

PROFESSIONAL TWO-WAY RADIO

USER 'S MANUAL

Up to 16 Channels / FM Radio / Chinese/English Language / CTCSS, DCS
Time-out timer(TOT) / High/Low Power are optional / Battery saving function
VOX / Busy Channel Lockout (BCL) / Low Battery Voltage Warning
Carrier mode to scan / Channel information broadcast
Frequency Hopping Techniques / Programmable by PC

TO USERS

Thank you for your favor with our products.

We are dedicated to providing high performance and high stability radio communication products. This two-way radio is no exception. This product is a high performance intercom with UHF frequency band, which can meet the needs of most industries. In order to make you fully understand the various advantages of the radio performance and use and maintenance methods, please read this manual carefully.

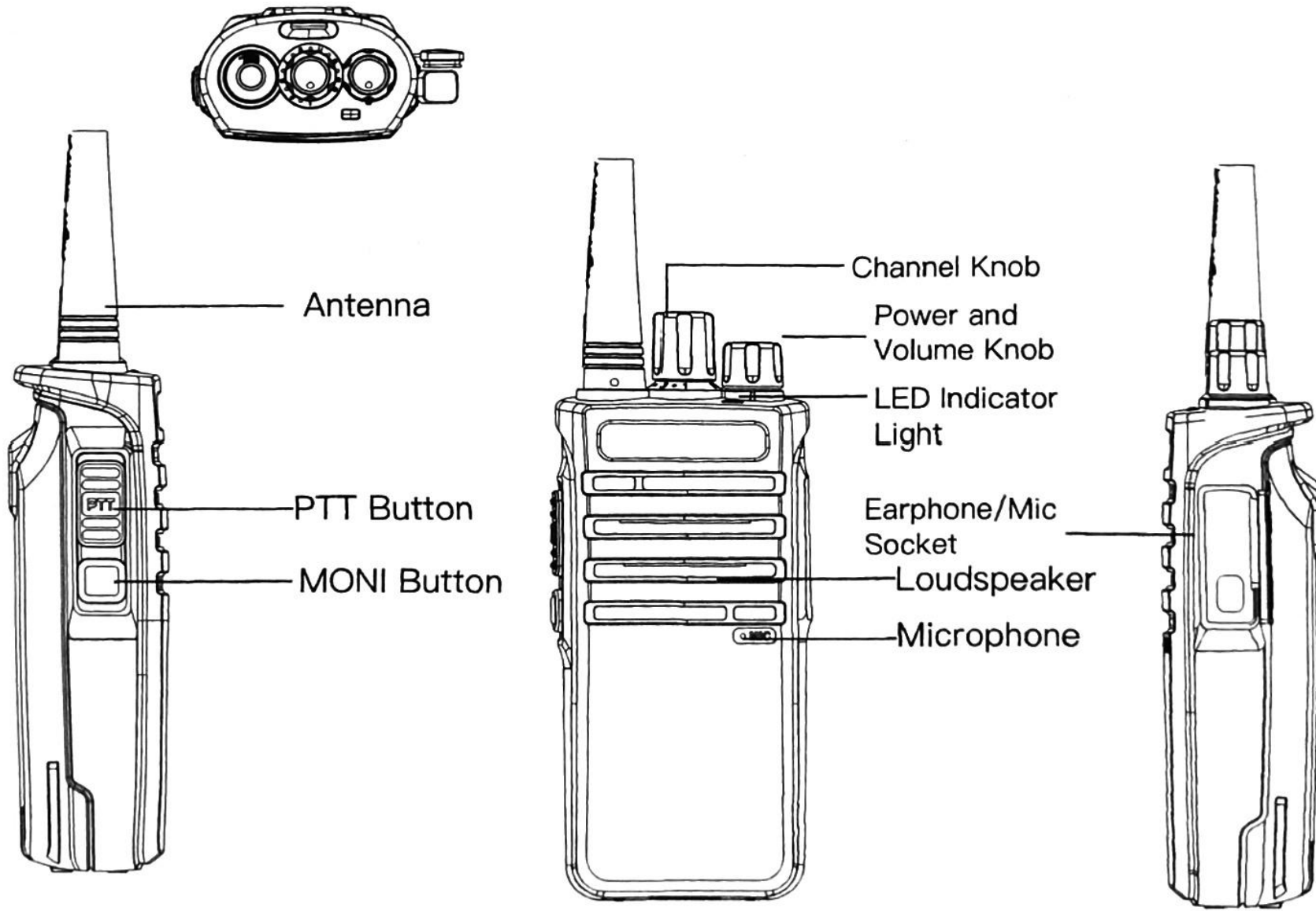
- 1、 Frequency: FM 87-108MHz(RX) UHF400-480 MHz (RX/TX)
- 2、 Up to 16 Channels
- 3、 FM Radio
- 4、 Chinese/English Language
- 5、 50 Groups CTCSS, 105 Groups of standard DCS
- 6、 Time-out timer(TOT)
- 7、 High/Low Power are optional
- 8、 Broad band/Narrow band
- 9、 Battery saving function
- 10、 VOX
- 11、 Busy Channel Lockout (BCL)
- 12、 Low Battery Voltage Warning
- 13、 Carrier mode to scan
- 14、 Channel information broadcast
- 15、 Frequency Hopping Techniques
- 16、 Programmable by PC

