2. Press [PTT] to reply group call, LED indicator light as red.
3. Release [PTT] to receive. If no voice activity in scheduled time limit, then group call terminated.

#### ※ Notice:

If radio not in main interface when receiving a group call, radio keeps in current interface before replying this call. Press [] or [BACK] keys to return main interface, check caller alias before replying this call.

## ■ Receive and Reply Individual Call

When individual call received:

1. LED indicator light as green. RSSI icon, individual call, user name or ID, single call icon (For digital mode only) displayed on screen.
2. Press [PTT] to reply individual call, LED indicator light as red.
3. Release [PTT] to receive. If individual call terminated, you will hear a short prompt tone, screen display call end.

### ※ Notice:

To decrypt encrypted call, this radio shall have same encryption key with transmitted radio.

## ■ Receive All Call

When all call received:

1. LED indicator light as green. RSSI icon, all call, user name or ID, all call icon (For digital mode only) displayed on screen.
2. After all call terminated, radio returns to previous screen before receiving all call.

### ※ Notice:

When receiving all call, if you switch to another channel, radio stops receiving this all call. No programmable keys can be used during all call.

## ■ Initiate a Call

You can choose one channel number, user's ID or talk group by below methods:

- Channel knob
- Programmable one-touch call key
- Contacts
- Manual Dial (By Contacts): This method is only suitable for single call, and dial by keypads.

## ■ Initiate Call by Channel Knob

### ◆ Initiate Group Call

1. Rotate channel knob, use enabled talk group alias or ID to select channels.
2. Press [PTT] to initiate group call, LED indicator light as red. Talk group alias or ID, group call icon displayed on screen.
3. Release [PTT] to receive, when target radio replies, LED indicator light as green. Group call icon, talk group alias or ID, transmitting radio alias or ID displayed on screen.
4. Radio returns to previous screen before receiving call. You can initiate group call by contacts also.

### ◆ Initiate Individual Call

1. Rotate channel knob, use enabled user's name or ID to select channels.
2. Press [PTT] to initiate call, LED indicator light as red. RSSI icon, single call, user name or ID, single call icon (For digital mode only) displayed on screen.
3. Release [PTT] to receive, when target radio replies, LED indicator light as green.
4. You will hear a short prompt tone when call terminated, call end displayed on screen.

### ※ Remark:

You can initiate single call by contacts or conduct contacts quick access by keypad entry, to search for target radio.

### ◆ Initiate All Call

This function can transmit signal to all channel users. This function should be activated by PC programming software.

1. Rotate channel knob, select channels by enabled all call talk group name or ID.

2. Press [PTT] to initiate call, LED indicator light as red. All call talk group alias or ID, all call icon displayed on screen.

※ **Notice:**

Channel users can not reply all call.

## ■ Initiate Group Call or Individual Call by One-touch Call Key

One-touch call key function easily makes group call or individual call to predefined alias or ID. This function can be assigned as short press or long press keys by PC programming software.

You can assign one alias or ID to a one-touch call key, several one-touch call keys can be set.

1. Press programmable one-touch call key, to initiate a group call or individual call to predefined alias or ID.
2. Press [PTT] to initiate call, LED indicator light as red. Talk group/user's name or ID, group call/individual call icon displayed on screen.
3. Release [PTT] to receive, when target radio replies, LED indicator light as green.
4. After call terminated, radio returns to screen before receiving call.

## Emergency Alarm Function

When in emergency, you can initiate emergency alarm at any time or on any screen display, even when current channel active.

### ◆ Alarm Mode:

- Emergency Alarm: When activated, radio sends emergency alarm only, then automatically exit alarm state.
- Emergency Alarm with Call: Radio sends emergency alarm, and then you can press [PTT] to send emergency call.
- Emergency alarm with following voice: Radio sends emergency alarm, and then sends following voice in emergency call mode.

### ◆ Alarm Type:

Programmable emergency call button can be assigned as one of emergency alarm types as below by PC programming software.

- Ban: This radio can not transmit alarm signal, but can receive alarm signal from other radios.
- Normal: Radio transmits an alarm signal with sound or visual cues.
- Silent: Radio transmits an alarm signal without sound or visual cues. Before you press [PTT] to transmit, target radio will not respond to the call.
- Silent with Voice: Radio transmits alarm signal meanwhile can receive call. Before you press [PTT] to transmit or receive call, there is no sound or visual cues.

## ■ Receive Emergency Alarm

1. When receiving emergency alarm, screen alternately displays alarm number, alarm mode, sender alias or ID, meanwhile with beep tone and red light flashing.
2. This radio will automatically confirm emergency alarm if activated. When emergency alarm received, screen displays received emergency alarm prompt until sending confirmation and quit emergency alarm mode. You can not receive any other calls or prompts during an emergency alarm response, until you quit emergency alarm mode and return to previous display.



※ **Notice:**

Press [BACK], then press programmable [Alarm Off], remove all received emergency alarm prompt and quit emergency alarm mode.

## ■ Reply Emergency Alarm

When receiving emergency alarm:

1. Press any keypad to stop all received emergency alarm voice prompt.
2. Press [PTT] to start up call with emergency call initiate radio. LED indicator light as red. Radio is in the emergency call mode.

