

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.

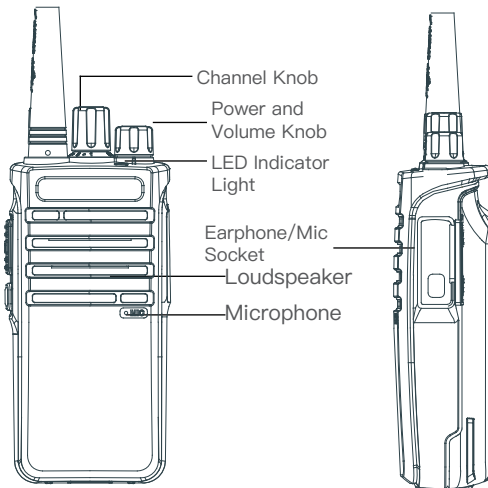
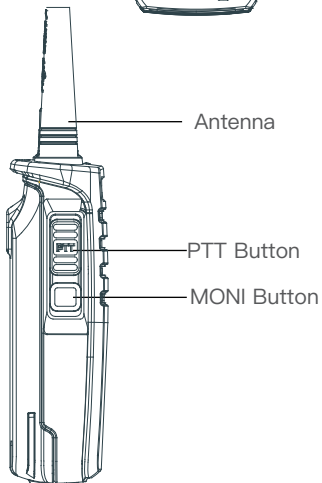
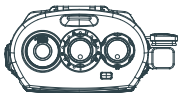
- 1、 Frequency: FM 87-108MHz(RX) UHF400–520 MHZ (RX/TX)
- 2、 Up to 16 Channels
- 3、 FM Radio
- 4、 Chinese/English Language
- 5、 50 Groups CTCSS, 105 Groups of standard DCS
- 6、 Time-out timer(TOT)
- 7、 High/Low Power are optional
- 8、 Broad band/Narrow band
- 9、 Battery saving function
- 10、 VOX
- 11、 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) /DCSS(210 Group)

CTCSS/DCSS is mainly used to avoid receiving unrelated calls on the same frequency. If CTCSS/DCSS is set, only calls with the same tone signal set in the channel can be received within the effective communication range. However, if CTCSS/DCSS signaling is not set up, all calls on the same channel in the valid communication range can be heard. The CTCSS/DCSS 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 |
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| 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 |

General

| | | | |
|-----------------------|-----------------------------------------------------------------|------------------------|-------------------------------------------|
| Frequency range | UHF400–520MHz | 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 0.1KHz/0.4 \pm 0.1KHz |
| 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) | | $\geq 65\text{dB}/\geq 60\text{dB}$ | |



RECYCLED PACKAGING