Please read the following information in order to use this two-way radio safely and efficiently.

1. The maintenance work of the two-way radio can only be carried out by professional technical personnel; assembly/dis assembly without permission is prohibited;
2. To avoid problems caused by electromagnetic interference and/or electromagnetic compatibility, please turn off the two-way radio in places with the sign "Please turn off two-way radio" , such as hospitals and other health care facilities.
3. When taking airplane, please turn off the two-way radio when the crew request.
4. In automobile with airbags, do not place the two-way radio in the inflation area of the airbags.
5. Turn off the two-way radio before entering the flammable and explosive environment;
6. Do not replace or charge the battery in flammable and explosive environments;
7. Turn off the two-way radio before approaching the blasting area and detonator area;
8. Do not use the two-way radio if the antenna is damaged, or else it may cause minor skin burns;
9. Do not expose the two-way radio to direct sunlight or near the heating device.
10. While the portable two-way radio is transmitting, keep the radio in a vertical position and keep the microphone about 5cm from the mouth.

11. Keep the two-way radio at least 2.5cm from the head or body during transmitting.
12. If you are wearing the portable two-way radio on your body, make sure that the antenna is at least 2.5cm away from the body when the two-way radio is transmitting.
13. If the two-way radio has any odor or smoke, turn off the power immediately and contact your dealer.

Familiar with the machine



Power and Volume Knob

Rotate the knob clockwise to turn the radio on or to increase the volume, and rotate the knob counter-clockwise to turn the radio off or to decrease the volume.

LED Indicator Light

The radio lights up red when it is transmitting and green when it is receiving. When the battery voltage is low, it flashes red.

Channel Knob

Rotate to select the appropriate channel.

PTT

When transmitting, press this button and speak to the microphone; release the button to receive.

MONI

Long press this key for turn on the monitor function;

In the shutdown state, press **【MONI】** key to turn on the radio power and the FM function will be turned on by the radio.

Earphone/Mic Socket

Connect to another purchased speaker/microphone.

Power on/off

To turn on the power, turn the **【Power and Volume】** knob clockwise until you hear a "click" sound and a short beep sounds. To turn off the radio, turn the knob counterclockwise until you hear a click.

Adjusting the Volume

After turning on, turn the **【Power and Volume】** knob clockwise to increase the reception volume, and turn counterclockwise to reduce the reception volume.

Selecting the Channel

Turn the **【Channel】** Knob to select your desired channel. The clockwise increase the channel number and counterclockwise reduce the channel number.

Squelch Level

The squelch level feature is used to mute the speaker when you have no signal. When squelch level is turned on, you will hear background noise from the speakers. When squelch level turned off, the speaker can't hear the background noise.

The squelch level you select determines where the squelch is turned off and on. If you

select a squelch level that is too high, you cannot receive a weak signal; if the squelch level you choose is too low, the signal will appear in the background noise.

- 1、 Use the computer to open the PC programming software, please select the model and click the model information, Then the software will pop up the model information dialog box, select the model and frequency range of the radio, and then select "OK".
- 2、 Please select "edit" and click the "optional function", the software will pop up a dialog box, and then select the squelch level (0 open ~9 highest), and select the level of the according local environment and generally choose "3". Then click "OK".
- 3、 Please connect the radio to the computer with the data line, then click "w" to pop up a dialog box to write data to the radio, and click "OK". The squelch level of the radio is completed. If the squelch level is changed, repeat the above steps.