※ **Remark:**

If “Channel Idle Prompt Tone” activated, when transmitting radio release [PTT], you will hear a short prompt tone, means this channel can be used.

3. Release [PTT] to receive, when emergency call initiate radio replies, LED indicator light as green. Group call icon, talk group ID, transmitting radio ID displayed on screen.
4. After call terminated, press [BACK], then press programmable [Alarm Off], remove all received emergency alarm prompt and quit emergency alarm mode, radio returns main interface.

## ■ Send Emergency Alarm

This function allows you to send emergency alarm, and then trigger trips in another radio.

1. Press programmable [Emergency Mode Activated] key.
2. Screen alternately displays sending alarm and radio ID. LED indicator light as red and emergency call icon displayed.
3. When receiving emergency alarm confirmation, radio sends emergency call prompt tone and green light flashing, emergency alarm success displayed.

If no any emergency alarm confirmation received, radio sends emergency

call prompt and emergency alarm fail displayed.

4. Radio quits emergency alarm mode and returns main interface. If radio set as silent, there is no sound or visual cues in emergency call mode.

## ■ Send Emergency Alarm with Call

This function allows you to send emergency alarm to another radio. After confirmation, these two radios communicate by a programmable emergency channel.

1. Press programmable [Emergency Mode Activated] key.
2. Screen alternately displays sending alarm and radio ID. LED indicator light as red and emergency call icon displayed.
3. When receiving emergency alarm confirmation, radio sends emergency call prompt tone and green light flashing, emergency alarm success displayed.
4. Press [PTT] to initiate call, LED indicator light as red, talk group icon displayed.
5. Release [PTT] to receive.

※ **Remark:**

If “Channel Idle Prompt Tone” activated, when target radio release [PTT], you will hear a short prompt tone, means this channel is idle and wait for your reply. Press [PTT] to reply, or press programmable [Emergency Mode Off] to quit emergency mode.

Radio returns to main interface.

6. Radio returns to main interface.

※ **Remark:**

- If this radio sets as “Silent”, there is no sound or visual cues in emergency call mode, will not receive any call from target radio, until you press [PTT] to call.
- If this radio sets as “Silent with Voice”, there will be no sound or visual cues when in emergency call mode or when you receive call from target radio. When you press [PTT] to initiate or respond call, it will send prompt.

## ■ Send Emergency Alarm with Following Voice

This function allows you to send emergency alarm to another radio. After confirmation, this radio microphone will be automatically activated, you can directly communicate with other radios and no need to press [PTT]. This activated microphone state is called “emergency microphone”. If press [PTT] during programmable “emergency microphone” transmitting period, this radio will neglect [PTT] press and keep in emergency mode.

### ※ Notice:

If you press [PTT] key during emergency microphone period, and continue pressing after “Emergency Microphone” duration, this radio continue transmitting until you release [PTT].

1. Press programmable [Emergency Mode Activated] key.
2. Screen displays sending alarm. LED indicator light as red and emergency call icon displayed.
3. When emergency call success displayed, speak clearly to microphone. When “emergency microphone” activated, radio will transmit signal automatically, not need to press [PTT], until “emergency microphone” period terminated.
4. When transmitting, LED indicator light as red and emergency call icon displayed on screen.
5. When “emergency microphone” duration terminated, this radio automatically stop transmitting signal. Press [PTT] to transmit again.

### ※ Remark:

- If this radio sets as “Silent”, there is no sound or visual cues in emergency call mode, will not receive any call from target radio, until “emergency microphone” duration terminated and press [PTT] to call.
- If this radio sets as “Silent with Voice”, there will be no sound or visual cues when you initiate call by emergency microphone in emergency call mode or when target radio responds after programmable “emergency

microphone” duration. When you press [PTT], prompt appears.

### ※ Notice:

If emergency alarm request fail, radio returns to main screen.

## ■ Restart Emergency Mode

Radio will restart emergency mode in the follow circumstances:

- If change channel in emergency mode, will quit this mode. If activate emergency alarm on new channel, radio will restart emergency call.
- In an emergency call start / transmit state, press programmable [emergency mode activated], to make radio exit this state and restart emergency call.

## ■ Exit Emergency Mode

Radio will exit emergency mode in the following circumstances:

- Receive emergency alarm confirmation (For emergency alarm only).
- Reach total sending alarm times.
- Press programmable [Emergency Mode Off].
- Press [PTT].

### ※ Notice:

If power off, radio exits emergency mode. When power on, radio will not restart emergency mode.

## Menu Operation

Available menu items will be different between digital channels and analog channels. Some menu items can be chosen to display or not by PC programming software setting.

### ■ Menu Operation Method

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to required menu item.
3. Press [MENU] to choose and enter next menu item.
4. Press [BACK] to return previous menu item.
5. Press [↵] to exit menu operation status, directly return standby status and main interface displayed.
6. Repeat steps 1 ~ 4 to make all levels menu operation.

#### ※ Remark:

- During menu operation, you can press [PTT] to transmit directly, after releasing [PTT], radio will directly exit previous menu operation status and return main interface.
- Radio will automatically return main interface standby after no operation for certain time, which can be set by programming software.

### ■ Radio Detection

If activated, this function helps you to confirm whether other radios are active in system, and will not disturb radio users, and not voice or visual notification appeared on target radio.