Transmit the signal

- 1、 Press the **【PTT】** key and speak into the microphone.
 - (1) Please keep the microphone about 3–4cm away from your mouth.
 - (2) When the **【PTT】** key is pressed, the LED indicator lights up in red.
- 2、 Release the **【PTT】** key to receive.

Receive the signal

When you receive a signal in the current channel, the LED indicator light is green.

- If the received signal is weak and you have set a high squelch level for the radio, you may not be able to hear the signal.
- Your local dealer may set up QT/DQT signaling on your radio. When you select the channel where this feature is set, you will only hear signal from the same signaling. All other signal will not be heard.

Scan

The scanning is an effective function for monitor for signals over the radio channel. When scanning, the radio detects the signal of each channel and stops only on the channel with signal.

The radio will remain on the communication channel until the signal is lost. The scan will resume 5 seconds after the signal has disappeared, unless a new signal is detected within that delay.

Note:

- Only if the radio is programmed with two channels can the scan function be used. In addition, there must be at least two channels that are not set for scan deletion.

- Press and hold the **【M】** key to turn on radio, then radio turn on the scan function. The scan starts from the current channel, the signal light is flashing "green", and press the **【M】** key again to exit.
- A green light occurs when the scan is paused on a channel.
- At any time during the scan, press the **【PTT】** key to pause the scan. The radio returns to the channel on which the last received signal was transmitted. If a valid signal is received directly during the scan, it is returned to the start of the scan channel for transmission.

Scan mode: can be set by the PC programming software.

- 1、 In the time mode, after the radio scans the signal, the radio stays for 5 seconds and continues to scan.
- 2、 In the carrier mode, the radio will stop scanning when the signal is scanned, and continue scanning after the carrier signal is lost for 5 seconds.
- 3、 In the search mode, if the signal is scanned, the scan will be suspended, and if the green light slows down, the **【PTT】** key will be pressed to transmit the signal only on the channel currently scanned. In the pause scan state, press the **【F】** key again to continue the scan (the green light flashes quickly) until the scan the channel. After the signal is scanned, the voice prompts the scanned channel number.

4、 Press **【M】** to exit the scan.

FM Radio

Press and hold the **【MONI】** key to open the radio and enter the FM Radio state, then press the **【MONI】** key to search the station, and press the PTT to exit the FM radio.

Busy Channel Lockout(BCL)

To activate this function, when the channel is being used by other users, press **【PTT】** key, the radio will cannot transmit and "beep, beep" prompt sound;Then release the PTT to stop the alarm sound and return to the receiving mode.When the channel is idle, press the **【PTT】** key again and it can be transmitted.

Low Battery Voltage Warning

When the battery voltage drops, the radio voice prompts: "charge battery".You can continue to use the radio for a while, but overuse will drain the battery quickly. When the battery voltage is low , the radio is forbidden to transmit.Please charge or replace the battery pack at this time.

Automatic Battery Saving Function

The function can be set by PC programming software.

This function starts when the machine does not receive a signal or does not perform an operation for more than 5 seconds. The machine automatically stops this function when it receives a signal or performs an operation.

Channel information broadcast

If you want to know the transmitting and receiving frequencies of the current channel, you can press **【MONI】** and then press the **【PTT】** key.

Chinese/English voice prompts

In the CH15 channel by press **【PTT】** + **【MONI】** key to power on radio to switch Chinese and English

Monitor Function

You can use the **【MONI】** key to monitor for weak signals that are difficult to hear during normal operation, and you can adjust the volume when there is no signal in your selected channel.

VOX

Turn On and Off with PC programming software.

In the CH1 channel by press **【PTT】** + **【MONI】** key to power on radio.

Frequency Hopping Techniques

This function can be turned “ON” or “OFF” through the PC programming software. If you turn this function on, you can't talk to the radio that turns this function off.

Note: only channel added CTCSS and CDCSS are available.

Time-out timer(Turn On and Off with PC programming software)

The function of the time-out timer is to prevent the any calling party from using a channel too long and continuously.

You can set this function through the programmable by PC (time:30 seconds, 60 seconds, 90 seconds, 120 seconds, 150 seconds, 180 second). If you continue to transmit beyond the set time, the radio will stop transmitting and beep. Release the [PTT] button and radio will return to the receiving state after 5 seconds.

CTCSS (50 Group) /CDCSS(210 Group)

CTCSS/CDCSS is mainly used to avoid receiving unrelated calls on the same frequency. If CTCSS/CDCSS is set, only calls with the same tone signal set in the channel can be received within the effective communication range. However, if CTCSS/CDCSS signaling is not set up, all calls on the same channel in the valid communication range can be heard. The CTCSS/CDCSS can be set by write software or manually. You can set the parameters with PC programming software.

67.0	91.5	123.0	162.2	189.9	229.1
69.3	94.8	127.3	165.5	192.8	233.6
71.9	97.4	131.8	167.9	196.6	241.8
74.4	100.0	136.5	171.3	199.5	250.3
77.0	103.5	141.3	173.8	203.5	254.1
79.7	107.2	146.2	177.3	206.5	
82.5	110.9	151.4	179.9	210.7	
85.4	114.8	156.7	183.5	218.1	
88.5	118.8	159.8	186.2	225.7	

B. 数字亚音频DQT: (共 210个)

D023N	D074N	D165N	D261N	D356N	D462N	D627N
D025N	D114N	D172N	D263N	D364N	D464N	D631N
D026N	D115N	D174N	D265N	D365N	D465N	D632N
D031N	D116N	D205N	D266N	D371N	D466N	D645N
D032N	D122N	D212N	D271N	D411N	D503N	D654N
D036N	D125N	D223N	D274N	D412N	D506N	D662N
D043N	D131N	D225N	D306N	D413N	D516N	D664N
D047N	D132N	D226N	D311N	D423N	D523N	D703N
D051N	D134N	D243N	D315N	D431N	D526N	D712N
D053N	D143N	D244N	D325N	D432N	D532N	D723N
D054N	D145N	D245N	D331N	D445N	D546N	D731N
D065N	D152N	D246N	D332N	D446N	D565N	D732N
D071N	D155N	D251N	D343N	D452N	D606N	D734N
D072N	D156N	D252N	D346N	D454N	D612N	D743N
D073N	D162N	D255N	D351N	D455N	D624N	D754N

D023I	D074I	D165I	D261I	D356I	D462I	D627I
D025I	D114I	D172I	D263I	D364I	D464I	D631I
D026I	D115I	D174I	D265I	D365I	D465I	D632I
D031I	D116I	D205I	D266I	D371I	D466I	D645I
D032I	D122I	D212I	D271I	D411I	D503I	D654I
D036I	D125I	D223I	D274I	D412I	D506I	D662I
D043I	D131I	D225I	D306I	D413I	D516I	D664I
D047I	D132I	D226I	D311I	D423I	D523I	D703I
D051I	D134I	D243I	D315I	D431I	D526I	D712I
D053I	D143I	D244I	D325I	D432I	D532I	D723I
D054I	D145I	D245I	D331I	D445I	D546I	D731I
D065I	D152I	D246I	D322I	D446I	D565I	D732I
D071I	D155I	D251I	D343I	D452I	D606I	D734I
D072I	D156I	D252I	D346I	D454I	D612I	D743I
D073I	D162I	D255I	D351I	D455I	D624I	D754I

Technical Specification

General

Frequency range	UHF400-480MHz	Modulation type	16K ϕ F3E/11 K ϕ F3E
Memory channels	16 Groups	Maximum deviation(W/N)	$\leq 5\text{KHz}/\leq 2.5\text{KHz}$
Operation voltage	DC 7.4V	Spurious emission	$\leq 7.5\mu\text{W}$
Frequency stability	$\pm 2.5\text{ppm}$	Adjacent channel power	$\leq -65\text{dB}/\leq -60\text{dB SNR}$
Operation temperature	$-20^{\circ}\text{C}-+50^{\circ}\text{C}$		$\geq -45\text{dB}/\geq -40\text{dB}$
Antenna impedance	50 Ω	QT/DQT (W/N)	$0.7\pm 0.1\text{KHz}/0.4\pm 0.1\text{KHz}$
Mode of operation	Simplex at the same frequency or simplex at different frequency	Modulation sensitivity	8-12mV
		Transmission current	$\leq 1.7\text{A}$

Receiver

Sensitivity	-122dBm (12dB SINAD)	Audio distortion	$\leq 10\%$
Audio power	1W (8R Load)	Clutter suppression	$\geq 65\text{dB}$
Intermediation(W/N)	$\geq 65\text{dB}/\geq 60\text{dB}$	Receiver current	$\leq 380\text{mA}$
Adjacent channel selectivity(W/N)		$\geq 65\text{dB}/\geq 60\text{dB}$	