#### ※ Remark:

This function is suitable for user name or ID only.

### ◆ Send Radio Detection

Use menu function:

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to Contacts, and then press [MENU] to select.

3. Press [↶] or [↷] to required user name or ID, then press [MENU] to select.
  - Or press [↶] or [↷] to Manual Dial, and then press [MENU] to select. If previous dialed ID available, ID displayed with flashing cursor, use keypad to edit ID, press [MENU] to select.
  - Or press [↶] or [↷] to Manual Dial, and then press [MENU] to select. Enter user name or ID, and then press [MENU].
4. Press [↶] or [↷] to radio detection, and then press [MENU] to select.
5. Radio detection displayed on screen: <User name or ID>, indicating radio detection ongoing, LED indicator light as red.
6. Wait for confirmation.
  - If target radio is active in system, you can hear a beep tone, screen briefly displays target radio answered.
  - If target radio is not active in system, you can hear a beep tone, screen briefly displays target radio not answered.
7. Radio returns user name or ID screen. If press [BACK] when waiting for confirmation, you can hear a beep tone, and exit radio detection mode.

### ■ Remote Monitoring

- Use remote monitoring function to open microphone of target radio (For user name or ID only).
- You can use this function to remote monitor any sound activity around the target radio.

#### ※ Remark:

This radio should be programmed as allowing you to use this function.

### ◆ Start Remote Monitoring

Use menu function:

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to Contacts, and then press [MENU] to select.

3. Press [↵] or [↶] to required user name or ID, then press [MENU] to select.
  - Or press [↵] or [↶] to Manual Dialing, then press [MENU] to select. If previous dialed ID available, ID displayed with flashing cursor, use keypad to edit ID, press [MENU] to select.
  - Or press [↵] or [↶] to Manual Dial, and then press [MENU] to select. Enter user name or ID, and then press [MENU].
4. Press [↵] or [↶] to remote monitoring, and then press [MENU] to select.
5. You can hear prompt tone, LED lights as green.
6. Wait for confirmation.
  - Monitor Success: Radio start receiving voice signal from monitored radio and Monitoring display on screen, until programmable duration end, you can hear a prompt tone and LED indicator light out, remote monitoring terminated displayed.
  - Monitor Fail: Remote monitoring fail displayed on screen. Radio repeatedly attempts until programmable attempt times.

## ■ Contacts Setting

Every item of the contacts is corresponding to an alias or ID which is used to call. The radio support digital contacts.

The items in the contacts: Call type, Call alias, Call ID.

### ※ Notice:

Contact items can be added, deleted or edited in the digital contacts.

### ◆ Start a Group Call by Contacts

1. Press [↵] or [↶] to the contacts, or directly press [↗] to enter contacts.
2. Then press the [MENU] to select, items are ranked by the alphabet order.
3. Press [↵] or [↶] to the needed call group alias or ID.
4. Press [PTT] to call, LED indicator light as red. Call group alias or ID,

group call icon displayed on screen.

5. Release [PTT] to receive, when any user of the the group calls, LED indicator light as green. Group call icon and user's ID displayed on screen.

### ◆ Start a Individual Call by Contacts

1. Press [↵] or [↶] to the contacts, or directly press [↗] to enter contacts.
2. Then press the [MENU] to select, items are ranked by the alphabet order.
3. Press [↵] or [↶] to the needed user's name or ID.
  - Press [↵] or [↶] to manual dialing, then press [MENU] to select. If previous user name or ID available, ID displayed with blinking cursor, use the keypad to edit the ID.
  - Press [↵] or [↶] to manual dialing, then press [MENU] to select, use the keypad to input a new ID.
4. Press [PTT] to call, LED indicator light as red. User's name or ID displayed on the first line, individual call and icon displayed on the second line.
5. Release [PTT] to receive, when the target radio transmits, LED indicator light as green, transmitting user ID displayed on screen.
6. When call terminated, you will hear a short beep tone, call end displayed on screen.

### ※ Notice:

- If release the [PTT] when starting a call, then will return to the previous screen without any prompt.
- The radio can be programmed to perform "Radio Detection" before starting an individual call. If the target radio not responds, you will hear a short beep tone, NO ANSWER displayed on screen. The radio will return to the previous screen before starting the "Radio DetectionTest".

## ■ Call Log

The radio can record all recent Outgoing, Answered, Missed individual call. You can use call log to check and manage recent call records.

### ◆ Check the Latest Call Number

Missed, answered and outgoing calls are included in menu item.

1. Press [MENU] to enter the menu mode.
2. Press [↶] or [↷] to the call log, then press [MENU] to select.
3. Press [↶] or [↷] to the needed list, then press [MENU] to select.
4. The screen will display the latest item on the top.
5. Press [↶] or [↷] to check the list, press [PTT] to start an individual call by current user alias or ID.

### ◆ Missed Call Interface

Whenever miss calls, radio will display a message of missed call, choose to check now or later.

1. Screen displays missed calls, numbers and check.
2. Press [MENU] to check the ID of missed call, screen displays missed call record list. Press [MENU] to save or delete the item, or press [↶] or [↷] to check later, then press [MENU] to select, return the main interface.

#### ※ Notice:

If press the [PTT] when checking the missed calls, radio will exit the missed calls screen and start a individual call.

### ◆ Save the alias name or ID of the missed calls

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to call log, then press [MENU] to select.
3. Press [↶] or [↷] to missed calls, then press [MENU] to select.
4. Press [↶] or [↷] to missed calls alias or ID, then press [MENU] to select.
5. Press [↶] or [↷] to save, then press [MENU] to select.
6. Blinking cursor appeared, if needed, input alias name of the ID, then press [MENU].

#### ※ Notice:

You can input an ID without alias.

7. Screen displays the contact been saved.

### ◆ Delete the Calls of Call Log

1. Press [MENU] to enter the menu mode.
2. Press [↶] or [↷] to call log, then press [MENU] to select.
3. Press [↶] or [↷] to needed list, then press [MENU] to select.
4. Press [↶] or [↷] to needed alias or ID, then press [MENU] to select.
5. Press [↶] or [↷] to delete the item, then press [MENU] to select yes or no.
6. Select “Yes” and press [MENU] to delete the item, item deleted displayed on screen. Or select “No” and press [MENU] to return previous screen.

#### ※ Notice:

When selecting a call log without any list or item, the screen will display the list is empty.

## ■ Call Prompt Operation

Call prompt can remind one specific radio user to call you back within possible time.

This function can only be used by user name or ID, and use through the contacts or manual dialing to achieve.

### ◆ Initiate Call Prompt By Contacts

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to the contacts, then press [MENU] to select.
3. Press [↶] or [↷] to the needed user name or ID, then press [MENU] to select.  
Or press [↶] or [↷] to manual dialing, then press [MENU] to select, blinking cursor appeared, input the user ID which you want to call, then

press [MENU].

4. Press [↶] or [↷] to call prompt, screen displays call prompt: <User Name or ID>, then press [MENU], indicating call prompt has been sent.
5. When radio sends a call prompt, LED indicator light as red.
6. If receiving the call prompt confirmation, you can hear a beep tone, and displays call prompt succeed.  
Or if not receiving the call prompt confirmation, you can hear a beep tone, and displays call prompt failed.

## ■ Messages

The radio can receive the messages from another radio, the max length of the message is 144 characters. The message should be not more than 50 lines.

### ◆ Write Messages

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to messages, then press [MENU] to select.
3. Press [↶] or [↷] to Write, then press [MENU] to select.
4. When blinking cursor appeared, use keypads to input message, press [↶] to move left for a charater, press [↷] to move right for a charater.  
When edit area with contents, press [BACK] to delete any useless character; When edit area without contents, press [BACK] to return previous menu.
5. When finish writing, press [MENU] to select to send or save.
6. During editing, you can press [MENU] to select clear option, clear all the edited contents, and return previous menu.
7. Refer to “Send Messages” chapter for sending messages operation.

### ◆ Send Messages

Finish editing the message or check the quick text, then send the message.

1. After sending, press [↶] or [↷] to the needed alias or ID, then press [MENU] to select.  
Or press [↶] or [↷] to manual dialing, then press [MENU] to select, input the user’ s ID and press [MENU].
2. Screen displays the message: <User/Call group alias or ID>, confirm sending message.
3. If the message been sent, you can hear a beep tone, and screen displays the message has been sent.  
If the message not been sent, you can hear a a high pitch beep tone, and screen displays the message has not been sent, and return resend selection screen.

### ◆ Send Quick Text

The radio can support max 50 quick texts, quick texts can be edited by PC programming software.

When the quick text is set, you can edit it before sending the message.

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to Messages, then press [MENU] to select.
3. Press [↶] or [↷] to Quick Text, then press [MENU] to select.
4. Press [↶] or [↷] to to needed quick text, then press [MENU] to select.
5. When blinking cursor appeared, use keypad to input the message, press [↶] to move left for a charater, press [↷] to move right for a charater.  
When edit area with contents, press [BACK] to delete any useless character; When edit area without contents, press [BACK] to return previous menu.
6. When finish writing the message, press [MENU] to select to send or save.
7. During editing, you can press [MENU] to select clear option, clear all the edited contents, and return previous menu.
8. Refer to “Send Messages” chapter for sending messages operation.

## ◆ Use One-touch Call Button to Send Quick Text

1. Press programmable one-touch call button, send a quick text to a user alias or ID.
2. Refer to “Send Messages” chapter for sending messages operation.

## ◆ Manage Sent-failed Messages

You can select Resend, Forward or Edit in resend selection screen.

### ◇ Resend Messages

1. Press [↶] or [↷] to resend, then press [MENU] to select.
2. Select resend, refer to “Send Messages” chapter for sending messages operation.

### ◇ Forward Messages

Forward messages to another user/talk group alias or ID.

1. Press [↶] or [↷] to forward, then press [MENU] to select.
2. Select forward, refer to “Send Messages” chapter for sending messages operation.

### ◇ Edit Messages

1. Press [↶] or [↷] to edit, then press [MENU] to select.
2. Select edit, refer to “Write Messages” chapter for writing messages operation.

#### ※ Notice:

If with topic line (Messages received from e-mail), topic can not be edited.

## ◆ Manage Sent Messages

After sending the message to another radio, the message will be saved in the “Sent items”, it can save max 50 latest messages. When the quantity reaches 50, the newly sent message will replace the earliest

sent message.

When checking the sent message, you can select: Resend, forward, edit or delete.

### ◇ Check Sent Messages

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to messages, then press [MENU] to select.
3. Press [↶] or [↷] to Sent Items, then press [MENU] to select.
4. Press [↶] or [↷] to needed message, then press [MENU] to select. If the message is from the e-mail, then there will be a topic line, the icon on top right corner of the screen displays message status.

### ◇ Send Sent Messages

1. When checking messages, press [MENU] once again.
2. Press [↶] or [↷] to resend, then press [MENU] to select.
3. After selecting resending, refer to “Send Messages” chapter for sending messages operation.

#### ※ Notice:

- Besides pressing [MENU],[↶] or [↷],if you change the volume and press any keypads, it will return messages interface.
- When pressing [PTT] to initiate individual call or group call, or when respond to group call, radio will exit to resend selection interface.
- If messages or remote sensing information, emergency call or alarm, or call prompt received, radio will exit to resend selection interface.
- If press [PTT] to respond individual call (Besides when radio missed calls displayed), or when all call is terminated, radio will exit to resend selection interface.
- Press [↶] or [↷] to enter the forward, edit or delete selection screen.

### ◇ Delete All Sent Messages in “Sent Items”

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to Message, then press [MENU] to select.
3. Press [↶] or [↷] to the sent items, then press [MENU] to select.
4. Press [↶] or [↷] to delete all, then press [MENU] to select.
5. When deleting the message, press [MENU], select "YES" to clear the sent items.

Or when deleting the message, Press [↶] or [↷] to "NO", then press [MENU] to previous screen. When no messages in the "sent items", the screen will display the list is empty. If keypads tone on, you can hear a low pitch beep.

## ■ Receive Messages

When radio receives the messages, sender alias or ID and message icon displayed on screen left.

When a message received, you can select to read, read later or delete.

### ※ Notice:

If press [PTT] when prompt screen displayed, radio will exit message editing screen and start an individual call or group call.

## ◆ Check Messages

1. Press [↶] or [↷] to read, then press [MENU] to select.
2. Open the selected message in inbox, if the message is from e-mail, then there will be a topic line.
3. Press [MENU] to return inbox.
  - Press [MENU] to reply, forward or delete the message.
  - Press [↶] or [↷] to check-later or deleting selection interface:
 

Selecting checking later, return previous screen before receiving the message. Select delete, to delete the received message.

## ◆ Manage Received Messages

Use Inbox to manage the messages. Max 50 messages can be saved in inbox, will always save the latest messages.

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to Messages, then press [MENU] to select.
3. Press [↶] or [↷] to inbox, then press [MENU] to select.

At inbox interface, you can select to reply, forward, delete or delete all.

### ◇ Check Messages in Inbox

1. At inbox interface, press [↶] or [↷] to check the message. If the message is from e-mail, then there will be a topic line.
2. Press [MENU] to select the current message, then press [MENU] again to reply, delete or forward this message.

### ※ Remark:

✉ means unread, ✉ means read.

### ◇ Reply Messages in Inbox

1. At Inbox Interface, press [↶] or [↷] to the needed message, then press [MENU] to select. If the message is from the e-mail, then there will be a topic line.
2. Press [MENU] to enter submenu.
3. Press [↶] or [↷] to reply, then press [MENU] to select.
4. Press [↶] or [↷] to write messages, then press [MENU] to select, when with blinking cursor, you can edit message by keypad.
  - Or press [↶] or [↷] to the quick text, then press [MENU]. Select the needed message, then press [MENU], when with blinking cursor, you can edit message by keypad if needed.
5. After editing, press [MENU], the screen will display the message with <User/talk group alias or ID>, confirm sending message.
  - If the message is sent successfully, you can hear a beep tone and screen displays the message has been sent.
  - If the message can not be sent, the screen will display sending failed,



and radio will return resend selection screen.

#### ◇ Delete Messages in Inbox

1. At inbox interface, press [↶] or [↷] to the needed message, then press [MENU] to select. If the message is from e-mail, there will be a topic line.
2. Press [MENU] again to enter submenu.
3. Press [↶] or [↷] to delete, then press [MENU] to select.
4. When deleting the message, press [↶] or [↷] to “YES”, then press [MENU] to select.
5. When the message is deleted, radio will return inbox interface.

#### ◇ Delete All Messages in Inbox

1. At Inbox interface, press [↶] or [↷] to Delete All, then press [MENU] to select.
2. When deleting the message, press [↶] or [↷] to “YES”, then press [MENU] to select.
3. The screen displays the inbox is empty.

#### ※ Remark:

When selecting the “Inbox”, but no messages in it, the screen will display the list empty. If the keypad tone is on, you can hear a low pitch beep.

## ■ Encryption

This radio has encryption function. Use this function to prevent disclosure of communications voice and data, to ensure the privacy of communication. The TX signaling and user ID section of this radio are not encrypted.

#### ◆ Encryption Setting

You can set encryption type and key in the PC programming software “Encryption Setting” window.

This radio only supports one basic encryption type, total 16 groups of

encryption key can be set.

If you want to decrypt the encrypted call or data transmission, the encryption key of the transmitting radio and the receiving radio must be the same.

If this transceiver receive call with different encryption key, you will hear chaos voice.

#### ◆ Encryption Switch

Use the programming software to set the encryption on/off key. Press encryption on/off key to turn on/off the function.

## ■ DTMF

For analog channels, use DTMF to achieve the radio call.

Manually initiate a DTMF call, operation as follows:

1. Press [PTT].
2. Use keypad to input needed call number. Screen displays manual dialing and input interface.

You can switch off all tones/alerts to turn off DTMF tone.

## ■ Confidentiality

You can activate or remote kill any radio in the system. For example, you can disable one stolen radio, to prevent others to use it, and revive it when getting back..

#### ※ Notice:

Please enable these functions before using the remote kill or revive.

#### ◆ Remote Kill

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to Contacts, then press [MENU] to select, the entry is

1. ranked by the Alphabet order.
2. Press [F1] or [F2] to needed alias or ID, then press [MENU] to select.  
Or press [F1] or [F2] to manual dialing, press [MENU] twice to input the
3. user's name or ID, then press [MENU] to select.
  - Press [F1] or [F2] to remote kill the radio, and then press [MENU] to select.  
Screen displays Remote Kill: <User's name or ID> and LED indicator
4. light as red.
5. If the remote kill is successful, screen displays radio remote kill success, and you can hear a beep tone.
6. If the remote is failed, screen displays radio remote kill failed, and you can hear a beep tone.

※ **Notice:**

During remote kill operation period, do not press [BACK] or [F3], or the info will not be confirmed.

◆ **Activate**

1. Press [MENU] to enter menu mode.
2. Press [F1] or [F2] to Contacts, then press [MENU] to select, list ranked by the alphabet order.
3. Press [F1] or [F2] to needed alias or ID, then press [MENU] to select.
  - Or press [F1] or [F2] to manual dialing, press [MENU] twice to input the user's name or ID, then press [MENU] to select.
4. Press [F1] or [F2] to activate radio, then press [MENU] to select.
5. Screen displays activate: <User's name or ID> and LED indicator light as red.
6. If activate successful, screen displays radio activate is successful, and you can hear a beep tone.  
If activate fail, screen displays radio activate fail, and you can hear a beep tone.

※ **Notice:**

During activate operation period, do not press [BACK] or [F3], or the info will not be confirmed.

■ **Scan List**

Set up scan list and allocate to single channel/talk group, this radio can support max 250 scan lists, and 31 members for each list. Every scan list can support mixed channel of analog and digital. You can edit the scan list to add/delete channel or set the priority for the channel.

◆ **Check the Members in Scan List**

1. Use the knob to select a channel with preseted scan list.
2. Press the [MENU] to enter menu mode.
3. Press [F1] or [F2] to Scan, then press [MENU] to select.
4. Press [F1] or [F2] to check/edit the list, then press [MENU] to select.
5. Press [F1] or [F2] to check the members of the list.

If the priority is setted, then the icon of the priority will be displayed on the left of the member's alias.

① means the priority level of the member is 1, ② means the priority level of the member is 2, ③ means the member has no priority. In a scan list, it can not have multiple priority 1 or priority 2.

◆ **Scan indication and method**

When start the scan, yellow light flashing, and screen displays the scanning icon, the radio can check whether the channels of the scan list have communication signal.


During scanning of analog and digital dual modes period, if radio on a digital channel and one analog channel is locked, it will automatically switch the mode from digital to analog. Vice versa.

Two scanning methods available:

- **Manual Scan:** Start the scanning according to the programmable scanning on/off key or menu. When activating the scanning, the radio will detect all the channels/talk groups of the scan list.
- **Automatic scan:** When choosing a activated automatic scan channel/talk group, radio will start scan from automatic scan channels.

## ◆ Start and Stop Scan

Press the programmable scanning on/off key or enter scan menu.

1. Use channel knob to select a channel with presetted scan list.
2. Press [MENU] to enter menu mode.
3. Press [↶] or [↷] to Scan, then press [MENU] to select.
4. If the scan is disabled, screen displays turning on; If the scan is activated, screen will displays turning off.
5. Press [MENU] to select.
6. When the scan is activated, yellow light flashes, screen displays scan icon ; when the scan is disabled, LED indicator light out and no scan icon displayed.

## ◆ Scan Reply

When scanning, radio detects a channel/talk group with signal, radio will stay on the channel/group, residence time called as “Suspension time” . It can be set by the programming software.

1. During the “Suspension time” , press the [PTT], LED indicator light as red.
2. Release [PTT] to receive.
3. If no response during “Suspension time” , then radio will continue to scan.

The setting includes: Radio settings, radio info, and radio allocation.

## ■ Radio Settings


Radio settings includes: Talk Around, Tones/Alerts, RF Power, Backlight, Squelch Startup Interface, Keypad Lock, Language, LED Indicator Light, VOX, Startup Password, Clock, Mode.

Use menu operation to enter radio setting interface.

1. Press [MENU] to enter menu mode.
2. Press [↶] or [↷] to setting, then press [MENU] to select.
3. Press [↶] or [↷] to radio setting, then press [MENU] to select, enter radio setting interface.
4. Press [↶] or [↷] to required set next menu item, then press [MENU] to select.

Repeat the step to enter all level menu item, and then make corresponding operations.

5. Press [MENU] to select the needed setting.
6. Press [BACK] to previous menu.
7. Press [↵] to quit the radio setting, directly return standby status and display main interface.

NO.	Setting Items		Options	Function Operation	Remark
1	Talk Around		On/Off	Press [↶] or [↷] to select on/off. Turn on talk around, screen displays  .	Press programmable [Repeater/Talk Around] key to switch between the modes.
2	Tone / Alert	All Tones	On/Off	Press [↶] or [↷] to switch on/off.	Switch on/off all tones/Alerts (Except for emergency prompt tone) by programmable switch.
		Call Permission	On/Off	Press [↶] or [↷] to switch on/off.	After turning on, when call, you will hear communication permission prompt tone.
		Keypad Tone	On/Off	Press [↶] or [↷] to switch on/off.	After turning on, you can hear prompt tone when pressing keypad.

NO.	Setting Items		Options	Function Operation	Remark
3	RF Power		High/Low	Press [↵] or [↶] to select High/Low power.	Each channel can be set as RF high/low power Press programmable high/low key to switch.
4	Backlight		Always/5S/10S/15S.	Press [↵] or [↶] to select the needed backlight time. Always means the backlight will be on always.	Press programmable [Backlight automatic switch] to turn on/off the backlight.
5	Squelch		Tight/Normal	Press [↵] or [↶] to select required squelch level.	Press the programmable [Tight/Normal] to switch squelch level.
6	Intro Interface		On/Off	Press [↵] or [↶] to switch On/Off.	When switch on, radio will display intro interface.
7	Keypad lock		Manual/5S/10S/15S.	Press [↵] or [↶] to select the keypad lock option.	Manually keypad lock: In main interface, keep pressing [☐] to lock the keypad. Unlock the keypad: Press [MENU], then press [☐].
8	Language		English/Chinese	Press [↵] or [↶] to select the language option.	This radio supports Chinese and English display.
9	LED Indicator Light		On/Off	Press [↵] or [↶] to select to turn on/off the LED indicator light.	If LED indicator disabled, the light will be out when operating the radio.
10	VOX		Off and Level 1-10S	Press [↵] or [↶] to select to turn on/off the VOX and sensitivity level.	Press programmable [VOX] to turn on/off the VOX. If choosing 1-10S, then the VOX is activated, and the sensitivity of VOX is corresponding to the digital gears When activating the call permission tone, you can use the VOX to call.
11	Startup Password		8 digits	Use the keypad to input the required password, and it can also be setted by programming software.	If the password is set, radio can only be powered on when inputting the correct password.
12	Clock	Time	H,M,S(6 digits)	Press [↵] or [↶] to select number needed to be modified.	After setting, time and the date will be displayed on the bottom of the screen.
		Date	Y,M,D (8 digits)	Input corresponding number by keypad.	
13	Mode		Frequency Mode/Channel Mode	Press [↵] or [↶] to select the modes.	Main interface will display receiving frequency or channel name according to selected mode.

## ■ Radio info

The radio info includes: My number, Versions. The versions contains firmware version, CP (CodePlug) version.

### ◆ My number

You can check radio name and number (ID).

1. Press [MENU] to enter menu.
2. Press [↵] or [↶] to setting, then press [MENU] to select.
3. Press [↵] or [↶] to the radio info, then press [MENU] to select.
4. Press [↵] or [↶] to my number, then press [MENU].
5. Screen displays radio name and ID.

### ◆ Versions

The radio can check the firmware version and CP (CodePlug) version.

1. Press [MENU] to enter menu mode.
2. Press [↵] or [↶] to setting, then press [MENU] to select.
3. Press [↵] or [↶] to the radio info, then press [MENU] to select.
4. Press [↵] or [↶] to versions, then press [MENU].
5. Screen displays current firmware version and CP version.

## ■ Radio Allocation

The radio allocation is to edit the channel content, including RX frequency, TX frequency, channel name, TOT, CTCSS/DCS, color code, repeater slot.

Enter the “Channel Edit” interface.

1. Press [MENU] to enter menu mode.
2. Press [↵] or [↶] to settings, then press [MENU] to select.
3. Press [↵] or [↶] to the radio allocation, then press [MENU] to select.

4. Use keypad to input correct radio allocation code (Programming software setting), then press [MENU] to select and enter the “Channel edit” interface.
5. Press [↵] or [↶] to the required allocation item, then press [MENU] to select.
6. Press [↵] or [↶] to the required the options, or input the required contents.
7. Press [MENU] to save the result; Press [BACK] to return previous menu.
8. Press [5] to quit the radio allocation, return standby status and display main interface.

NO.	Allocation Items		Options	Function Operation	Remark	
1	RX Frequency		400.00000~469.90000 MHz	Input the frequency, press [↵] to delete the last number, press [BACK] to return previous menu.	Use the programming software to select the frequency range, if the range is less than the limit, then correct it to the minimum range of the software, likewise the contrary.	
2	TX Frequency		400.00000~469.90000 MHz			
3	Channel Name		Channel name, letter and number	Press [#] to switch the relevant letter, number or character of the input method.	Input method and the way of editing the message are the same.	
4	TOT		Infinite/15S/30S...555S	Press [↵] or [↶] to select required time.	Select infinite means TOT is off. The rest means the length of time.	
5	CTC SS/ DCS	CTC Decoding	Off 67.0/69.3/71.9...254.1	Press [↵] or [↶] to select receiving CTCSS frequency.	Select Off means cancel the CTCSS decoding. Total 50 CTCSS frequencies.	CTCSS/ DCS can only be set on the analog channel
		DCS Decoding	Off D023/N/D025N...D754 N/D023/N/D025I...D754I	Press [↵] or [↶] to select receiving DCS signaling.	Select off means cancel the DCS decoding. Total 105 DCS Frequencies. N means positive phase, I means negative phase.	
		CTC Encoding	Off 67.0/69.3/71.9...254.1	Press [↵] or [↶] to select transmitting CTCSS frequency.	Select off means cancel the CTCSS encoding.	
		DCS Encoding	Off 67.0/69.3/71.9...254.1	Press [↵] or [↶] to select transmitting DCS signaling.	Select off means cancel the DCS encoding. Total 105 DCS Frequencies. N means positive phase, I means negative phase.	

NO.	Allocation Items	Options	Function Operation	Remark
6	Color Code	0/1/2/3/4...15	Press [↵] or [↶] to select to set the value of the color code.	Color code can only be set on the digital channel.
7	Repeater Slot	1/2	Press [↵] or [↶] to select to set the value of the repeater slot.	Repeater slot can only be set on the digital channel.

General Specifications		
Frequency Range	( 1 ) 136~174MHz	( 2 ) 400~470MHz
Channel Capacity	1000	
Channel Space	12.5kHz/25 kHz	
Frequency Stability	± 1.5ppm	
Operating Voltage	DC7.4V ± 15%	
Dimension ( W × H × D )	60mm × 135mm × 37mm ( Antenna Excluded )	
Weight	275g ( With battery,belt clip,antenna )	
Battery Pack	1500mAh ( Li-ion Battery )	
Working Temperature	- 20℃ ~ + 60℃	
Storage Temperature	- 40℃ ~ + 85℃	
Receiver		
Analog Sensitivity	≤0.22 μ V/-120dBm	
Digital Sensitivity	-119dBm (BER ≤5%)-117dBm (BER ≤1%)	
Intermodulation	≥ 50dB @ 12.5 kHz; ≥55dB @25 kHz	
Adjacent Channel Selectivity	≥ 50dB @ 12.5 kHz; ≥55dB @25 kHz	
Co-channel Rejection	≥-8dB	
Blocking	≥85dB	
Modulation RX bandwidth	≥ 2 × 3kHz @ 12.5 kHz; ≥ 2 × 5kHz @25 kHz	
Audio Power	>1W	
Audio Distortion	≤5%	

## Main Specification

General Specifications		
Frequency Range	( 1 ) 136~174MHz	( 2 ) 400~470MHz
Channel Capacity	≥1000	
Channel Spacing	12.5kHz/25 kHz	
Frequency Stability	± 2.5ppm	
Operating Voltage	DC7.4V ± 15%	
Dimension ( W×H×D )	62mm×136mm×37mm ( Antenna Excluded )	
Weight	288g (With Battery and Belt Clip)	
Battery Pack	1500mAh ( Li-ion Battery )	
Working Temperature	- 20℃ ~ + 60℃	
Receiver		
Analog Sensitivity	≤0.22 μ V/-121dBm	
Digital Sensitivity	-119dBm (BER ≤5%);-117dBm (BER ≤1%)	
Intermodulation	≥50dB @12.5 kHz; ≥55dB @25 kHz	
Adjacent Channel Selectivity	≥50dB @12.5 kHz; ≥55dB @25 kHz	
Co-channel Rejection	≥-8dB	
Blocking	≥85dB	
Modulation RX bandwidth	≥2×3kHz @12.5 kHz; ≥2×5kHz @25 kHz	
Audio Power	>1W (16 Ω)	
Audio Distortion	≤5%	
Transmitter		
RF Power	( 1 ) 5W/1W	( 2 ) 4W/1W
Modulation Sensitivity	10 ±3mV	
Spurious RF Components	≤-58dB	
Adjacent Channel Power	≤-55dB @12.5KHz; ≤-65dB @12.5KHz	
4FSK Modulation Accuracy	≤5% @25℃	
Audio Distortion	≤5%	

## Troubleshooting

NO.	Troubles	Troubleshooting
1	Power-on no response	<ul style="list-style-type: none"> <li>Battery life exhausted, please replace battery or charge.</li> <li>Battery not installed correctly, please remove and reinstall the battery.</li> </ul>
2	The battery is easily exhausted after fully charging	<ul style="list-style-type: none"> <li>Battery pack life is ending, please replace it.</li> </ul>
3	Communication voice is low	<ul style="list-style-type: none"> <li>Too far from the mic, the best distance is 3~10cm.</li> <li>Volume is not set properly, rotate the volume knob, to increase the volume.</li> </ul>
4	Can not intercom	<ul style="list-style-type: none"> <li>The channel value is not correct, please reset it.</li> <li>ID is not correct, please select the right ID.</li> <li>Surpass the communication range of the radio.</li> </ul>